

# Chemical Engineering Vocabulary: Bilingual

With German translations

Maximilian Lackner



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# Chemical Engineering Vocabulary

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Chemical Engineering Vocabulary

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# About the book

The **Chemical Engineering Vocabulary** was written for students and young professionals in chemistry, mechanical engineering, chemical engineering and economics, who have to do with chemical engineering in an academic or industrial setting.

All entries come with a sentence, which shows the application and, in addition, provides a piece of relevant and interesting information. In contrast to common dictionaries, this book does not have trivial entries (e.g. filter/Filter, metal/Metall, vacuum/Vakuum, project/Projekt). Only terms that are relevant for work, 2600, were selected.

After studying these terms from the areas of chemistry, engineering and chemical engineering, supplemented by important entries from neighbouring disciplines such as pharmaceuticals, economics, law and safety, the reader will have a solid vocabulary at his/her disposal, so that he/she can communicate in all areas of the process industries in a competent way and make use of the scientific and technical literature efficiently.

**Note:** The second part of this book entitled “**Verfahrenstechnik Wortschatz**” can also be downloaded for free at [Bookboon.com](http://Bookboon.com).

# Chemical Engineering Vocabulary

<b>a.u.</b>		( <i>sci.</i> )
	<i>Acronym/Abbreviation referral: see arbitrary units</i>	
<b>A/P</b>		( <i>econ.</i> )
	<i>Acronym/Abbreviation referral: see accounts payable</i>	
<b>A/R</b>		( <i>econ.</i> )
	<i>Acronym/Abbreviation referral: see accounts receivable</i>	
<b>abrasive</b>	abrasiv; Schleifmittel, das Calcium carbonate can be used as abrasive, for example as “polishing agent” in toothpaste.	( <i>eng.</i> )
<b>absorbance</b>	Absorbanz, die In contrast to absorption, the absorbance $A$ is directly proportional to the concentration of the absorbing species. $A$ is calculated as $\ln(I_0/I)$ with $I_0$ being the initial and $I$ the transmitted light intensity, respectively.	( <i>chem.</i> )
<b>absorption</b>	Absorption, die The absorption of light is often called attenuation and must not be mixed up with adsorption, an effect at the surface of a solid or liquid. Absorption of liquids and gases means that they diffuse into a liquid or solid.	( <i>chem.</i> )
<b>abstract</b>	Zusammenfassung, die An abstract is a summary of a scientific piece of work.	( <i>sci.</i> )
<b>AC</b>		( <i>eng.</i> )
	<i>Acronym/Abbreviation referral: see alternating current</i>	
<b>academic</b>	Akademiker, der; akademisch The Royal Society, which was founded in 1660, was the first academic society.	( <i>sci.</i> )
<b>acceleration</b>	Beschleunigung, die In SI units, acceleration is measured in meters/second <sup>2</sup> .	( <i>eng.</i> )

<b>accompanying element</b>	Begleitelement, das After precipitation, the thallium had to be separated from the accompanying elements. Tl (atomic number 81) is highly toxic and can be found in rat poisons and insecticides.	(chem.)
<b>accounting</b>	Buchhaltung, die Working in accounting requires paying attention to details.	(econ.)
<b>accounts payable</b>	Schulden, die; Verbindlichkeiten, die <i>Acronym (engl.): A/P</i> The controller proposed to delay payment of accounts payable in order to have enough liquidity for another transaction.	(econ.)
<b>accounts receivable</b>	Außenstände, die; Forderungen, die; Debitorenkonto, das <i>Acronym (engl.): A/R</i> The young accountant was working with accounts receivable.	(econ.)
<b>accrual</b>	Abgrenzung, die; Rechnungsabgrenzung, die Accrual is an accounting concept to allocate expenses and revenue to the correct time. Here is an example: On December 20, 2009, a company delivered a product to a customer who was expected to pay 30 days later. Still, the income was disclosed in the income statement of 2009, although payment would only be received in the upcoming fiscal year.	(econ.)
<b>acetic acid</b>	Essigsäure, die The melting point of acetic acid is 16.5°C. The formula of this organic compound is CH <sub>3</sub> COOH.	(chem.)
<b>achromatic</b>	farblos, achromatisch An achromatic lens is used when color aberration needs to be avoided.	(chem.)
<b>acicular</b>	nadelförmig The MSDS (material safety data sheet) describes wollastonite as an acicular material.	(chem.)
<b>acid</b>	Säure, die A superacid is an acid that has a greater acidity than 100% sulfuric acid, such as fluorosulfuric acid (FSO <sub>3</sub> H).	(chem.)

<b>acid scavenger</b>	Säurefänger, der In the rubber industry, acid scavengers are used to neutralize traces of halogen anions (halogenides) which are released during aging and which would otherwise prematurely destroy material performance. Lead oxides and lead salts are very effective acid scavengers in this application, however, they are being phased out due to environmental concerns.	( <i>chem.</i> )
<b>acid value</b>	Säurezahl, die The acid value is an important quality parameter of biodiesel.	( <i>pharm., chem.</i> )
<b>acid-fast</b>	säurebeständig Acid-fast organisms are difficult to characterize using Gram staining.	( <i>pharm.</i> )
<b>acidify, to</b>	ansäuern The chemist acidified the sample by adding a few drops of prussic acid.	( <i>chem.</i> )
<b>acidulous</b>	säuerlich The apple had an acidulous taste.	( <i>chem.</i> )
<b>acme thread</b>	Trapezgewinde, das Acme threads can be found in machines that have to bear high loads such as a lathe or a vice.	( <i>eng.</i> )
<b>acrid</b>	beißend, scharf The acrid smoke from the wildfire could be smelled 10 km away.	( <i>chem.</i> )
<b>action level</b>	Aktionsschwellenwert, der The action level of formaldehyde was determined as 0.5 ppm.	( <i>chem. eng.</i> )
<b>action limit, action level</b>	Wirkgrenze, die The action limit of estradiol, a steroid that is derived from cholesterol, was found to be 0.04 µg/l in pigs.	( <i>pharm.</i> )
<b>action of a drug</b>	Arzneimittelwirkung, die The action of the drug was not yet fully understood.	( <i>pharm.</i> )

<b>activated charcoal, activated carbon</b>	Aktivkohle, die  Activated charcoal (activated carbon) is used for gas purification and sewage treatment.	( <i>chem.</i> )
<b>activation energy</b>	Aktivierungsenergie, die  The term “activation energy” was introduced in 1889 by Arrhenius. A catalyst changes the transition state to lower the activation energy. A biological catalyst is called enzyme.	( <i>chem.</i> )
<b>active compound</b>	wirksamer Bestandteil, der  Generic medicinal products contain the same active compounds as the original products.	( <i>pharm.</i> )
<b>active ingredient</b>	Wirksubstanz, die  A drug is normally not administered as a pure substance: The typical dosage form of a drug is a mixture of the active ingredient (AI) and at least one excipient, which is pharmaceutically inert. <i>Acronym (engl.): AI</i>	( <i>pharm.</i> )
<b>active pharmaceutical ingredient</b>	  <i>Acronym/Abbreviation referral: see active ingredient</i> <i>Acronym (engl.): API</i>	( <i>pharm.</i> )
<b>active substance</b>	Wirkstoff, der  <i>Acronym (engl.): API, AI</i>  Recent research results suggest that carnosic acid, the active substance in the herb rosemary is neuroprotective.	( <i>pharm.</i> )
<b>actuator</b>	Antrieb, der; Auslöser, der; Aktuator, der; Bedienungselement, das  The actuator did not work properly.	( <i>eng.</i> )
<b>actuator, actuating drive, servo drive</b>	Stellantrieb, der  A pneumatic actuator converts energy, typically in the form of compressed air, into motion, which can be rotary or linear.	( <i>eng.</i> )

<b>acute angle</b>	spitzer Winkel, der The word angle comes from the Latin word <i>angulus</i> , which means “corner”. An acute angle measures $< 90^\circ$ (right angle).	<i>(eng.)</i>
<b>addictive drug</b>	Suchtmittel, das A common addictive drug is nicotine. It constitutes approximately 0.6–3.0% of dry weight of tobacco. 1 cigarette yields approx. 1 mg of absorbed nicotine ((S)-3-(1- Methyl-2-pyrrolidiny)pyridine, $C_{10}H_{14}N_2$ ).	<i>(pharm.)</i>
<b>additive</b>	Zusatzstoff, der Plastics often contain slip agents as additives.	<i>(chem.)</i>
<b>adhere, to</b>	anhaften The charged particles adhered to the surface.	<i>(chem.)</i>
<b>adhesive</b>	Klebemittel, das; Klebstoff, der The company is specialized in the production of adhesives.	<i>(chem.)</i>
<b>adhesive tape</b>	Klebestreifen, der Adhesive tape is a convenient tool to fix loose cables.	<i>(chem.)</i>
<b>adiabatic</b>	adiabatisch, adiabat In an adiabatic process, no heat is transferred between the working fluid and the surroundings. The other extreme case is an isothermal process, where heat transfer to the surroundings causes the temperature to remain constant.	<i>(chem.)</i>
<b>adipose tissue</b>	Fettgewebe, das In a severely obese person, excess adipose tissue hanging downward from the abdomen is referred to as a panniculus (or pannus).	<i>(med.)</i>
<b>adjacent</b>	benachbart The researcher borrowed a beaker from the adjacent laboratory.	<i>(general)</i>
<b>adjust, to</b>	justieren, anpassen The color of the injection moulded part had to be adjusted.	<i>(general)</i>
<b>adjusting butterfly valve</b>	Stellklappe, die The adjusting butterfly valve was pneumatically actuated.	<i>(chem. eng.)</i>

<b>adjuvant</b>	Hilfsstoff, der In immunology, an adjuvant, e.g. aluminium salts, is an agent that increases the response to a vaccine.	( <i>pharm.</i> )
<b>administer, to</b>	verabreichen, verwalten The medicine was administered orally.	( <i>pharm.</i> )
<b>admixture</b>	Zusatz, der Ethanol is used as an admixture to gasoline fuel.	( <i>chem. eng.</i> )
<b>adsorption</b>	Adsorption, die Soot shows a strong adsorption of unburnt hydrocarbons.	( <i>chem.</i> )
<b>advanced</b>	fortgeschritten Corrosion of the vessel has advanced significantly after changing from tap water to condensate.	( <i>general</i> )
<b>advisory board</b>	Aufsichtsrat, der The advisory board insisted on a new strategy.	( <i>econ.</i> )



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## Chemical Engineering Vocabulary

<b>aerate, to</b>	belüften In a waste water purification plant, aeration is an important unit operation.	(chem.)
<b>aeration</b>	Belüftung, die; Begasung, die The clarifier was continuously subjected to aeration.	(chem. eng.)
<b>AFS</b>	<i>Acronym/Abbreviation referral: see alternative feed stock</i>	(chem. eng.)
<b>ageing</b>	Alterung, die <i>aging (AE)</i> Ageing is a deliberate process by which an artwork such as a painting is made to look old.	(eng.)
<b>agent</b>	Mittel, das The cleaning agent was not very effective.	(chem.)
<b>agglutination</b>	Verklebung, die; Agglutination, die Agglutination is the clumping of cells, e.g. bacteria or red blood cells, in the presence of an antibody. The technique is commonly used to identify bacterial antigens.	(pharm.)
<b>aggravate, to</b>	reizen, ärgern, verschlimmern, verstärken Persons in ill health where such illness would be aggravated by exposure to 1,3-butadiene should not be allowed to work with or handle this product.	(general)
<b>aggregated</b>	Summen-, aggregiert, Gesamt- The aggregated sales and operations planning for 2009 was finalized in the first week of December 2008.	(econ.)
<b>aggregated detriment</b>	Schadenssummierung, die The aggregated detriment amounted to 1.3 MEUR.	(econ.)
<b>agitate, to</b>	umrühren The solution had to be agitated in order to suspend the catalyst particles.	(chem.)
<b>agitator</b>	Rührer, der; Mischer, der; Agitator, der An agitator is a mechanism to put something into motion by shaking or stirring.	(chem. eng.)

<b>AI</b>		( <i>pharm.</i> )
	<i>Acronym/Abbreviation referral: see active ingredient</i>	
<b>aileron</b>	Querruder, das Ailerons are used to control the movement of aircraft.	( <i>eng.</i> )
<b>ailment</b>	Leiden, das The source of his ailment was unknown.	( <i>med.</i> )
<b>air</b>	Luft, die The main constituent of air is nitrogen.	( <i>chem.</i> )
<b>air classifier</b>	Windsichter, der An air classifier is used to separate materials by size, shape, and density. It is often used in recycling processes.	( <i>chem. eng.</i> )
<b>air cushion</b>	Luftkissen, das A hovercraft (or air cushion vehicle) is an amphibious vehicle.	( <i>eng.</i> )
<b>air draft</b>	Zugluft, die The air draft has carried dust into the lab.	( <i>chem.</i> )
<b>air knife</b>	Luftrakel, die An air knife is commonly used in strand pelletizing to dry the strands prior to cutting them into pellets.	( <i>eng.</i> )
<b>air lock</b>	Luftschleuse, die; Lufteinschluss, der; Luftverschluss, der; An air lock is gas trapped in a high point of a pipe that is filled with liquid. The gas, which has a lower density than the liquid, rises to the highest point and restricts the flow of that liquid. This air lock can stop the fluid flow completely. Flushing the system with high flow or pressure can help to move the gas away from the highest point, or a tap can be installed to vent the gas.	( <i>chem. eng.</i> )
<b>airborne</b>	in der Luft The Antonov An 225 has a maximum take-off weight of 640 tonnes. It was first airborne on 21 December 1988 (maiden flight).	( <i>eng.</i> )
<b>airlock</b>	Luftschleuse, die; Luke, die Airlocks are used on gloveboxes.	( <i>chem. eng.</i> )

<b>airworthy</b>	flugtauglich It is only permitted to fly airworthy aircraft.	(eng.)
<b>aka, a.k.a.</b>	<i>Acronym/Abbreviation referral: see also known as</i>	(general)
<b>alara</b>	<i>Acronym/Abbreviation referral: see as low as reasonably achievable</i>	(general)
<b>alkaline earth metal</b>	Erdalkalimetall, das Calcium belongs to the alkaline earth metals.	(chem.)
<b>alkaline metal</b>	Alkalimetall, das Sodium and potassium are two well-known alkaline metals.	(chem.)
<b>alkaline solution</b>	Lauge, die An alkaline solution is generally more dangerous for the human eye than an acid one.	(chem.)
<b>aldehyde</b>	Aldehyd, der Fehling's solution is used to differentiate between aldehydes and ketones. Contact with an aldehyde group causes the precipitation of red $\text{Cu}_2\text{O}$ .	(chem.)
<b>align, to</b>	ausrichten The engine needs to be aligned with the gearbox in order to prevent damage.	(eng.)
<b>alignment chart, nomograph, nomogram, abac</b>	Nomogramm, das  With a pressure-temperature nomograph, boiling points at various pressures can be estimated quickly.	(chem. eng.)
<b>allergen-desensitising treatment</b>	Desensibilisierungsbehandlung, die; Allergendesensibilisierungstherapie, die <i>allergen-desensitizing treatment (AE)</i> The man objected an allergen-desensitising treatment.	(general)
<b>allow to stand, to</b>	absetzen lassen The suspension was allowed to stand for 2 hours.	(chem.)

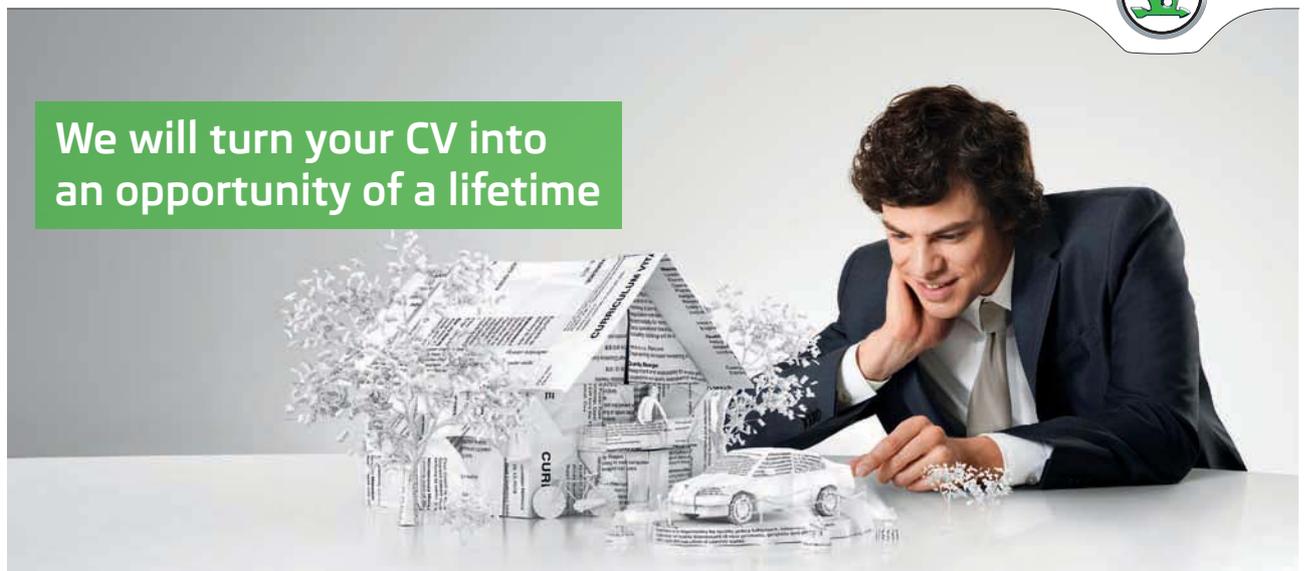
<b>alloy</b>	Legierung, die Chinese silver, an alloy for jewelry, is composed of 58% copper, 17.5% zinc, 11.5% nickel, 11% cobalt, and 2% silver. Brass is an alloy made from copper and zinc.	(eng., chem.)
<b>alloyed steel</b>	legierter Stahl, der Steel is an alloy made from iron and 0.02% to 1.7% carbon.	(eng.)
<b>alopecia, hair loss, loss of hair</b>	Haarausfall, der Iron deficiency, chronic poisoning by boron compounds and chemotherapy can lead to hair loss.	(pharm.)
<b>also known as</b>	auch bekannt unter, alias <i>Acronym (engl.): aka, a.k.a.</i> Formaldehyde (a.k.a. methanal), also exists as cyclic trimer (trioxane) and as oligomer (paraformaldehyde). In the case of longer chains, the term polyoxymethylene (POM, polyacetal, polyformaldehyde) is used. POM has the formula $(\text{OCH}_2)_n$ .	(general)

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<b>alternate stress</b>	Wechselbeanspruchung, die Reinforced concrete can withstand more alternate stress than unreinforced one.	(eng.)
<b>alternating current</b>	Wechselstrom, der <i>Acronym (engl.): AC</i> The voltage of AC can be changed with a transformer.	(eng.)
<b>alternative feedstock</b>	alternativer Rohstoff, der <i>Acronym (engl.): AFS</i> Sugarcane-based ethanol is an important AFS.	(chem. eng.)
<b>alum</b>	Alaun, der Alum crystals are easy to grow. The specific compound alum has the formula $KAl(SO_4)_2 \cdot 12H_2O$ . Alums have the stoichiometry $AB(SO_4)_2 \cdot 12H_2O$ .	(chem.)
<b>alumina</b>	Aluminiumoxid, das Alumina ( $Al_2O_3$ ) is made from bauxite.	(chem.)
<b>aluminium</b>	Aluminium, das <i>aluminum (AE)</i> <i>Acronym (engl.): Al</i> <i>Acronym (dt.): Al</i> Aluminium (atomic number 13) is appreciated for its ability to resist corrosion (due to passivation) and its low density of $2.7 \text{ g/cm}^3$ , compared to iron's of $7.87 \text{ g/cm}^3$ . The melting point of Al is $660^\circ\text{C}$ .	(chem.)
<b>amber</b>	Bernstein, der Real amber can be discerned from imitates by making the "lighter test".	(chem.)
<b>ambient</b>	Umgebungs - The vessel was only designed for ambient pressure.	(general)
<b>ambient air</b>	Umgebungsluft, die The ambient air carried a characteristic smell.	(chem.)
<b>ambient temperature</b>	Umgebungstemperatur, die The ambient air temperature is $20^\circ\text{C}$ .	(chem.)

<b>amendment</b>	Abänderung, die; Ergänzung, die An amendment to the contract was considered.	(econ.)
<b>American Society for Testing and Materials</b>	ASTM, Amerikanische Gesellschaft für Werkstoffprüfung, die  <i>Acronym (engl.): ASTM</i> The pipes were manufactured according to ASTM standards.	(eng.)
<b>amino acid</b>	Aminosäure, die In chemistry, an amino acid is a molecule which contains both amine and carboxyl functional groups. In biochemistry, this term is more specific and describes alpha-amino acids with the general formula $\text{NH}_2\text{-CHR-COOH}$ with R being an organic substituent.	(chem.)
<b>ammeter</b>	Amperemeter, das An ammeter is an instrument to measure the electric current in a circuit, the SI unit of which is amperes (A).	(eng.)
<b>amorphous</b>	amorph Polypropylene (PP) can be crystalline and amorphous.	(chem.)
<b>amplification</b>	Verstärkung, die The electronic circuit provided an amplification factor of $10^4$ .	(eng.)
<b>amplifier</b>	Verstärker, der An amplifier can add noise to a signal.	(eng.)
<b>ampoule</b>	Ampulle, die Ampoules protect hypodermic solutions or high purity chemicals from air.	(pharm.)
<b>analgesic, analgetic</b>	schmerzstillend, Schmerzmittel, das Analgesia are drugs that relieve pain. Paracetamol (acetaminophen, $\text{C}_8\text{H}_9\text{NO}_2$ ) is a widely-used analgesic. It can be derived from coal tar.	(pharm.)
<b>analog</b>	analog The primary disadvantage of analog signals, as opposed to digital ones, is that they carry noise.	(eng.)

<b>analysis</b>	Analyse, die Wet chemical analysis is increasingly replaced by laser-based online measurements.	(chem.)
<b>analytical balance</b>	Analysenwaage, die An analytical balance requires proper maintenance.	(chem.)
<b>anchor</b>	Anker, der; Bolzen, der There are two operating principles of ship anchors: They can fix the position of a ship by their sheer mass or by hooking into the seabed.	(eng.)
<b>anchor bolt</b>	Dübel, der; Ankerbolzen, der; Ankerschraube, die Badly visible anchor bolts in the ground can be a tripping hazard in a production plant.	(eng.)
<b>ancillary unit, auxiliary unit</b>	Hilfsaggregat, das; Nebenaggregat, das The ancillary units account for 15% of the total investment costs.	(eng.)

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<b>anesthetic</b>	Anästhetikum, das; Narkotikum, das; Betäubungsmittel, das Butorphanol ( $C_{21}H_{29}NO_2$ ) is an anesthetic that is rarely used in people, but commonly in animals.	( <i>pharm.</i> )
<b>angle of incidence, incident angle</b>	Einfallswinkel, der  The incident angle equals the emergent angle.	( <i>eng.</i> )
<b>angle of repose</b>	Schüttwinkel, der The angle of repose of that material is 42°.	( <i>chem. eng.</i> )
<b>angle seat valve</b>	Schrägsitzventil, das The angle seat valve was made from stainless steel.	( <i>chem. eng.</i> )
<b>angular minute, minute of arc</b>	Winkelminute, die  1 minute of arc is 1/60 of 1 degree.	( <i>eng.</i> )
<b>anhydrous</b>	wassersfrei Anhydrous ethanol ( $C_2H_5OH$ ) is called "absolute alcohol".	( <i>chem.</i> )
<b>anion</b>	Anion, das $SO_4^{2-}$ (sulfate) is an anion. The S-O bond length is 149 pm.	( <i>chem.</i> )
<b>anneal, to</b>	anlassen, tempern, vergüten Annealing is a heat treatment method in metallurgy by which internal stresses in the material can be relieved.	( <i>eng.</i> )
<b>annealing furnace</b>	Glühofen, der The annealing furnace had a setpoint of 950°C.	( <i>chem.</i> )
<b>annular</b>	ringförmig Benzene ( $C_6H_6$ ) is an annular molecule.	( <i>chem.</i> )
<b>annular gap scrubber</b>	Ringspaltwäscher, der He developed an annular gap scrubber for the scrubbing of blast furnace gases with water.	( <i>chem. eng.</i> )

<b>anodised</b>	<p>eloxiert <span style="float: right;">(chem.)</span>  <i>anodized (AE)</i>                      Anodised aluminium carries a protective layer of <math>\text{Al}_2\text{O}_3</math> which prevents further oxidation.</p>
<b>anti fouling agent</b>	<p>Anti-Belagbildungs -Zusätze, die <span style="float: right;">(chem. eng.)</span>                      The operator poured a container of anti fouling agent into the cooling water tank.</p>
<b>antibiotic</b>	<p>Antibiotikum, das <span style="float: right;">(pharm.)</span>                      Antibiotics act against microorganisms such as bacteria, fungi or protozoa.</p>
<b>anticonvulsant</b>	<p>krampflösend; Antikrampfmittel, das <span style="float: right;">(pharm.)</span>                      Some sulfonamides (<math>\text{R}-\text{S}(=\text{O})_2-\text{NH}_2</math>) have anticonvulsant properties.</p>
<b>antidote</b>	<p>Gegengift, das; Gegenmittel, das <span style="float: right;">(pharm.)</span>                      In case of a cyanide poisoning, amyl nitrite (3-methyl-1-nitrosooxybutane, <math>\text{C}_5\text{H}_{11}\text{ONO}</math>), sodium nitrite (<math>\text{NaNO}_2</math>) or sodium thiosulfate (<math>\text{Na}_2\text{S}_2\text{O}_3</math>) are used as antidote.</p>
<b>antiemetic</b>	<p>Antiemetikum, das; Mittel gegen Erbrechen, das <span style="float: right;">(pharm.)</span>                      An antiemetic is a drug that is effective against vomiting and nausea.</p>
<b>antihistamine</b>	<p>Antihistaminikum, das <span style="float: right;">(pharm.)</span>                      A common adverse effect (side effect) of antihistamines is sedation.</p>
<b>anti-inflammatory</b>	<p>entzündungshemmend <span style="float: right;">(pharm.)</span>                      The application of ice to tissue injuries shows anti-inflammatory effects.</p>
<b>antiknock fuel</b>	<p>klopffester Treibstoff, der <span style="float: right;">(eng.)</span>                      Due to its detrimental effects on the environment, lead is no longer used in antiknock fuels.</p>
<b>antimony</b>	<p>Antimon, das <span style="float: right;">(chem.)</span>  <i>Acronym (engl.): Sb</i>  <i>Acronym (dt.): Sb</i>                      The metalloid antimony (Sb) is no longer used in flame retardants and anti-fouling coatings on ships.</p>

- antioxidant** Anti-Oxidanz, das (chem.)  
Antioxidants are often reducing agents such as thiols (mercaptans, R-SH) or polyphenols. Vitamin E is used as an antioxidant in polyethylene (PE). Vitamin E is the collective name for a group of 8 related tocopherols and tocotrienols.
- antipyretic** fiebersenkend; Fiebermittel, das (pharm.)  
Paracetamol (acetaminophen,  $C_8H_9NO_2$ ), is an analgesic and antipyretic medication with wide usage.
- antiseptic** Antiseptikum, das; antiseptisch (pharm.)  
Antiseptics are antimicrobial substances which are applied to living tissue (skin) to reduce the possibility of infections. They should be distinguished from antibiotics, which destroy bacteria within the body, and from disinfectants, which destroy microorganisms on surfaces of non-living objects.
- antistatic agent** Antistatik-Zusatz, der (chem.)  
Antistatic agents such as glycerine-monostearate (GMS) increase the electrostatic surface conductivity of polyolefins, thereby eliminating charge build-up and dust collection.

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## Chemical Engineering Vocabulary

<b>anvil</b>	Amboß, der The anvil was too heavy for one person to lift.	(eng.)
<b>aperture</b>	Lochblende, die; Öffnung, die Lasers can be used to create small, symmetric apertures.	(eng.)
<b>apex</b>	Scheitelpunkt, der; Gipfel, der; Spitze, die It is assumed that Tyrannosaurus is an extinct apex predator.	(eng.)
<b>API</b>	<i>Acronym/Abbreviation referral: see active pharmaceutical ingredient</i>	(pharm.)
<b>apolar</b>	unpolar Hydrocarbons, in contrast to water, are apolar liquids.	(chem.)
<b>apparent density</b>	Rohdichte, die The apparent density of a sample can be defined as: mass divided by volume, including both permeable and impermeable voids normally present in the material. Density > apparent density > bulk density.	(eng.)
<b>apparent power</b>	Scheinleistung, die When the impedance is a pure resistance, the apparent power equals the real power.	(eng.)
<b>appliance</b>	Anwendung, die; Apparat, der; Haushaltsgerät, das A coffee grinder is a typical kitchen appliance.	(general)
<b>application</b>	Anwendung, die After its invention, the laser was seen as a “solution looking for an application”.	(general)
<b>applied chemistry</b>	angewandte Chemie, die IUPAC is an acronym and stands for “International Union of Pure and Applied Chemistry”.	(chem.)
<b>apply, to</b>	auftragen, anwenden He applied the ointment to the wound.	(general)
<b>apprentice</b>	Lehrling, der An apprentice should learn a profession from the basics.	(general)

<b>apprenticeship</b>	<p>Lehre, die</p> <p>A typical apprenticeship lasts three years.</p>	<i>(general)</i>
<b>appurtenances</b>	<p>Grundstückszubehör, das; Zubehör, das</p> <p>The piece of land was offered including all appurtenances.</p>	<i>(eng.)</i>
<b>aqua fortis</b>	<p>Scheidewasser, das</p> <p>Aqua fortis, which is actually a solution of HNO<sub>3</sub> (nitric acid) in water, was used by alchemists to separate gold from silver.</p>	<i>(chem.)</i>
<b>aqua regia</b>	<p>Königswasser, das</p> <p>Aqua regia can dissolve gold. It is prepared by mixing concentrated nitric acid and concentrated hydrochloric acid in the ratio 1:3.</p>	<i>(chem.)</i>
<b>aqueous</b>	<p>wässrig</p> <p>An aqueous solution of the drug was prepared.</p>	<i>(chem.)</i>
<b>arbitrary units</b>	<p>beliebig gewählte Skala, die</p> <p><i>Acronym (engl.): a.u.</i></p> <p>The laser power as a function of injection current was depicted in arbitrary units.</p>	<i>(sci.)</i>
<b>arc</b>	<p>Bogen, der</p> <p>Mathematically, an arc can be defined as a closed segment of a differentiable curve in a two-dimensional plane.</p>	<i>(eng.)</i>
<b>arc minute</b>	<p>Bogenminute, die</p> <p>In cartography, 1 arc minute at sea level equals approx. 1.86 km or 1.15 miles, which is close to 1 nautical mile (1852 m).</p>	<i>(eng.)</i>
<b>area classification, hazardous area classification</b>	<p>Einteilung in Ex -Zonen, die</p> <p>During (hazardous) area classification, it became evident that the warehouse is a zone 22.</p>	<i>(chem. eng.)</i>
<b>arm saw</b>	<p>Handsäge, die</p> <p>An arm saw can be used to cut down a tree.</p>	<i>(eng.)</i>

<b>arsenic</b>	Arsen, das <i>Acronym (engl.): As</i> <i>Acronym (dt.): As</i> In the past, arsenic was illicitly fed to horses to make them appear healthy before being sold.	(chem.)
<b>articulated lorry</b>	Auflieger, der; Sattelanhänger, der <i>semi-trailer (AE)</i> An articulated lorry is a trailer without a front axle.	(econ.)
<b>artificial</b>	künstlich Artificial lubricants generally have a tighter specification than petroleum – derived ones.	(general)
<b>as low as reasonably achievable</b>	so niedrig wie sinnvollerweise erzielbar (chem.)  <i>Acronym (engl.): alara</i> The MSDS suggests exposure to the chemical as alara.	

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## Chemical Engineering Vocabulary

<b>asbestos</b>	Asbest, der The use of asbestos has been reduced because of its carcinogenic effects.	(chem.)
<b>as-built</b>	wie errichtet The as-built documentation was handed over to the client 1 month after startup.	(chem. eng.)
<b>as-built documentation</b>	Dokumentation der tatsächlichen Ausführung, die The as-built documentation was incomplete because the project budget was used up.	(eng.)
<b>as-built drawing</b>	Ausführungszeichnung, die; Bauzeichnung, die The as-built drawing was handed over to the client.	(eng.)
<b>ascorbic acid</b>	Ascorbinsäurem, die The L-enantiomer of ascorbic acid ( $C_6H_8O_6$ ) is commonly known as vitamin C.	(chem.)
<b>aseptic</b>	steril, keimfrei Aseptic packaging is a key requirement in the food industries.	(pharm.)
<b>asphyxiant</b>	erstickend By replacing breathable oxygen, nitrogen is asphyxiant. The earth's atmosphere contains 79% of asphyxiant gases (mainly $N_2$ and Ar).	(chem.)
<b>aspirate, to</b>	absaugen The aspiration system was designed for zone 20.	(eng.)
<b>assembly</b>	Montage, die; Zusammenbau, der Assembly of the ladder was more complicated than indicated by the instruction manual.	(eng.)
<b>assets</b>	Anlagegüter, die; Anlagevermögen, das Assets are depreciated over their lifetime.	(econ.)
<b>assignment</b>	Einsatz, der; Arbeitseinsatz, der She was on a 2-year assignment in Canada.	(econ.)
<b>assort, to</b>	sortieren, zusammenstellen The samples were assorted in the correct order.	(eng.)

<b>ASTM</b>		(eng.)
	<i>Acronym/Abbreviation referral: see American Society for Testing and Materials</i>	
<b>atomic bond</b>	Atombindung, die Atomic bonds are also called valence bonds.	(chem.)
<b>atomic core</b>	Atomkern, der The atomic core is composed of protons and neutrons.	(chem.)
<b>atomic nucleus</b>	Atomkern, der Isotopes have different atomic nuclei.	(chem.)
<b>atomic transmutation</b>	Atomumwandlung, die Atomic transmutation has not only captured the attention of alchemists.	(chem.)
<b>atomise, to</b>	zerstäuben <i>atomize, to (AE)</i> Ultrasound can be used to improve the atomizing effect of a nozzle.	(eng.)
<b>attenuate, to</b>	abschwächen The light beam was attenuated by the sample.	(general)
<b>attenuation</b>	Abschwächung, die Radioactive level measurements are based on the attenuation of radiation when passing through a sample.	(general)
<b>attraction</b>	Anziehung, die Hygroscopic materials exhibit a strong attraction of water.	(chem.)
<b>attrition</b>	Abrieb, der Attrition from machinery can lead to product contamination.	(eng.)
<b>audible</b>	hörbar Hearing protection should be constructed in a way that a human voice is still audible.	(eng.)
<b>audit</b>	Betriebsprüfung, die Plant audits by customers can be scheduled at short notice.	(econ.)

<b>automation</b>	Automation, die; Automatisierung, die The plant has a high degree of automation.	(eng.)
<b>auxiliaries</b>	Hilfseinrichtungen, die; Nebenaggregate, die The energy efficiency study revealed that the auxiliaries were consuming 40% of the electricity.	(eng.)
<b>availability</b>	Verfügbarkeit, die The availability of spare parts in remote operations needs to be considered.	(eng.)
<b>avoirdupois ounce</b>	<i>Acronym/Abbreviation referral: see ounce Acronym (engl.): oz</i>	(eng.)
<b>axis</b>	Achse, die The engineer turned the wheel around its axis.	(eng.)
<b>axle</b>	Radachse, die The maximum load on each axle is 3 tons.	(eng.)



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<b>babbit, babbit metal</b>	Lagermetall, das Bush bearings are often made from babbit or graphite.	(chem.)
<b>back flushing filter, back flush filter</b>	Rückspülfilter, der The back flush filter was activated every 15 min.	(chem. eng.)
<b>back pressure</b>	Gegendruck, der A flare creates backpressure which must be overcome.	(eng.)
<b>backdraft</b>	Rauch(gas)durchzündung, die; Rauchgasexplosion, die; Backdraft, der A backdraft is a situation which can occur when a fire is starved of oxygen; consequently combustion stops, but the fuel gases and smoke remain at high temperature. If oxygen then reaches the fire, e.g. by opening a door, combustion can restart. This can occur in an explosive way as the gases are heated up rapidly and expand.	(chem.)
<b>backlog</b>	Auftragsüberhang, der; Aufholbedarf, der; Arbeitsrückstand, der After his holidays, there was a huge backlog.	(general)
<b>bactericidal</b>	bakterizid The hypochlorite ion ( $\text{ClO}^-$ ), a strong oxidizer, has bactericidal properties.	(pharm.)
<b>baffle</b>	Leitblech, das; Prallblech, das; Ablenklech, das The acoustic baffle could reduce the noise by 3 dB(A).	(eng.)
<b>baffle, baffle plate</b>	Prallplatte, die Baffles, which act as counterpart to stirrers, are often used in reactors to divert a process flow.	(eng.)
<b>balance</b>	Waage, die The resolution of the balance is 0.1 mg.	(chem.)
<b>balance</b>	Bilanz, die The mass balance was wrong.	(econ.)

<b>balance sheet, statement of financial position</b>	Bilanz, die	( <i>econ.</i> )
	A balance sheet or statement of financial position lists all assets and liabilities of a corporation at a specific date. Also, the ownership (debt vs. equity) is disclosed.	
<b>ball and socket joint</b>	Kugelgelenk, das	( <i>eng.</i> )
	Laboratory glassware can have conically tapered joints or, like bones, ball and socket joints, where the ball-shaped end of one piece fits into the cuplike depression of the counterpart.	
<b>ball bearing</b>	Kugellager, das	( <i>eng.</i> )
	The reason for the damage to the ball bearing could not be determined.	
<b>ball condenser</b>	Kugelkühler, der	( <i>chem.</i> )
	For the synthesis of his new herbicide, he was looking for an additional ball condenser.	
<b>ball indentation hardness</b>	Kugeleindruckhärte, die	( <i>eng.</i> )
	Vickers and Brinell hardness tests are more common than the ball indentation hardness.	
<b>ball mill</b>	Kugelmühle, die	( <i>eng.</i> )
	To grind black powder in a ball mill, non-sparking lead, antimony, brass, or bronze grinding media are used.	
<b>ball screw</b>	Kugelgewindespindel, die	( <i>eng.</i> )
	With a ball screw, rotational motion can be translated into linear motion.	
<b>ball valve</b>	Kugelhahn, der; Kugelventil, das	( <i>chem. eng.</i> )
	A ball valve is a valve that opens by turning a handle attached to a ball inside the valve, which has a hole (port) in the middle. Ball valves are reliable. They achieve perfect shutoff even after years of disuse.	
<b>band saw</b>	Bandsäge, die	( <i>eng.</i> )
	The band saw was suitable to cut down the wood.	

<b>bar</b>	Stab, der; Stange, die The crane driver lifted the bar from the ground.	(eng.)
<b>bar absolute</b>	Absolutdruck in bar, der <i>Acronym (engl.): bara</i> The instrument reading was 2 bara (1 bar = 100 kPa).	(eng.)
<b>bar chart, bar graph</b>	Balkendiagramm, das The scientist used a bar chart to display the particle size distribution.	(sci.)
<b>bar gauge</b>	bar Überdruck <i>Acronym (engl.): barg</i> There is no fixed conversion factor from barg to bara as atmospheric pressure changes daily in a range of approx. 50 mbar. By adding 1000 mbar to a barg reading, the bara value will be accurate within typically +/- 50 mbar.	(eng.)
<b>bara</b>	<i>Acronym/Abbreviation referral: see bar absolute</i>	(eng.)

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<b>barbed hook</b>	Widerhaken, der The fisherman caught the bass with a barbed hook.	(eng.)
<b>barbed wire</b>	Stacheldraht, der Barbed wire was installed around the entire site.	(eng.)
<b>barg</b>	<i>Acronym/Abbreviation referral: see bar gauge</i>	(eng.)
<b>barrier fluid</b>	Sperrflüssigkeit, die The service technician had forgotten to refill the barrier fluid.	(eng.)
<b>barrier layer</b>	Grenzschicht, die; Barrierschicht, die Carbonated soft drinks cannot be stored in PP bottles, because a barrier layer for CO <sub>2</sub> is missing.	(chem.)
<b>basal</b>	grundlegend, fundamental, basal Basal tears contain water, mucin, lipids, lysozyme, immunoglobulins, glucose, urea, sodium, and potassium. Lysozyme fights bacterial infections by dissolving the outer coating of certain bacteria.	(pharm.)
<b>base face</b>	Auflagefläche, die The base face of the machine is 45 m <sup>2</sup> .	(eng.)
<b>base metal</b>	unedles Metall, das Base metals like iron, nickel or lead react with diluted hydrochloric acid under hydrogen formation.	(chem.)
<b>basement</b>	Sockel, der The basement cannot be made from concrete.	(eng.)
<b>basement</b>	Keller, der; Kellergeschoss, das Hotel rooms in the basement are not so popular.	(general)
<b>basic chemicals</b>	Grundchemikalien, die Many basic chemicals are produced from petroleum.	(chem.)
<b>basic engineering</b>	Basic Engineering, das; Vorplanung, die; Entwurfsplanung, die The result of Basic Engineering was a cost estimation of +/- 10% accuracy.	(chem. eng.)

<b>basic flux</b>	basisches Flussmittel, das The basic flux-cored wire is suitable for welding non-alloyed steel.	(eng.)
<b>basic research</b>	Grundlagenforschung, die Basic research is done at universities.	(sci.)
<b>batch</b>	diskontinuierlich, Stapel, der; Ansatz, der; Charge, die The color batch had to be discarded.	(chem. eng.)
<b>batch furnace</b>	Ofen mit satzweiser Beschickung, der The batch furnace has a residence time of 45 min.	(eng.)
<b>batch operation</b>	Chargenbetrieb, der Batch operations are characterized by frequent reactor cleaning periods.	(chem. eng.)
<b>batch release</b>	Chargenfreigabe, die The results of mechanical testing had to be awaited for the batch release.	(chem. eng.)
<b>batch tracking</b>	Chargenrückverfolgbarkeit, die Many customers require batch tracking of their suppliers' raw materials.	(econ.)
<b>battery back-up</b>	Pufferbatterie, die Backup batteries (Battery back-ups) are almost always used in burglar alarms.	(eng.)
<b>battery limits</b>	Anlagengrenze, die The reactor inlet and the dryer outlet were defined as battery limits.	(chem. eng.)
<b>beaker</b>	Becherglas, das The student rinsed the beaker.	(chem.)
<b>bearing</b>	Lager, das Breakage of the bearing was the suspected reason for the fire.	(eng.)
<b>bearing clearance</b>	Lagerspiel, das The clearance of the bearing has reached an unacceptable level.	(eng.)
<b>bearing rod</b>	Tragstange, die The bearing rod exhibits strong deformations.	(eng.)

<b>bedrock</b>	Felsboden, der; Grundgestein, das The bedrock consists of granite (an igneous rock) in that area.	(general)
<b>bee venom</b>	Bienengift, das Apitoxin, or honey bee venom, is a bitter colorless liquid. The active substance of the venom is a complex mixture of proteins. The main component is melittin, a peptide consisting of 26 amino acids.	(chem.)
<b>beech</b>	Buche, die Beech grows on a wide range of soils as long as they are not waterlogged.	(general)
<b>behind-the-counter</b>	apothekenpflichtig <i>Acronym (engl.): BTC</i> This product is a behind-the-counter drug.	(pharm.)
<b>belt drive</b>	Bandantrieb, der; Keilriemenantrieb, der The belt drive did not have to be renewed for 5 years.	(eng.)
<b>bench</b>	Werkbank, die The master showed his apprentice how to use a bench.	(eng.)



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<b>benchmark</b>	Bezugspunkt, der; Maßstab, der; Vergleich, der The investment was benchmarked against previous projects.	(general)
<b>bend, to</b>	biegen (bog, gebogen) When plastics are bent, white fraction can be observed.	(eng.)
<b>benign</b>	gutartig, gutmütig The tumor was found to be benign, i.e. it did not grow aggressively, it did not invade the surrounding tissue and it did not metastasize.	(pharm.)
<b>benzene</b>	Benzen, das; Benzol, das Petrol station-grade gasoline can contain 3% of benzene (C <sub>6</sub> H <sub>6</sub> ), which is a carcinogen.	(chem.)
<b>benzocaine</b>	Benzokain, das; Benzocain, das Benzocaine (C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> ) is a local anesthetic commonly used as a topical pain reliever. It is the active ingredient in some over-the-counter ointments.	(chem.)
<b>bezel</b>	Einfassung, die; Lünette, die Jewels can be fastened by bezels.	(eng.)
<b>bid</b>	Gebot, das; Angebot, das The procurement specialist compared the 3 bids.	(econ.)
<b>bidistilled</b>	doppelt destilliert Bidistilled water was commonly used in HPLC, but is now replaced by e.g. milliq™ water due to more reproducible results.	(chem.)
<b>big bag, flexible intermediate bulk container</b>	Big Bag, der; Großgebinde, das  <i>super sack (AE)</i> <i>Acronym (engl.): FIBC Acronym (dt.): FIBC</i> Big bags are soft containers of textile material. With a capacity of up to 3m <sup>3</sup> and load capability between 0.5 and 2 tonnes, FIBCs can be used for the transportation and storage of many free-flowing materials such as granules, powders, pellets or flakes.	(chem. eng.)

<b>bile</b>	Galle, die; Gallenflüssigkeit, die Bile from slaughtered animals can be mixed with soap to obtain bile soap, an effective agent to remove stains in textiles.	(chem.)
<b>biliously green</b>	giftgrün The liquid looked biliously green.	(chem.)
<b>bill of materials</b>	Stückliste, die; Materialliste, die <i>Acronym (engl.): BOM</i> The assistant typed the bill of materials into a list on the PC.	(econ.)
<b>billing</b>	Abrechnung, die; Fakturierung, die Sophie was responsible for the billing.	(econ.)
<b>bimodal</b>	bimodal Bimodal plastics show both adequate processing characteristics (low molecular weight fraction) and good mechanical performance (high molecular weight fraction).	(chem.)
<b>binding agent</b>	Bindemittel, das An oil binding agent helps contain a spill.	(chem.)
<b>bioessay</b>	biologischer Test, der Bioassays show a high sensitivity and selectivity.	(chem.)
<b>biodegradable</b>	biologisch abbaubar Polyhydroxyalkanoates (PHA) are biopolymers which are completely biodegradable. These compounds are linear polyesters produced by bacterial fermentation of sugar or lipids.	(chem.)
<b>biodegradable plastics</b>	biologisch abbaubare Kunststoffe, die The restaurant chain has used cutlery made from biodegradable plastics based on starch for several years.	(chem. eng.)
<b>bioreactor</b>	Bioreaktor, der A bioreactor is an apparatus used to carry out any kind of bioprocess. A fermenter is an example.	(chem. eng.)

<b>birefringence</b>	Doppelbrechung, die Birefringence can be observed in anisotropic materials such as crystals of calcite or boron nitride.	(eng.)
<b>bivalent</b>	zweiwertig Calcium forms bivalent ions.	(chem.)
<b>black liquor</b>	Schwarzlauge, die A paper factory has successfully built a plant to burn black liquor and to use the generated heat.	(chem.)
<b>blade</b>	Klinge, die The blade of a knife can be sharpened by grinding.	(eng.)
<b>blank experiment</b>	Blindprobe, die A blank experiment can detect instrument drift.	(eng.)
<b>blank value</b>	Blindwert, der; Blindprobe, die The blank value was recorded in the lab journal.	(eng.)

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<b>blanket, to</b>	überlagern, beschleiern Nitrogen blanketing of a vessel can prevent the formation of explosive atmospheres.	(chem.)
<b>blast furnace</b>	Hochofen, der In a blast furnace, $\text{Fe}_2\text{O}_3$ is reduced to Fe.	(chem.)
<b>blast furnace gas</b>	Gichtgas, das Blast furnace gas is rich in $\text{CO}_2$ .	(chem.)
<b>blasting</b>	Sprengung, die Blasting activities in a quarry need to be well planned.	(eng.)
<b>blasting agent</b>	Sprengstoff, der Blasting agents are capable of developing a high amount of heat and gas within a short period of time.	(chem.)
<b>blasting fuse</b>	Zündschnur, die Blasting fuses are sensitive to moisture.	(chem.)
<b>bleaching agent</b>	Bleichmittel, das Bleaching agents are used in the pulp and paper industry.	(chem.)
<b>bleed valve</b>	Entlüftungsventil, das; Ablassventil, das Needle valves are frequently used as bleed valves in hot water heating applications.	(chem. eng.)
<b>blemish</b>	Fehler, der Customers generally do not accept visible surface blemishes.	(eng.)
<b>blind flange, black flange, dummy flange, blank flange</b>	Blindflansch, der  The pipeline was terminated by a blank flange.	(eng.)
<b>block and bleed valve</b>	Block-and-Bleed Ventil, das The block and bleed valve was checked by a maintenance engineer.	(chem. eng.)

<b>block and tackle</b>	Flaschenzug, der The pulley of a block and tackle was probably invented by Archimedes.	(eng.)
<b>blockbuster drug</b>	Kassenschlager-Medikament, das; Blockbuster, der A blockbuster drug is a drug generating more than \$1 billion of annual turnover.	(pharm.)
<b>blocking</b>	Blockieren, das The ABS (anti-lock braking system) prevents blocking of the wheels when a car breaks, thereby maintaining steerability.	(eng.)
<b>blood clotting, blood coagulation, clotting</b>	Blutgerinnung, die  Blood clotting is typical for mammals.	(pharm.)
<b>blood corpuscle</b>	Blutkörperchen, das Blood corpuscles can be divided into red blood cells (O <sub>2</sub> transportation), white blood cells (antibody production to fight infections) and platelets (blood clotting). They account for 45% of the blood, the rest being plasma.	(pharm.)
<b>blower</b>	Gebälse, das A fan is commonly used to move air in an unconfined volume, e.g. for ventilation purposes in a production hall. By contrast, a blower is generally deployed to move air through a conduit such as a pipe at relatively low overpressures, e.g. for pneumatic conveying of solids. A compressor is typically utilized to provide air at relatively high pressures through a conduit, e.g. as instrument air to control plant instruments.	(chem. eng.)
<b>blowhole, cavity</b>	Lunker, der Cavities can lead to premature mechanical failure.	(eng.)
<b>blowing agent</b>	Treibmittel, das Butane and carbon dioxide are two commonly used physical blowing agents (foaming agents).	(chem. eng.)
<b>blue collar worker</b>	Arbeiter, der The company employs 80% blue collar workers.	(general)

<b>blunt</b>	stumpf A blunt tool should be used to prevent damage to the surface.	(eng.)
<b>blunting</b>	Abstumpfung, die Blunting is a process step in the development of a crack in a tough material such as polypropylene. It hinders further crack propagation.	(eng.)
<b>blurring of vision</b>	unscharfes Sehen, das Eye contact with cyclododecanol can lead to blurring of vision.	(med.)
<b>boil down, to</b>	eindampfen In order to obtain the salt, he boiled down the solution.	(chem.)
<b>boiler</b>	Dampfkessel, der In China, boilers are typically fired with coal.	(chem. eng.)
<b>boiler scale</b>	Kesselstein, der By reducing heat transfer, boiler scale lowers the thermal efficiency of the unit.	(eng.)

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<b>boiling chip</b>	Siedestein, der Boiling chips are used to prevent boiling retardation and hence dangerous material spill and loss.	(chem.)
<b>boiling point</b>	Siedepunkt, der The boiling point of ethanol is 78°C.	(chem.)
<b>boiling point elevation</b>	Siedepunktserhöhung, die Boiling point elevation can be observed when a non-volatile solute, such as a salt, is added to a pure solvent, such as water.	(chem.)
<b>boiling retardation</b>	Sieverzug, der Boiling retardation can occur in very pure liquids.	(chem.)
<b>bolt</b>	Bolzen, der A bolt (cap screw) is used together with a nut to give a bolted joint.	(eng.)
<b>bolt together, to</b>	verschrauben A riveted connection shows a slower, more creeping fatigue than a bolted one.	(eng.)
<b>bolted joint</b>	Flanschverbindung, die Schraubverbindung, die Bolted joints are commonly used in the construction of machines.	(eng.)
<b>BOM</b>	<i>Acronym/Abbreviation referral: see bill of materials</i>	(econ.)
<b>bonded area</b>	Inspektionsbereich, der; Zoll-Lager, das; Zollfreilager, das The shipment was stored in the bonded area.	(jur.)
<b>booster</b>	Zusatzmotor, der The space shuttle uses a booster to reach orbit.	(eng.)
<b>bore</b>	Bohrung, die; Zylinderbohrung, die The bore is the diameter of a cylinder in a piston engine.	(eng.)
<b>bore bit</b>	Bohrmeißel, der The bore bit was lost in the workshop.	(eng.)

<b>bore hole</b>	Bohrloch, das After depletion of a drilling site, the bore hole has to be properly sealed.	(eng.)
<b>bore rod</b>	Bohrgestänge, das Bore rods have to be designed for high mechanical loads.	(eng.)
<b>boric acid</b>	Borsäure, die Boric acid (B(OH) <sub>3</sub> , orthoboric acid) is used in nuclear power plants to control the fission rate of uranium.	(chem.)
<b>boron</b>	Bor, das <i>Acronym (engl.): B</i> <i>Acronym (dt.): B</i> Borax (Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·10H <sub>2</sub> O) is an important boron compound.	(chem.)
<b>boundary</b>	Grenze, die The boundary could be spotted clearly.	(eng.)
<b>branch line, transmission line</b>	Stichleitung, die The branch line was made from copper.	(eng.)
<b>brass</b>	Messing, das Brass is any alloy of copper and zinc, whereas bronze is an alloy of copper and tin. Because of its malleability, brass is often used to produce instruments.	(eng.)
<b>brazing</b>	Hartlöten, das Brazing is a joining process where a filler metal or alloy is heated to its melting temperature of above 450°C. The temperature in brazing is lower than in welding and hence less likely to distort the workpiece.	(eng.)
<b>breach of contract</b>	Vertragsbruch, der When a business partner conducts a breach of contract, legal action should be seriously considered.	(econ.)
<b>break even point</b>	Break Even, der; Rentabilitätsschwelle, die At the break even point, costs equal revenue, i.e. there is neither loss nor gain.	(econ.)
<b>breakage</b>	Bruch, der Breakage of a rope may imply wrong handling.	(eng.)

<b>breakage of glassware</b>	Glasbruch, der Breakage of glassware can be insured.	(chem.)
<b>brick layer</b>	Maurer, der The brick layer finished his job on the same day.	(eng.)
<b>brightness</b>	Glanz, der; Helligkeit, die The brightness of a specimen depends on its surface structure.	(eng.)
<b>brine</b>	Salzlösung, die; Sole, die A brine is water saturated with salt.	(chem.)
<b>British thermal unit</b>	BTU, das; englische Kalorie, die <i>Acronym (engl.): BTU, btu</i> <i>Acronym (dt.): BTU, btu</i> 1 BTU corresponds to approx. 1060J.	(eng.)
<b>brittle</b>	spröde, brüchig At low temperatures, many materials become brittle.	(eng.)



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<b>brittleness</b>	Sprödigkeit, die Brittleness at low temperatures is a disadvantage of polycarbonate.	(eng.)
<b>bromic acid</b>	Bromsäure, die Bromic acid (HBrO <sub>3</sub> ) is a reagent in the Belousov-Zhabotinsky (BZ) oscillating reaction.	(chem.)
<b>bromine</b>	Brom, das <i>Acronym (engl.): Br</i> <i>Acronym (dt.): Br</i> At standard conditions, bromine is the only liquid, nonmetallic element.	(chem.)
<b>bronze</b>	Bronze, die Bronze is a copper alloy, usually with tin as the main alloy partner.	(chem.)
<b>broom</b>	Kehrbesen, der To prevent dusty atmospheres, a vacuum cleaner should be used instead of a broom.	(eng.)
<b>brown coal</b>	Braunkohle, die The calorific value of brown coal is lower than that of oil.	(eng.)
<b>brown fields</b>	Altlasten, die It is suspected that many brownfields are still unknown.	(chem. eng.)
<b>BTC</b>	<i>Acronym/Abbreviation referral: see behind-the-counter</i>	(pharm.)
<b>BTU, btu</b>	<i>Acronym/Abbreviation referral: see British thermal unit</i>	(eng.)
<b>BU</b>	<i>Acronym/Abbreviation referral: see business unit</i>	(econ.)
<b>bubble column</b>	Blasensäule, die A bubble column can be a bioreactor where the reaction medium is kept mixed and aerated by the introduction of air into the bottom.	(chem. eng.)

<b>bucket wheel</b>	Schöpfrad, das Bucket wheels do not fluidize the materials to be handled.	(eng.)
<b>buffer</b>	Puffer, der A buffer of carbonic acid ( $\text{H}_2\text{CO}_3$ ) and bicarbonate ( $\text{HCO}_3^-$ ) is present in blood plasma, to maintain a pH between 7.35 and 7.45.	(chem.)
<b>building rubble</b>	Bauschutt, der Building rubble that contains metal and wood cannot be landfilled in several countries.	(eng.)
<b>bulk density</b>	Schüttdichte, die The bulk density of a powder depends on its particle size distribution. The bulk density of PP pellets is approx. $500 \text{ kg/m}^3$ , whereas the density of the material is $900 \text{ kg/m}^3$ .	(eng.)
<b>bulk goods</b>	Schüttgut, das Bulk goods are often commodities.	(eng.)
<b>bulk material</b>	Schüttgut, das Container ships can be used to transport bulk materials over long distances.	(eng.)
<b>bumper</b>	Stoßfänger, der A bumper on a car has to absorb the shock of an impact.	(eng.)
<b>buoyancy</b>	Auftrieb, der According to Archimedes' law, a body that is fully or partially submerged in a fluid experiences a force of buoyancy that is equal to the weight of the displaced liquid or gas.	(eng.)
<b>burn</b>	Brandwunde, die; Verbrennung, die A burn is an injury that can be the result of tissue exposure to heat, cold, electricity, chemicals, radiation (light) or friction. It can range from slight first-degree burns to severe fourth-degree burns.	(pharm.)
<b>burn, to</b>	brennen (brannte, gebrannt), verbrennen (verbrannte, verbrannt) Waste incineration plants can burn domestic waste.	(chem.)

<b>burn, to</b>	verätzen The acid has heavily burnt his skin, because he was not able to wash it off fast enough.	(chem.)
<b>bush, bushing</b>	Muffe, die The bushing was rusty.	(chem.)
<b>bushing, bush bearing, friction bearing, sleeve bearing, journal bearing</b>	Gleitlager, das A bushing is a cylindrical liner designed to reduce friction and wear around a rotating component.	(eng.)
<b>business intelligence</b>	Informationsdienst eines Unternehmens, der The business intelligence department predicted a decrease of raw material prices of 15% over the next 2 quarters.	(econ.)



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<b>business unit</b>	Geschäftsbereich, der; Sparte, die <i>Acronym (engl.): BU</i> The company is organized in 3 business units.	(econ.)
<b>butterfly valve</b>	Drosselklappe, die; Drosselventil, das; Absperrklappe, die A butterfly valve is a type of flow control device. It contains a flat circular plate which is positioned in the center of the pipe where the flow is to be regulated.	(chem. eng.)
<b>butyric acid</b>	Buttersäure, die The smell of butyric acid reminds one of sweat.	(chem.)
<b>buzz saw, circular saw</b>	Kreissäge, die Industrial buzz saws often have replaceable teeth.	(eng.)
<b>bypass</b>	Nebenstrom, der To cope with floods, there is a bypass installed in power stations on rivers.	(eng.)
<b>byproduct</b>	Nebenprodukt, das Whey is a byproduct from the production of cheese.	(chem.)
<b>C. Ph. T.</b>	<i>Acronym/Abbreviation referral: see Certified Pharmacy Technician</i>	(pharm.)
<b>cable</b>	Kabel, das Cables are constructed from pure raw materials to prevent electrical breakthrough.	(eng.)
<b>cable layout plan</b>	Kabelplan, der The cable layout plan was drafted by the engineering company.	(eng.)
<b>calculus</b>	Integral- und Differentialrechnung, die Engineers use calculus in their daily jobs.	(sci.)
<b>calibrate, to</b>	einstellen, kalibrieren The field engineer calibrated the sensor to ensure accurate instrument readings.	(chem.)
<b>calibration</b>	Eichung, die Field calibration is an advantage of several industrial sensors.	(chem.)

<b>call-off delivery</b>	Lieferung auf Abruf, die The call-off delivery was quite a challenge for the supplier.	(econ.)
<b>calorific value</b>	Heizwert, der; Brennwert, der Fuels can be characterized by their net calorific value (=lower heating value) where H <sub>2</sub> O is released as vapor and by their gross calorific value (=upper heating value), where H <sub>2</sub> O that is formed is condensed. The gross heating value accounts for moisture in the fuel and is, for instance, relevant for wood and coal.	(chem. eng.)
<b>cam shaft</b>	Nockenwelle, die The cam shaft is an important construction element in engines. It is used to operate poppet valves.	(eng.)
<b>cane sugar</b>	Rohrzucker, der Cane sugar is fermented to alcohol on a large scale in Brazil.	(chem.)
<b>cannula</b>	Kanüle, die Cannulae are used in laboratories to transfer liquids between 2 vessels without exposing them to the atmosphere. A cannula is a kind of double-ended needle made of stainless steel or plastic. The sharp ends can easily penetrate septa.	(chem.)
<b>capacitor</b>	Kondensator, der A capacitor can store electrical energy. It is composed of thin conducting, metal plates that are separated by a dielectric. This can be, as in the case of so-called electrolytic capacitors, a metal oxide film or an insulator such as vacuum, air, glass or polymer.	(eng.)
<b>capex</b>	<i>Acronym/Abbreviation referral: see capital expenditure</i>	(econ.)
<b>capital expenditure</b>	Investitionsaufwand, der <i>Acronym (engl.): capex</i> Capex had reached 2.3 MEUR after 8 months.	(econ.)
<b>capsule</b>	Kapsel, die Capsules, the enclosures for orally administered medication, can be made from gelatine. This is a protein which is produced by partial hydrolysis of collagen from bones and connective tissue of animals.	(pharm.)

- carbohydrate** Kohlenhydrat, das (chem.)  
Starch and sugar are carbohydrates.
- carbolic acid, phenol** Carbonsäure, die; Phenol, das (chem.)  
Phenol (old name: carbolic acid,  $C_6H_5OH$ ) can be industrially produced by partial oxidation of benzene, the reduction of benzoic acid ( $C_6H_5COOH$ ), by the cumene process, or by the Raschig-Hooker process. The cumene process yields phenol and acetone from benzene and propylene. Its name is derived from cumene (isopropyl benzene), the intermediate substance in that process. In the Raschig-Hooker process, phenol is won by the hydrolysis of chlorobenzene.
- carbon** Kohlenstoff, der (chem.)  
*Acronym (engl.): C*  
*Acronym (dt.): C*  
Carbon capture and storage is an emerging technology in order to fight climate change.
- carbon black** Industrieruss, der (Pigment) (chem.)  
Carbon black can be produced by pyrolysis of methane.

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<b>carbon dioxide</b>	<p>Kohlendioxid, das <span style="float: right;">(chem.)</span>  <i>Acronym (engl.):</i> CO<sub>2</sub>  <i>Acronym (dt.):</i> CO<sub>2</sub>                      Dry ice is frozen carbon dioxide, which sublimates at -78°C.</p>
<b>carbon monoxide</b>	<p>Kohlenmonoxid, das <span style="float: right;">(chem.)</span>  <i>Acronym (engl.):</i> CO  <i>Acronym (dt.):</i> CO                      Carbon monoxide is a colorless and odourless gas.</p>
<b>carbon steel, plain carbon steel</b>	<p>Schwarzstahl, der; Kohlenstoffstahl, der <span style="float: right;">(eng.)</span>                       The ductility, hardness, yield strength and impact resistance of carbon steel can be improved by heat treatment.</p>
<b>carbonic acid</b>	<p>Kohlensäure, die <span style="float: right;">(chem.)</span>                      Carbonic acid (H<sub>2</sub>CO<sub>3</sub>) is diprotic. Hydrogencarbonates and carbonates are the salts of the weak acid carbonic acid.</p>
<b>carboxylic acid</b>	<p>Karbonsäure, die; Carbonsäure, die <span style="float: right;">(chem.)</span>                      Carboxylic acids can easily be identified by infrared spectroscopy through the C=O and O-H stretch vibrations in the regions of 1680 to 1725 cm<sup>-1</sup> (5.95 to 5.80 μm) and 2500 to 3000 cm<sup>-1</sup> (4.0 to 3.33 μm), respectively. Acetic acid (CH<sub>3</sub>COOH) is a carboxylic acid.</p>
<b>carcinogenic</b>	<p>krebserregend, karzinogen, kanzerogen <span style="float: right;">(chem.)</span>                      Butadiene (C<sub>4</sub>H<sub>6</sub>) is a carcinogenic gas.</p>
<b>carcinogenicity</b>	<p>Karzinogenität, die; Kanzerogenität, die <span style="float: right;">(chem.)</span>                      There are many natural carcinogens. Aflatoxin B1, which is produced by the fungus <i>Aspergillus flavus</i> growing on stored grains, nuts and peanut butter, is an example of a potent, naturally-occurring microbial carcinogen. Certain viruses such as Hepatitis B and human papilloma viruses have been found to cause cancer in humans. Substances with carcinogenicity are e.g. benzene and asbestos.</p>
<b>cardan shaft</b>	<p>Kardanwelle, die <span style="float: right;">(eng.)</span>                      A cardan shaft is used for power transmission.</p>

<b>cardboard</b>	Pappe, die Cardboard can absorb water splashes.	(eng.)
<b>cargo</b>	Ladung, die; Fracht, die The Antonov An 225 is a cargo plane for exceptionally bulky and heavy goods.	(econ.)
<b>carpenter</b>	Zimmermann, der; Tischler, der The carpenter convinced him to reconsider the design of his roof.	(eng.)
<b>carriage paid to</b>	frachtfrei (Incoterm) <i>Acronym (engl.): CPT</i> The spare part arrived CPT one day later.	(econ.)
<b>carrying costs</b>	Frachtkosten, die; Transportkosten, die (econ.) Just in time delivery is an inventory strategy to minimize capital costs. Carrying costs are negligible.	
<b>carry-over</b>	Übertrag, der; Saldovortrag, der In accounting, a carry-over is a sum that is transferred to a new page.	(econ.)
<b>cartridge</b>	Patrone, die If not consumed within 6 months, the cartridge of an inkjet printer can dry out.	(eng.)
<b>CAS</b>	<i>Acronym/Abbreviation referral: see Chemical Abstracts Service</i>	(chem.)
<b>CAS number, CAS registry number</b>	CAS Nummer, die More than 81 million organic and inorganic substances are listed with their unique CAS number in the CAS Registry, the world's largest collection of substance information.	(chem.)
<b>casing</b>	Gehäuse, das The casing for the pump was made of aluminium.	(eng.)
<b>cast film</b>	Flachfolie, die Cast film is a polymer film that is produced in an extrusion process; the film is extruded through a slit die onto a cold roll, the so-called chillroll. A typical film thickness is between 20 and 200 µm.	(chem. eng.)

<b>cast iron</b>	Gusseisen, das The bell is made of cast iron.	(eng.)
<b>castor oil</b>	Rizinusöl, das; Castor-Öl, das Castor oil is a vegetable oil obtained from the castor bean. It can be used as laxative. Sulfonated (sulfated) castor oil, or Turkey Red Oil, is the only oil that completely disperses in water. It is made by adding sulfuric acid to pure castor oil. It was the first synthetic detergent.	(chem.)
<b>catalyst</b>	Katalysator, der Unlike reagents, a catalyst is not consumed in a chemical reaction. It is estimated that 90% of all chemicals or their precursors are produced by catalysis.	(chem.)
<b>catalytic combustion unit</b>	thermisch katalytische Nachverbrennungsanlage, die <i>Acronym (engl.): CCU</i> <i>Acronym (dt.): KNV</i> A CCU is generally more suitable than an RTO in case of varying gas loads.	(chem. eng.)



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<b>cataplasm</b>		( <i>pharm.</i> )
	<i>Acronym/Abbreviation referral: see poultice</i>	
<b>cation</b>	Kation, das K <sup>+</sup> , Ca <sup>2+</sup> and H <sub>3</sub> O <sup>+</sup> are cations.	( <i>chem.</i> )
<b>caulking</b>	abdichten, abdichtend Caulking was achieved with silicone.	( <i>eng.</i> )
<b>caustic</b>	ätzend Potassium hydroxide (KOH), a caustic substance, is the precursor to most liquid soaps.	( <i>chem.</i> )
<b>caustic soda</b>	Ätznatron, das; Natronlauge, die Sodium hydroxide, also known as caustic soda, is produced in the chloralkali process, which involves the electrolysis of an aqueous solution of sodium chloride.	( <i>chem.</i> )
<b>cavitation</b>	Hohlraumbildung, die; Kavitation, die High rotor speeds can cause cavitation and severe damage in pumps.	( <i>eng.</i> )
<b>cavity</b>	Hohlraum, der Cavities in teeth can be treated by lasers.	( <i>eng.</i> )
<b>C-coupling</b>	C-Kupplung, die The water hose was equipped with a C-coupling.	( <i>eng.</i> )
<b>CCR</b>		( <i>econ.</i> )
	<i>Acronym/Abbreviation referral: see covenants, conditions, and restrictions</i>	
<b>CCU</b>		( <i>chem. eng.</i> )
	<i>Acronym/Abbreviation referral: see catalytic combustion unit</i>	
<b>CE marking, CE mark</b>	CE Kennzeichnung, die; CE Zeichen, das The Japanese vendor could not provide CE marking for his machinery.	( <i>eng.</i> )
<b>CEFIC</b>		( <i>chem.</i> )
	<i>Acronym/Abbreviation referral: Conseil Européen de l'Industrie Chimique; see European Chemical Industry Council</i>	

**ceiling,** Maximalkonzentration, die (chem.)

**ceiling concentration**

The ceiling concentration of CO, i.e. the maximum allowable human exposure limit for airborne substances that must not be exceeded even momentarily, is 200 ppm. For methyl alcohol, it is 500 ppm for 10 minutes.

**cement flooring** Zementestrich, der (eng.)  
He decided that a cement flooring of 10 cm thickness would be enough.

**centimetre gram(me)** CGS-System, das; Zentimeter-Gramm- (eng.)

**second system**

Sekunde-System, das  
The CGS system was replaced by the MKS (metre-kilogram-second) system, which in turn was replaced by the International System of Units (SI). SI units are the three base units of MKS plus ampere, mole, candela and kelvin.

**centrifugal precipitator** Fliehkraftabscheider, der (chem. eng.)

The yeast cells could be isolated using a centrifugal precipitator.

**centrifugal pump** Kreiselpumpe, die (chem. eng.)  
The centrifugal pump was damaged by cavitation.

**CERCLA** (chem. eng.)  
*Acronym/Abbreviation referral: see Comprehensive Environmental Response, Compensation & Liability Act*

**cerium (Ce)** Cer, das (chem.)  
*Acronym (engl.): Ce*  
*Acronym (dt.) Ce*  
The rare earth metal cerium (Ce) is liquid from 795°C to 3443°C.

**certificate of analysis** Analysenzertifikat, das (pharm.)  
*Acronym (engl.): CoA*  
The company requires a CoA for each raw material delivery.

**Certified Pharmacy Technician** Pharmazeutisch-technische(r) Assistent(In), der (die) (pharm.)

*Acronym (engl.): C. Ph. T.*

*Acronym (dt.): PTA*

The C.Ph.T assisted the physician.

**CFD** (chem. eng.)

*Acronym/Abbreviation referral: see computational fluid dynamics*

**CFR** (econ.)

*Acronym/Abbreviation referral: see cost and freight*

**cGMP** (med.)

*Acronym/Abbreviation referral: see current good manufacturing practice*

**cgs** (eng.)

*Acronym/Abbreviation referral: see centimetre gram second system*

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<b>chain drive</b>	Kettenantrieb, der A chain drive has to be covered so that nobody can accidentally stick his hand inside.	(eng.)
<b>chairman</b>	Vorsitzender, der The chairman channeled the discussion of the meeting to the core items.	(econ.)
<b>challenge</b>	Herausforderung, die Constructing the seemingly impossible is a great challenge for engineers.	(eng.)
<b>change order</b>	Änderungsauftrag, der The change order resulted in additional costs and a time delay.	(chem. eng.)
<b>change order request</b>	Antrag auf Änderung des Auftrags, der A change order request is a formal request from the contractor to the client which identifies the additional scope of work, for instance in engineering, and its consequences.	(chem. eng.)
<b>change order, engineering change order</b>	Änderungsauftrag, der  <i>Acronym (engl.): ECO</i> A change order is a formal order, given to the engineering partner by the client, to initiate a change in engineering, usually with a cost implication.	(chem. eng.)
<b>channel tray</b>	Tunnelboden, der The channel tray of the distillation column was made of stainless steel.	(chem. eng.)
<b>characteristic curve</b>	Kennlinie, die A pump should be selected according to its characteristic curve.	(eng.)
<b>characteristic, characteristic number</b>	Kennzahl, die  The Reynolds number is an important characteristic number of any fluid flow.	(chem. eng.)
<b>charge</b>	Ladung, die K <sup>+</sup> and Ca <sup>2+</sup> carry one and two charges, respectively.	(chem.)

<b>charge, to</b>	befüllen, beschicken The feeders were charged with the raw materials.	(eng.)
<b>charged particle</b>	geladenes Teilchen, das Charged particles can lead to an ignition.	(eng.)
<b>charred cable</b>	verschmortes Kabel, das A charred cable could be identified as the reason for the short circuit.	(eng.)
<b>chart</b>	Diagramm, das A chart has to be labelled on all axes.	(sci.)
<b>check valve, clack valve, non-return valve, one -way valve</b>	Rückschlagklappe, die; Rückschlagventil, das;  Check valves are often used when multiple gases are mixed together to prevent (back)mixing, e.g. of hydrocarbons into nitrogen.	(chem. eng.)
<b>chelating agent</b>	Komplexiermittel, das EDTA, which stands for ethylenediaminetetraacetic acid (C <sub>10</sub> H <sub>16</sub> N <sub>2</sub> O <sub>8</sub> ), is a chelating agent that forms very strong complexes with Mn(II), Cu(II), Fe(III), Pb (II) and Co(III).	(chem.)
<b>chemical</b>	chemisch The chemical industry has to register all of its 70,000 different products under REACH (Registration, Evaluation, Authorisation and restriction of CHemicals), which is a new European Union Regulation.	(chem.)
<b>Chemical Abstracts Service</b>	CAS  <i>Acronym (engl.): CAS</i> Chemical Abstracts Service is a division of the American Chemical Society which produces bibliographic and chemistry databases.	(chem.)
<b>chemical base, base</b>	Base, die Compounds with a pK <sub>a</sub> of more than about 13 are called strong bases. Common examples of strong bases are the hydroxides of alkali metals and alkaline earth metals like NaOH and Ca(OH) <sub>2</sub> .	(chem.)

- chemical engineer** Verfahrenstechniker(in), der (die) (chem. eng.)  
A chemical engineer has to have an understanding of both chemistry and mechanical engineering.
- chemical engineering** Verfahrenstechnik, die (chem. eng.)  
In her home town, approx. 5 times more students study architecture than chemical engineering.
- chemical grouting** chemische Injektion, die (eng.)  
The cost estimation of chemical grouting was missing.
- chemical oxygen demand** chemischer Sauerstoffbedarf, der (chem.)  
  
*Acronym (engl.): COD*  
*Acronym (dt.): CSB*  
COD indirectly measures the amount of organic matter in water, e.g. pollutants. Potassium dichromate ( $K_2Cr_2O_7$ ), a strong oxidizing agent under acidic conditions, is commonly used for the test.



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<b>chemical reaction engineering, reaction engineering</b>	Reaktionsführung, die  The institute developed a lot of competence in the field of reaction engineering.	(chem. eng.)
<b>Chemical Safety Board, CSB (Aufsichtsbehörde für Chemikaliensicherheit, die) Chemical Safety and Hazard Investigation Board (AE)</b>	Acronym (engl.): CSB CSB, an independent US federal agency, is charged with investigating industrial chemical accidents.	(chem. eng.)
<b>chemical structure</b>	Strukturformel, die NMR (nuclear magnetic resonance) can be used to determine the chemical structure of an unknown compound.	(chem.)
<b>chemical vapour deposition</b>	chemisches Aufdampfen, das  <i>chemical vapor deposition (AE)</i> Acronym (engl.): CVD Acronym (dt.): CVD CVD (chemical vapour deposition) is frequently used in the semiconductor industry to produce thin films. A typical reaction is $\text{SiH}_4 + \text{O}_2 \rightarrow \text{SiO}_2 + 2\text{H}_2$ .	(chem.)
<b>chemical worker</b>	Chemiewerker, der The chemical worker proposed to replace a malfunctioning valve.	(chem. eng.)
<b>chemist</b>	Chemiker(in), der (die) The first chemist was probably Antoine Lavoisier with his law of conservation of mass in 1783.	(chem.)
<b>chemistry</b>	Chemie, die Chemistry has its roots in alchemy.	(chem.)
<b>chequer plate</b>	Riffelblech, das <i>checker plate, checker (AE)</i> Checker plate from steel and aluminum was kept in stock in 4'x8' sheets.	(eng.)

<b>chew, to</b>	kauen (kaute, gekaut) Chewing gum is made from synthetic rubber.	(general)
<b>child proof, child resistant</b>	kindersicher Child resistant packaging (C-R packaging) is typically used for pesticides.	(general)
<b>china clay</b>	Kaolinit, der China clay or Kaolinite is a clay mineral with the formula $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ . It is a layered silicate.	(chem.)
<b>chip</b>	Span, der Because he did not wear protective equipment, a chip injured his skin.	(eng.)
<b>chipboard</b>	Spanplatte, die The carpenter nailed the chipboard down.	(eng.)
<b>chisel</b>	Meißel, der Using a chisel, he could bring the stone into its intended shape.	(eng.)
<b>chloride</b>	Chlorid, das <i>Acronym (engl.): Cl</i> <i>Acronym (dt.): Cl</i> The melting point of sodium chloride is 801°C.	(chem.)
<b>chlorinated</b>	chloriert Chlorinated water is potable.	(chem.)
<b>chlorine</b>	Chlor, das <i>Acronym (engl.): Cl</i> <i>Acronym (dt.): Cl</i> Chlorine is a powerful oxidant and can be used for bleaching purposes.	(chem.)
<b>CHP</b>	<i>Acronym/Abbreviation referral: see combined heat and power</i>	(eng.)
<b>chromatography</b>	Chromatographie, die She used HPLC (high performance liquid chromatography) to separate her sample.	(chem.)

<b>chrome-plate, to</b>	verchromen Chrome-plated car parts are quite popular in the US.	(chem.)
<b>chromium</b>	Chrom, das <i>Acronym (engl.): Cr</i> <i>Acronym (dt.): Cr</i> Chromium, a transition metal used in stainless steel, is the only known element to enter quintuple bonds.	(chem.)
<b>CIF</b>	<i>Acronym/Abbreviation referral: see cost, insurance, freight</i>	(econ.)
<b>cinnabar</b>	Zinnober, der Cinnabar is the name used for the red mineral HgS.	(chem.)
<b>CIP</b>	<i>Acronym/Abbreviation referral: see continuous improvement process</i>	(general)
<b>CIP</b>	<i>Acronym/Abbreviation referral: see cleaning in process, cleaning in place</i>	(chem. eng.)

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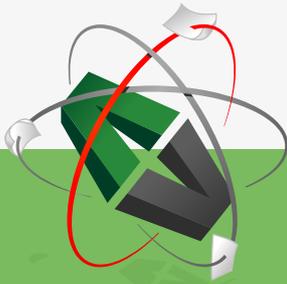
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<b>circuit</b>	Stromkreis, der; Schaltkreis, der Electronic circuits are closed paths composed of electronic components through which an electric current can flow.	(eng.)
<b>circular saw</b>	Kreissäge, die Last week circular saws were on sale in the local do-it-yourself store.	(eng.)
<b>circulating pump</b>	Umwälzpumpe, die The circulating pump was overdesigned.	(chem. eng.)
<b>circumference</b>	Umfang, der The circumference of the storage area is 2,500 m.	(eng.)
<b>citation</b>	Zitat, das; Zitierung, die The article contains 37 citations.	(sci.)
<b>citric acid</b>	Zitronensäure, die Citric acid, which decomposes above 175°C through the loss of CO <sub>2</sub> and H <sub>2</sub> O, is part of the citric acid cycle and therefore occurs in the metabolism of almost all organisms.	(chem.)
<b>city water, citywater, tap water</b>	Leitungswasser, das There was plenty of citywater available.	(eng.)
<b>claim</b>	Forderung, die; Klage, die; Beanspruchung, die A claim is a demand for financial compensation as a result of a complaint brought forward e.g. by a customer.	(econ.)
<b>clamp</b>	Zwinge, die The reaction vessel was held in place by clamps.	(chem.)
<b>clamp</b>	Schraubzwinge, die He could not retrieve the clamps.	(eng.)
<b>classifier</b>	Klassieranlage, die A classifier can remove over- and undersized particles.	(chem. eng.)

<b>clay</b>	Ton, der Clay minerals are typically formed over long periods of time by gradual chemical weathering of rocks.	(chem.)
<b>cleaning agent</b>	Reinigungsmittel, das Cleaning agents should not leave any streaks on glass surfaces.	(chem.)
<b>cleaning in process, cleaning in place</b>	Reinigung vor Ort, die  <i>Acronym (engl.): CIP</i> CIP stands for the cleaning of production facilities without the need to dismantle them.	(chem. eng.)
<b>cleanup</b>	Säuberung, die; Aufräumarbeiten, die 2 workers in hazmat suits were at the cleanup site after the fire.	(chem.)
<b>cleave, to</b>	spalten Cleaving wood with an axe is a tough job.	(eng.)
<b>clevis pin</b>	Gabelstift, der; Lastösenbolzen, der Clevis pins are used with shackles. They are fasteners that allow rotation of the connected parts.	(eng.)
<b>clinical studies, clinical trials</b>	klinische Studien, die  In health care, clinical trials are conducted to collect data about new drugs. The phases range from 0 to IV.	(med.)
<b>clipper</b>	Karabinerhaken, der Clippers are extensively used by climbers.	(eng.)
<b>cloth</b>	Stoff, der (Textil) The filter bag is made from cloth.	(chem.)
<b>CNG</b>	 <i>Acronym/Abbreviation referral: see compressed natural gas</i>	(chem. eng.)

<b>CO<sub>2</sub> allowance</b>	Bewilligung, die; Freibetrag für CO <sub>2</sub> , der Tight CO <sub>2</sub> allowances are expected to foster innovation for energy-efficient production processes.	(chem. eng.)
<b>CoA</b>	<i>Acronym/Abbreviation referral: see certificate of analysis</i>	(chem.)
<b>coagulant, flocculant</b>	Fällungsmittel, das; Flockungsmittel, das Alum (KAl(SO <sub>4</sub> ) <sub>2</sub> ·12H <sub>2</sub> O) is used as a coagulant in water treatment.	(chem.)
<b>coagulate, to</b>	gerinnen When he added the acid, the solution immediately coagulated.	(chem.)
<b>coal</b>	Kohle, die; Steinkohle, die Peat can be seen as a precursor of coal. Via lignite (brown coal), sub – bituminous coal, bituminous coal and finally anthracite can be formed.	(eng.)
<b>coal liquefaction</b>	Kohleverflüssigung, die The speaker presented a CTL process that is competitive at current crude oil prices.	(chem. eng.)

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<b>coal-to-liquid</b>		<i>(chem. eng.)</i>
	<i>Acronym (engl.): CTL</i>	
	<i>Acronym/Abbreviation referral: see coal liquefaction</i>	
<b>coarse</b>	grob	<i>(eng.)</i>
	The comminution of coarse particles is an energy -consuming process.	
<b>coating</b>	Belag, der; Beschichtung, die	<i>(chem.)</i>
	The solvent has attacked the coating.	
<b>coating</b>	Beschichtung, die	<i>(eng.)</i>
	The lifetime of soft materials can be prolonged by the application of a suitable coating.	
<b>cobblestone</b>	Kopfsteinpflaster, das	<i>(eng.)</i>
	On a cobblestone road, the suspension system of a car can be tested.	
<b>cock</b>	Hahn, der	<i>(chem.)</i>
	The cock in the byrette was stuck.	
<b>COD</b>		<i>(chem.)</i>
	<i>Acronym/Abbreviation referral: see chemical oxygen demand</i>	
<b>code</b>	Norm, die; Standard, der	<i>(eng.)</i>
	The ASTM code proposed stainless steel.	
<b>cog wheel</b>	Zahnrad, das	<i>(eng.)</i>
	Cog wheels can be found in gears.	
<b>cogen</b>		<i>(eng.)</i>
	<i>Acronym/Abbreviation referral: see cogeneration</i>	
<b>cogeneration, combined heat and power</b>	Kraft-Wärme-Kopplung, die	<i>(eng.)</i>
	<i>Acronym (engl.): CHP, cogen</i>	
	Cogeneration (combined heat and power, CHP) is a combustion process that strives to capture all available energy from the combustion offgas.	

<b>coil</b>	Spule, die The copper coil has a weight of 2.5 kg.	(eng.)
<b>coiled spring</b>	Spiralfeder, die A coiled spring can store mechanical energy.	(eng.)
<b>coke</b>	Koks, der Two critical properties of coke, a solid carbonaceous residue derived from destructive distillation of coal, are ash and sulphur content.	(eng.)
<b>cold drawing</b>	Kaltziehen, das By cold drawing of 1 cm thick copper rods, wires as thin as 1 micrometer in diameter can be obtained.	(eng.)
<b>cold rolling</b>	Kaltwalzen, das Cold rolling increases the yield strength and hardness of a metal, because it introduces defects into the crystal structure of the material below its recrystallisation temperature.	(eng.)
<b>collective lens, collimating lens</b>	Sammellinse, die Because of its simple geometry, the collective lens suffers from spherical aberration.	(eng.)
<b>colour change</b>	Farbumschlag, der <i>color change (AE)</i> When the pH value is increased to 11.6–14, the pH indicator leucomalachite green (second transition) changes from green to colorless.	(chem.)
<b>colour scale</b>	Farbskala, die <i>color scale (AE)</i> The colour scale was used for reference purposes.	(chem.)
<b>column</b>	Säule, die The longer the column in chromatography is, the better the separation of the mixture under investigation will be.	(chem.)
<b>combined heat and power</b>	<i>Acronym (engl.): CHP</i> <i>Acronym/Abbreviation referral: see cogeneration</i>	(eng.)

<b>combustible</b>	brennbar Fine dust of combustible material is generally dust explosive.	(chem.)
<b>combustion</b>	Verbrennung, die 80–90% of the worldwide primary energy production stems from combustion processes.	(chem.)
<b>combustion chamber</b>	Brennkammer, die The turbulence in combustion chambers plays a key role in pollutant formation.	(chem. eng.)
<b>combustion point, fire point</b>	Brennpunkt, der  The flash point of a flammable liquid is the lowest temperature at which it can form an ignitable mixture in air. At this temperature the vapor will stop burning when the ignition source is removed. A slightly higher temperature, the fire point, is defined as the temperature at which the vapor continues to burn autonomously after removal of the ignition source. For oils, the fire point is generally about 10°C higher than the flash point.	(chem.)



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<b>comminute, to</b>	fein zerteilen, zerkleinern To comminute solids is an energy-consuming process.	<i>(chem. eng.)</i>
<b>commissioning</b>	Inbetriebnahme, die Commissioning of the new production line was achieved in 2 weeks.	<i>(chem. eng.)</i>
<b>commitment</b>	Verpflichtung, die; Bekenntnis, das; Engagement, das His commitment to the team suffered from an inconsiderate email that he had received.	<i>(econ.)</i>
<b>commodity</b>	Ware, die; Commodity, das; Rohstoff, der; Verbrauchsgut, das; Massenware, die Steel started to be traded as a commodity on the London Metal Exchange in 2007.	<i>(econ.)</i>
<b>commodity product</b>	Massengut, das; Commodity, das A commodity product is a material that is freely available in the market from several competitors. Commodity products are often sold in high volumes and at low margins.	<i>(econ.)</i>
<b>common name</b>	Trivialname, der The common name of 2,2,4 trimethylpentane is isooctane (C <sub>8</sub> H <sub>18</sub> ). Octane itself has 18 isomers.	<i>(chem.)</i>
<b>community heating, district heating</b>	Fernwärme, die Community heating is an environmentally friendly technology.	<i>(eng.)</i>
<b>competitor</b>	Konkurrent, der; Mitbewerber, der; Marktbegleiter, der Talking to competitors about prices is considered highly unethical behaviour. It is also illegal.	<i>(econ.)</i>
<b>complaint</b>	Beschwerde, die; Reklamation, die; Beanstandung, die The customer filed a complaint because of poor quality of the product.	<i>(econ.)</i>
<b>compliance</b>	Einhaltung, die; Erfüllung, die For full compliance with legal regulations, a gas scrubber had to be installed.	<i>(general)</i>

<b>complying with</b>	entsprechend, das Einhalten von Complying with environmental protection standards is mandatory for a chemical company.	( <i>general</i> )
<b>composite</b>	Verbundwerkstoff, der Composites are known for their good mechanical properties at low weight.	( <i>eng.</i> )
<b>composite foil</b>	Verbundfolie, die The composite foil is made of 7 layers.	( <i>eng.</i> )
<b>composition</b>	Zusammensetzung, die The team composition was not balanced.	( <i>chem.</i> )
<b>compound</b>	Verbindung, die; Compound, das Currently, there are more than 81 million organic and inorganic compounds with a CAS number.	( <i>chem.</i> )
<b>Comprehensive Environmental Response, Compensation &amp; Liability Act (AE)</b>	CERCLA  <i>Acronym (engl.): CERCLA</i>	( <i>chem. eng.</i> )
<b>compressed air</b>	Druckluft, die Compressed air can be used to drive equipment in classified areas.	( <i>eng.</i> )
<b>compressed gas cylinder</b>	Druckgasflasche, die  The compressed gas cylinder was filled with nitrogen at 200 bar.	( <i>chem. eng.</i> )
<b>compressed natural gas</b>	komprimiertes Erdgas, das <i>Acronym (engl.): CNG Acronym (dt.): CNG</i> The energy density of CNG is approx. only 40% of that of LNG (because it is not liquefied) and approx. 25% of that of diesel.	( <i>chem. eng.</i> )
<b>compression stroke</b>	Verdichtungstakt, der In an Otto engine, the compression stroke occurs after the intake stroke.	( <i>eng.</i> )

<b>compulsory</b>	gesetzlich, zwingend erforderlich In Germany, it is compulsory to follow the DIN standard for pressure vessels.	(general)
<b>computational fluid dynamics</b>	numerische Strömungssimulation, die (chem. eng.)  <i>Acronym (engl.): CFD</i> In computational fluid dynamics (CFD), numerical methods and algorithms to solve and analyze problems involving fluid flows are used.	
<b>concealed</b>	verborgen Debottlenecking can activate concealed plant capacities.	(eng.)
<b>concentration</b>	Konzentration, die The concentration of salt in sea water is approx. 30 g/l.	(chem.)
<b>concomitants</b>	Begleitsubstanzen, die The ore contains 60% of concomitants.	(chem.)
<b>concrete</b>	Beton, der Concrete is a construction material that contains cement.	(chem.)



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<b>concurrent</b>	<p>produktbegleitend, gleichzeitig <span style="float: right;">(eng.)</span></p> <p>In concurrent engineering, several tasks are carried out in parallel. This has time advantages, but bears some risks.</p>
<b>conditioning</b>	<p>Konditionierung, die <span style="float: right;">(chem.)</span></p> <p>Conditioning can be understood as a series of operations to bring a sample or specimen into a reference state with regard to temperature and humidity.</p>
<b>cone</b>	<p>Kegel, der <span style="float: right;">(general)</span></p> <p>The missing part looked like a cone.</p>
<b>cone crusher</b>	<p>Kegelbrecher, der <span style="float: right;">(eng.)</span></p> <p>Cone crushers are used to comminute stones.</p>
<b>conference proceedings</b>	<p>Tagungsbericht, der <span style="float: right;">(sci.)</span></p> <p>Conference proceedings belong to the so-called grey literature.</p>
<b>confined</b>	<p>eingeschränkt, beschränkt <span style="float: right;">(general)</span></p> <p>Gunpowder, when unconfined, burns gently.</p>
<b>congeal, to</b>	<p>gerinnen, fest werden, erstarren <span style="float: right;">(chem.)</span></p> <p>When a substance congeals, its viscosity increases. This can be achieved by a reduction in temperature or by chemical reactions.</p>
<b>congestion</b>	<p>Verstopfung, die <span style="float: right;">(pharm.)</span></p> <p>Nasal congestion may be caused by an allergic reaction due to hay fever.</p>
<b>conical flask, Erlenmeyer flask, E-flask</b>	<p>Spitzkolben, der <span style="float: right;">(pharm.)</span></p> <p>The conical flask broke upon exposure to the open flame of a Bunsen burner.</p>
<b>conjunctivitis, pink eye</b>	<p>Bindehautentzündung, die <span style="float: right;">(pharm.)</span></p> <p>Bacterial conjunctivitis is usually treated with antibiotic eye drops or ointments which can contain fusidic acid (<math>C_{31}H_{48}O_6</math>).</p>
<b>connecting rod</b>	<p>Pleuelstange, die <span style="float: right;">(eng.)</span></p> <p>The connecting rod of his car was chrome-plated.</p>

<b>consignment stock</b>	Konsignationslager, das Since the ownership of consignment stock is not transferred from the manufacturer to the customer until use, invoicing is not done immediately.	(econ.)
<b>constant flow stirred tank reactor</b>	<i>Acronym/Abbreviation referral: see Continuous Stirred Tank Reactor</i>	(chem. eng.)
<b>constant weight</b>	Gewichtskonstanz, die A constant weight of the final product is ensured by monthly instrument calibration.	(pharm.)
<b>constituent</b>	Bestandteil, der Carbon black is a constituent of most dark pigments.	(chem.)
<b>constitution diagram,</b>	Phasendiagramm, das;	(chem. eng.)
<b>constitutional diagram</b>	Zustandsdiagramm, das; Zustandsschaubild, das; In metallurgy, a constitutional diagram (phase diagram) is a graphical representation of phase-stability relationships in an alloy system as a function of temperature.	(chem. eng.)
<b>consultant</b>	Berater, der He worked for a consultant before founding his own business.	(econ.)
<b>contaminated</b>	verseucht, kontaminiert Soil contaminated with hydrocarbons needs to be disposed of in a suitable way.	(chem.)
<b>contingency</b>	Eventualität, die; Schadensmöglichkeit, die The cost estimation contained 10% contingency.	(econ.)
<b>continuous casting</b>	Stranggießen, das Continuous casting is a process to produce steel bars.	(eng.)
<b>continuous concrete</b>	Gussbeton, der The mixer for continuous concrete broke down.	(eng.)

**continuous improvement process** kontinuierlicher Verbesserungsprozess, der (general)

*Acronym (engl.): CIP*

*Acronym (dt.): KVP*

A continuous improvement process based on Kaizen was introduced.

**Continuous Stirred Tank Reactor** kontinuierlich betriebener idealer Rührkessel, der (chem. eng.)

*Acronym (engl.): CSTR*

*Acronym (dt.): KIK*

The CSTR, also known as vat – or backmix reactor, is an ideal reactor type where perfect mixing is assumed. Another ideal type is the PFR.

**Continuously Stirred Tank Reactor** (chem. eng.)

*Acronym/Abbreviation referral: see continuous stirred tank reactor*

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<b>continuous tubular reactor</b>	<p>kontinuierlicher Rohrreaktor, der <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p><i>Acronym (engl.): CTR</i></p> <p>PFRs are also sometimes called CTRs. The key assumption of PFRs is that the fluid is perfectly mixed in the radial direction but not in the axial one.</p>
<b>contract</b>	<p>Vertrag, der <span style="float: right;">(<i>econ.</i>)</span></p> <p>A contract stipulates rights and obligations of all parties involved.</p>
<b>contract for work and labour, service contract</b>	<p>Werkvertrag, der <span style="float: right;">(<i>econ.</i>)</span></p> <p><i>contract for work and labor (AE)</i></p> <p>The service contract was issued for last week.</p>
<b>contractor</b>	<p>Auftragnehmer, der <span style="float: right;">(<i>econ.</i>)</span></p> <p>The contractor was urged to hand in the weekly report.</p>
<b>contraindication</b>	<p>Gegenanzeige, die <span style="float: right;">(<i>pharm.</i>)</span></p> <p>So far, no contraindications were known about the drug.</p>
<b>contribution</b>	<p>Beitrag, der <span style="float: right;">(<i>general</i>)</span></p> <p>His contribution was not appreciated.</p>
<b>control a process, to</b>	<p>einen Prozess steuern <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p>The process is controlled by an experienced operator.</p>
<b>control panel</b>	<p>Steuerpult, das <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p>An operator working at the control panel of a plant has to be able to cope with stressful situations.</p>
<b>control room, control station</b>	<p>Leitstand, der; Leitwarte, die; Schaltwarte, die <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p>3 operators were sitting in the control room when the incident happened.</p>
<b>control signal</b>	<p>Stellsignal, das <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p>In closed-loop control of a process, a sensor response results in a control signal that affects the process.</p>

<b>control valve</b>	<p>Regelklappe, die; Regelventil, das <span style="float: right;">(eng.)</span></p> <p>A control valve can be used to control operating conditions such as temperature, pressure, flow, and liquid level in a chemical plant.</p>
<b>control, to; drive, to; activate, to;</b>	<p>ansteuern <span style="float: right;">(eng.)</span></p> <p>The operator activated the valve.</p>
<b>controlled atmosphere</b>	<p>Schutzgas, das <span style="float: right;">(chem.)</span></p> <p>A controlled atmosphere in food packaging can extend the shelf life significantly.</p>
<b>conveying belt, conveyor belt</b>	<p>Förderband, das <span style="float: right;">(chem. eng.)</span></p> <p>Conveyor belts are often made from reinforced rubber.</p>
<b>coolant</b>	<p>Kühlflüssigkeit, die; Kühlmittel, das <span style="float: right;">(eng.)</span></p> <p>An ideal coolant or heat transfer fluid shows high thermal capacity, low viscosity and chemical inertness.</p>
<b>copper</b>	<p>Kupfer, das <span style="float: right;">(eng.)</span></p> <p><i>Acronym (engl.): Cu</i></p> <p><i>Acronym (dt.): Cu</i></p> <p>Copper, which like gold does not have a silvery luster typical of metals, has the second highest electrical and thermal conductivity of a pure metal after silver. The Statue of Liberty contains 81 tonnes of copper.</p>
<b>cord set</b>	<p>konfektionierte Leitung, die; Kabelset, das <span style="float: right;">(eng.)</span></p> <p>The cord set was made from flame-retardant plastics.</p>
<b>corollary</b>	<p>logische Konsequenz, die; Folgerung, die; Korollar, das <span style="float: right;">(general)</span></p> <p>The mathematician could prove the corollary.</p>
<b>corotating</b>	<p>gleichläufig <span style="float: right;">(eng.)</span></p> <p>For polypropylene compounding, corotating twin screw extruders are commonly used.</p>

**corporate social responsibility** unternehmerische Sozialverantwortung, die (econ.)

*Acronym (engl.): CSR*

CSR, also called corporate citizenship and responsible business, is a concept whereby organizations consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment.

**corrosion** Korrosion, die (chem.)  
In passivation, a thin film of corrosion products is formed on a metal's surface, acting as a barrier to further corrosion.

**corrugated cardboard** Wellpappe, die; Wellkarton, der (eng.)  
The glass was wrapped in corrugated cardboard.

**corundum** Korund, der (chem.)  
Corundum has a Mohs hardness of 9 (diamond is 10).

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<b>cosine</b>	Kosinus, der The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse, whereas the sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse. The tangent of an angle is the ratio of the length of the opposite side to the length of the adjacent side.	(sci.)
<b>cost allocation</b>	Kostenzuteilung, die; Kostenzuordnung, die For cost allocation, the steam consumption of the various process units had to be estimated.	(econ.)
<b>cost and freight</b>	Kosten und Fracht (Incoterm) <i>Acronym (engl.): CFR</i> The reactor was delivered “CFR Shanghai”, meaning that the customer had to pick it up in the harbour.	(econ.)
<b>cost center</b>	Kostenstelle, die There was an overrun in his costcenter.	(eng.)
<b>cost of capital</b>	Kapitalkosten, die The costs of capital in a company depend on its debt/equity ratio.	(econ.)
<b>cost overrun</b>	Kostenüberschreitung, die Due to a lack of engineering resources, the project experienced a cost overrun of 15%.	(econ.)
<b>cost, insurance, freight</b>	Kosten, Versicherung, Fracht (Incoterm) <i>Acronym (engl.): CIF</i> Buyer and seller agreed on CIF.	(econ.)
<b>cotton</b>	Baumwolle, die Gossypol ( $C_{30}H_{30}O_8$ ), a polyphenol derived from the cotton plant, has contraceptive properties. Cotton is used to make textiles.	(eng.)
<b>cotton wool</b>	Watte, die <i>cotton batting (AE)</i> Cotton wool is obtained from cotton by purification, bleaching and sterilization.	(chem.)
<b>cotton plug</b>	Wattebausch, der The lab assistant dipped a cotton plug inside the fleaker.	(pharm.)

<b>cough syrup</b>	Hustensaft, der Cough syrup contains cough suppressants and expectorants. Codeine (methylmorphine, C <sub>18</sub> H <sub>21</sub> NO <sub>3</sub> ) is one of the strongest cough suppressants.	(pharm.)
<b>counterbalance, counterweight</b>	Gegengewicht, das A counterweight is often used in elevators and cranes.	(eng.)
<b>countercurrent</b>	Gegenstrom, der In a concurrent (co-current, parallel) heat exchanger, thermal equilibrium is achieved, where the hot and the cold fluid reach the same temperature. In a countercurrent heat exchanger, the cold fluid becomes hot and the hot fluid becomes cold.	(eng.)
<b>covalent</b>	kovalent The covalent triple bond in N <sub>2</sub> has an energy of 418 kJ/mol.	(chem.)
<b>covenants, conditions and restrictions</b>	Vereinbarungen, Bedingungen und Einschränkungen, die  <i>Acronym (engl.): CCR</i> The CCR can be found on the company website.	(econ.)
<b>CPT</b>	 <i>Acronym/Abbreviation referral: see carriage paid to</i>	(econ.)
<b>crab, trolley (travelling ~)</b>	Laufkatze, die  <i>crab, trolley (traveling ~)(AE)</i> The (travelling) trolley has to be overhauled every 2 years.	(eng.)
<b>cracking</b>	Rissbildung, die Cracking is a form of fatigue.	(eng.)
<b>cracking pressure, crack pressure</b>	Berstdruck, der; Öffnungsdruck, der  The cracking pressure is the minimum pressure at which a check valve will operate.	(eng.)
<b>craft</b>	Handwerk, das Crafts can be grouped by the use of a certain material such as wood, clay, glass or metal.	(eng.)

<b>craftsman</b>	Handwerker, der The craftsman could repair the machine within 1 hour.	(eng.)
<b>crane</b>	Kran, der A construction site can be seen from a distance because of the cranes.	(eng.)
<b>crank shaft</b>	Kurbelwelle, die His main expertise is crank shaft design.	(eng.)
<b>creep</b>	Kriechen, das Unlike brittle fracture, creep is a deformation mechanism rather than a material failure. It does not occur suddenly, but steadily upon the application of stress.	(eng.)
<b>crevis corrosion</b>	Spaltkorrosion, die Crevice corrosion can be caused by a high concentration of impurities such as chlorides in the crevice (“hideout”) or differential electrolyte chemistry inside and outside the crevice.	(eng.)

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<b>crimp of a tube</b>	Tubenfalz, der A crimp is obtained by joining two pieces of metal or any other malleable material by deforming them, e.g. as on a tube.	(pharm.)
<b>crimp, to</b>	verbördeln The liquid was leaking out because the tube had not been properly crimped.	(pharm.)
<b>critical</b>	kritisch Critical steps deserve sufficient planning.	(eng.)
<b>cross section</b>	Querschnitt, der The cross section of a pipe has a strong influence on the flow resistance.	(eng.)
<b>crucible</b>	Tiegel, der The crucible broke when it hit the ground.	(chem.)
<b>crude</b>	<i>Acronym/Abbreviation referral: crude oil</i>	(chem. eng.)
<b>crude oil, petroleum</b>	Rohöl, das; Erdöl, das  Crude oil (petroleum) contains 0.5 to 6% sulfur. The hydrocarbons can be grouped into paraffins, naphthenes, aromatics and asphaltics.	(chem. eng.)
<b>crude ore</b>	Roherz, das The total world reserves of crude iron ore are 800 billion tons. They contain approx. 230 billion tons of iron. The global crude steel production was 1.24 billion tons in 2006.	(chem. eng.)
<b>cryogenic</b>	tieftemperatur- Lead salt diode lasers require cryogenic cooling.	(eng.)
<b>cryogenic vial</b>	Dewargefaß, das The cryogenic vial could keep liquid nitrogen for 5 hours.	(pharm.)
<b>CSB</b>	<i>Acronym/Abbreviation referral: see Chemical Safety Board</i>	(chem. eng.)

<b>CSR</b>		(econ.)
	<i>Acronym/Abbreviation referral: see corporate social responsibility</i>	
<b>CSTR</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see Continuous Stirred Tank Reactor</i>	
<b>CTL</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see coal-to-liquid</i>	
<b>CTR</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see continuous tubular reactor</i>	
<b>culture broth, nutrient broth</b>	Nährboden, der	(pharm.)
	The most common growth media for microorganisms are nutrient broths and agar plates.	
<b>culture medium, growth medium</b>	Nährmedium, das	(pharm.)
	Antibiotics were added to the growth media as selective growth compounds for bacteria.	
<b>cumene</b>	Cumol, das; Isopropylbenzen, das	(chem.)
	Cumene (isopropylbenzene) is an aromatic hydrocarbon that can be found in crude oil. Nearly all the cumene is used to produce phenol and acetone via cumene hydroperoxide ( $C_6H_5C(CH_3)_2-O-O-H$ ).	
<b>cure, to</b>	härten, vulkanisieren	(chem.)
	Vulcanization is a specific curing process of rubber that involves high temperatures and the addition of sulfur.	
<b>curing</b>	Vulkanisieren, das	(chem. eng.)
	Curing is the hardening of a polymer material by cross-linking, which can be achieved by chemical agents, radiation or heat.	
<b>current Good Manufacturing Practice</b>	aktuelle gute Herstellungspraxis, die; aktuelle GMP, die	(med.)
	<i>Acronym (engl.): cGMP</i>	
	The US laboratory was working according to cGMP.	

<b>curriculum vitae</b>	Lebenslauf, der Acronym (engl.): CV Her CV was updated.	(general)
<b>customer</b>	Kunde, der Ultimately, it is the customer who pays the wages.	(econ.)
<b>customer requirements</b>	Kundenanforderungen, die Translating customer requirements into new products is a key success factor of any corporation.	(econ.)
<b>customs clearance</b>	Zollabfertigung, die; Verzollung, die Customs clearance was delayed because of missing documents.	(econ.)
<b>cut-off wheel</b>	Trennscheibe, die Cut-off wheels often contain $Al_2O_3$ particles.	(eng.)
<b>cutting torch</b>	Schneidbrenner, der The cutting torch was operated on acetylene and oxygen.	(eng.)

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<b>CV</b>		( <i>general</i> )
	<i>Acronym/Abbreviation referral: see curriculum vitae</i>	
<b>CVD</b>		( <i>chem.</i> )
	<i>Acronym/Abbreviation referral: see chemical vapour deposition</i>	
<b>daily allowance</b>	Taggeld, das	( <i>econ.</i> )
	The employee did not know that he was entitled to a daily allowance of 35 Euro in the US.	
<b>dampen, to</b>	dämpfen	( <i>eng.</i> )
	Vibrations in machinery need to be dampened.	
<b>dangerous good</b>	Gefahrenstoff, der	( <i>chem.</i> )
	Dangerous goods include materials that are radioactive, flammable, explosive or corrosive, biohazardous, toxic, oxidizers, asphyxiants, pathogen or allergen substances and organisms, but also physical conditions as compressed gases or hot materials.	
<b>dark room</b>	Dunkelkammer, die	( <i>eng.</i> )
	With the proliferation of digital cameras, dark rooms have become pretty rare.	
<b>darting flame</b>	Stichflamme, die	( <i>chem.</i> )
	The ignition resulted in a darting flame.	
<b>data logger</b>	Messwerterfasser, der; Datenlogger, der	( <i>eng.</i> )
	The resolution of the data logger is 0.05 psi.	
<b>davit</b>	Ladebaum, der; Davit, der	( <i>eng.</i> )
	The rescue boat was attached to the davit.	
<b>day supervisor</b>	Tagmeister, der	( <i>chem. eng.</i> )
	The day supervisor had 10 years of work experience.	
<b>days of inventory</b>	Reichweite des Lagers, die	( <i>econ.</i> )
	<i>Acronym (engl.): DOI</i>	
	The days of inventory is the number of days that finished goods inventory will support forecast sales.	

<b>DC</b>		(eng.)
	<i>Acronym/Abbreviation referral: see direct current</i>	
<b>DDP</b>		(econ.)
	<i>Acronym/Abbreviation referral: see delivery duty paid</i>	
<b>DDU</b>		(econ.)
	<i>Acronym/Abbreviation referral: see delivery duty unpaid</i>	
<b>deacidify, to</b>	entsäuern	(pharm.)
	The researcher developed a spray to deacidify historic paper documents without harming inks or discoloring paper.	
<b>dead lime</b>	gebrannter Kalk, der	(chem.)
	Dead lime consists of CaO.	
<b>dead weight, deadweight</b>	Leergewicht, das	(pharm.)
	The dead weight of the glass container was 13.5 g.	
<b>deaerate, to</b>	entlüften	(eng.)
	Fluidized powders can be deaerated by storing them in a silo for some time.	
<b>deaeration valve</b>	Abströmventil, das	(chem. eng.)
	The deaeration valve was designed for a maximum flow of 10 m <sup>3</sup> /s.	
<b>debottleneck, to</b>	einen Engpass beseitigen	(chem. eng.)
	The plant was debottlenecked from 32 kt/a to 42 kt/a.	
<b>debt</b>	Schulden, die	(econ.)
	The debt to equity ratio is known as “gearing”.	
<b>decant, to</b>	dekantieren	(chem.)
	The solution was decanted to remove solids.	
<b>decommissioning</b>	Außerbetriebnahme, die	(chem. eng.)
	Decommissioning of the plant had to be postponed because the new plant was not yet operational.	

<b>decomposition</b>	Zersetzung, die Thermal decomposition (thermolysis) is usually an endothermic process as heat is required to break chemical bonds in the compound, e.g. $\text{CuCO}_3$ (green) --> $\text{CuO}$ (black) + $\text{CO}_2$ .	(chem.)
<b>deduster</b>	Windsichter, der Dedusters can handle large volumes of air.	(chem. eng.)
<b>dedusting plant</b>	Entstaubungsanlage, die The dedusting plant was designed for class ST3 materials.	(chem. eng.)
<b>dedusting, dust collection</b>	Entstauben, das  Dust collection can prevent the accumulation of dangerous concentrations of combustible material in a plant.	(eng.)
<b>default value</b>	Standardwert, der; Vorgabewert, der; Einstellwert, der The default value was a flow of $35 \text{ m}^3/\text{h}$ .	(eng.)



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<b>degas, to</b>	entgasen The polymer pellets had to be degassed in order to get rid of unreacted monomer.	(chem.)
<b>degenerate</b>	entartet Degenerate states have the same energy level.	(chem.)
<b>degradation product</b>	Abbauprodukt, das Peroxides can be formed as dangerous degradation products from ethers.	(chem.)
<b>degrease, to</b>	entfetten Prior to applying the paint, the surface had to be degreased.	(chem.)
<b>dehydration</b>	Wasserentzug, der Food can be preserved by dehydration.	(chem.)
<b>deliquescent</b>	zerfließend Calcium chloride (CaCl <sub>2</sub> ), magnesium chloride (MgCl <sub>2</sub> ) and zinc chloride (ZnCl <sub>2</sub> ) are not only hygroscopic, but even deliquescent salts.	(chem.)
<b>delivered duty paid, delivery duty paid</b>	geliefert verzollt  <i>Acronym (engl.): DDP</i> The company made an attractive offering based on DDP.	(econ.)
<b>delivered duty unpaid, delivery duty unpaid</b>	geliefert unverzollt (Incoterm)  <i>Acronym (engl.): DDU</i> DDU is an Incoterm.	(econ.)
<b>deluge</b>	Überschwemmung, die; Regenguss, der The plant was in an area with increased risk for deluges.	(general)
<b>demi water</b>	 <i>Acronym/Abbreviation referral: see demineralised water (short form of ~)</i>	(chem. eng.)
<b>demineralised water</b>	Deionat, das; vollentsalztes Wasser, das; VE Wasser, das <i>de mineralized water (AE)</i> The demi water unit was designed for 10 m <sup>3</sup> /h.	(chem. eng.)

**demix, to; unmix, to; segregate, to** entmischen (chem.)

Powders that have a broad particle size distribution often tend to demix in a silo.

**demotion** Degradierung, die; Herabstufung, die (econ.)  
2 months after his demotion, the employee quit.

**demulcent** lindernd; Linderungsmittel, das (pharm.)  
Lozenges may contain benzocaine, an anesthetic, or eucalyptus oil. Non-menthol throat lozenges generally use either zinc gluconate glycine or pectin as an oral demulcent.

**demurrage** Liegezeit, die; Liegegeld, das; Lagergeld, das; Demurrage, die (econ.)  
The project team underestimated the demurrage costs of the containers.

**denatured** vergällt (chem.)  
Denatonium, the most bitter compound known to date, is sometimes added to denatured alcohol.

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<b>DeNOx plant, denitrification unit</b>	Entstickungsanlage, die  The boiler was retrofitted with a small DeNOx plant.	(chem. eng.)
<b>density</b>	Dichte, die <i>Acronym (engl.):</i> ρ <i>Acronym (dt.):</i> ρ At room temperature, the density of mercury (Hg) is 13.53 g/cm <sup>3</sup> .	(chem.)
<b>department</b>	Abteilung, die  The budget of the R&D department was cut by 10%.	(econ.)
<b>department head</b>	Abteilungsleiter, der  The head of the IT department left the company.	(econ.)
<b>deplete, to</b>	abreichern, erschöpfen  The mine was depleted 10 years ago.	(chem.)
<b>depreciate, to</b>	abschreiben  The forklift was depreciated over 7 years.	(econ.)
<b>depreciation</b>	Abschreibung, die  A typical duration for plant depreciation is 5–20 years, depending on the process.	(econ.)
<b>derivative</b>	Derivat, das  The ester methyl benzoate is a derivative of methanol.	(chem.)
<b>derrick</b>	Bohrturm, der; Ladebaum, der; Ladekran, der  There were dozens of derricks in the docks.	(eng.)
<b>descale, to</b>	entkrusten, entzundern, entkalken  Descaling agents (descalants) work via dissolving the deposits (e.g. acetic acid, lactic acid, citric acid, sorbic acid, phosphoric acid or hydrochloric acid), or via chelation (e.g. phosphonates).	(chem.)
<b>desiccant</b>	Trocknungsmittel, das; Sikkativ, das  Potassium carbonate (K <sub>2</sub> CO <sub>3</sub> ) can be used as a desiccant. Its melting point is 891°C.	(chem.)

<b>desiccator</b>	Exsiccator, der The sample was stored in a desiccator.	(chem.)
<b>design capacity</b>	Auslegungskapazität, die The design capacity of the plant is 350 kt/a.	(chem. eng.)
<b>design of experiment</b>	Versuchsplanung, die <i>Acronym (engl.): DoE</i> A software package for statistical design of experiment will allow you to minimize your time spent in the lab and increase the quality of your results at the same time.	(sci.)
<b>design pressure</b>	Auslegungsdruck, der The design pressure of the fuel pipeline was 10 bar.	(chem. eng.)
<b>desulfurization</b>	Entschwefelung, die The Claus process is a large-scale desulfurization process which is used in refineries.	(chem. eng.)
<b>detail engineering</b>	Detail Engineering, das; Detailkonstruktion, die Detail Engineering is the phase that typically follows Basic Engineering.	(chem. eng.)
<b>development</b>	Entwicklung, die Product development has to take both market requirements and plant capabilities into consideration.	(sci.)
<b>deviation</b>	Abweichung, die A recipe deviation will result in different properties of the product.	(sci.)
<b>device</b>	Vorrichtung, die Last year, a patent was granted for his testing device.	(eng.)
<b>dew point</b>	Taupunkt, der The dew point is associated with relative humidity.	(chem.)
<b>dewatering</b>	Entwässerung, die Before sewage sludge can be burnt, it needs to be dewatered.	(chem.)

<b>dextrorotary</b>	rechtsdrehend Some compounds are optically active, i.e. they can rotate plane polarized light clockwise (dextrorotation) or counterclockwise (levorotation). Such a compound with dextrorotation is called dextrorotary, while one with levorotation is termed levorotary. It consists of chiral molecules.	( <i>pharm.</i> )
<b>diagonal cut</b>	Schrägriß, der In the diagonal cut, the openings of the boiler can be seen.	( <i>eng.</i> )
<b>diameter</b>	Durchmesser, der The diameter of a human hair is approx. 40 µm.	( <i>eng.</i> )
<b>diaphoresis</b>	Schweißabsonderung, die A low oral dose of 1,4-butanediol (< 2 ml) may result in diaphoresis and ataxia, while higher doses (2–5 ml) may result in loss of consciousness. 1,4-butanediol (HO(CH <sub>2</sub> ) <sub>4</sub> OH) can be converted into the important solvent tetrahydrofuran (THF, oxacyclopentane, C <sub>4</sub> H <sub>8</sub> O).	( <i>pharm.</i> )

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<b>diaphragm valve, membrane valve</b>	Membranventil, das  Diaphragm valves are commonly used for corrosive substances and in the pharmaceutical industry.	<i>(chem. eng.)</i>
<b>diatom</b>	Kieselalge, die; Diatomee  Diatomaceous earth consists of fossilized remains of diatoms, a type of hard-shelled algae.	<i>(pharm.)</i>
<b>diatomite, diatomaceous earth</b>	Kieselgur, die  The typical chemical composition of diatomaceous earth is 86% silica, 5% sodium, 3% magnesium and 2% iron.	<i>(pharm.)</i>
<b>die</b>	Presstempel, der; Matrize, die  Dies are made from highly wear-resistant materials.	<i>(eng.)</i>
<b>die plate</b>	Düsenplatte, die; Lochplatte, die  A die plate is a metal plate with numerous holes that can be used for pelletising of a melt.	<i>(eng.)</i>
<b>die swell</b>	Strangaufweitung, die  Die swell, the expansion of a melt strand after leaving a die, is proportional to the melt elasticity.	<i>(chem. eng.)</i>
<b>differential scanning calorimetry</b>	Differential-Scanning-Kalorimetrie, die  <i>Acronym (engl.): DSC</i> By the thermoanalytical technique DSC, phase transitions of a sample can be studied.	<i>(chem.)</i>
<b>differentiate, to</b>	ableiten, differenzieren  The function $y = x^{(1/3)}$ cannot be differentiated at $x = 0$ .	<i>(sci.)</i>
<b>diffraction</b>	Beugung, die  Diffraction, which occurs with all waves when they hit an obstacle, has the strongest effect with waves where the wavelength is on the order of the magnitude of the diffracting objects.	<i>(eng.)</i>

<b>digestion</b>	Aufschluss, der Microwave digestion is a time-efficient process.	(chem.)
<b>digit</b>	Stelle, die (Zahlen) A billion has 10 digits.	(eng.)
<b>diluent</b>	Verdünnungsmittel, das Organic peroxides are often phlegmatized by using a diluent.	(chem.)
<b>dilute, to</b>	verdünnen In order to feed the color at a constant rate, it had to be diluted.	(chem.)
<b>dilution</b>	Verdünnung, die Increasing the production volume will lead to a fixed cost dilution.	(chem.)
<b>dimensionless quantity</b>	dimensionslose Größe, die The Reynolds number, a dimensionless number, is the ratio of inertial forces to viscous forces in a fluid (the units cancel out). Laminar flow occurs at low Reynolds numbers, where viscous forces are dominant, whereas turbulent flow occurs at high Reynolds numbers, where inertial forces dominate. The relative density is another dimensionless quantity.	(chem. eng.)
<b>dimensionless representation</b>	dimensionslose Darstellung, die Dimensionless representations can be used as an aid for scale-up.	(chem. eng.)
<b>dioptr</b>	Dioptrie, die He is shortsighted on both eyes (-2.5 and -3.0 diopters).	(eng.)
<b>dip, to</b>	eintauchen The semi-finished article was dipped into a cleaning bath.	(chem.)
<b>dipole</b>	Dipol, der Molecules with a permanent dipole moment are known as polar molecules.	(chem.)
<b>dip tube</b>	Tauchrohr, das The dip tube is made from stainless steel.	(eng.)

<b>direct current</b>	Gleichstrom, der <i>Acronym (engl.): DC</i> Batteries, thermocouples and solar cells produce direct current.	(eng.)
<b>directional control valve</b>	Wegeschieber, der; Wegeventil, das  A directional control valve is used to direct hydraulic fluids.	(eng.)
<b>discard, to</b>	verwerfen The scientist discarded this theory.	(general )
<b>discharge</b>	Ablauf, der; Entleeren, das; Entladung, die The vessel was discharged.	(general)
<b>discolouration</b>	Verfärbung, die <i>discoloration (AE)</i> Discoloration of metal surfaces is a sure sign of thermal stresses.	(eng.)



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<b>disinfect, to</b>	desinfizieren The technician disinfected the surface of the table with isopropanol (2-propanol, C <sub>3</sub> H <sub>8</sub> O).	( <i>pharm.</i> )
<b>disinfectant</b>	Desinfizierungsmittel, das Often, household disinfectants contain denatonium to discourage ingestion. Denatonium, a quaternary ammonium cation, is the most bitter chemical compound known to date. Denatonium benzoate (C <sub>28</sub> H <sub>34</sub> N <sub>2</sub> O <sub>3</sub> , C <sub>21</sub> H <sub>29</sub> N <sub>2</sub> O·C <sub>7</sub> H <sub>5</sub> O <sub>2</sub> ) and denatonium saccharide are commonly used, also to denature alcohol.	( <i>pharm.</i> )
<b>dismantle, to</b>	zerlegen The student dismantled the TV set to learn more about its setup.	( <i>eng.</i> )
<b>disorders</b>	Beschwerden, die (körperlich) Patients suffering from allergic disorders often avoid exposure to pollen.	( <i>pharm.</i> )
<b>dispatch, to</b>	abfertigen, absenden, befördern The sample was dispatched as a rush order.	( <i>econ.</i> )
<b>displace, to</b>	verdrängen The weight of an object floating on water equals exactly that of the water which it displaces.	( <i>general</i> )
<b>disposable</b>	wegwerfbar, Einweg-, verfügbar Disposable packaging made from plastics can be thermally recycled.	( <i>general</i> )
<b>disposal</b>	Entsorgung, die The disposal of chemical waste is strictly regulated.	( <i>general</i> )
<b>dispose of, to</b>	entsorgen Dangerous waste needs to be disposed of according to local regulations.	( <i>chem.</i> )
<b>distill, to</b>	destillieren Distillation is a unit operation. It is the separation of a mixture based on differences in the volatilities of the constituents in a boiling liquid mixture.	( <i>chem.</i> )
<b>distillation</b>	Destillation, die Water can be purified by distillation or filtration.	( <i>chem.</i> )

<b>distribution tray</b>	Verteilerboden, der; Verteilerrinne, die The pipes deliver water into a distribution tray.	(chem. eng.)
<b>district heating, community heating</b>	Fernwärme, die Vienna has an ample district heating system.	(eng.)
<b>disuse</b>	Nichtgebrauch, der; Nichtbenutzen, das Ball valves are durable and usually achieve perfect shutoff even after years of disuse.	(chem. eng.)
<b>diverging lens</b>	Zerstreuungslinse, die If a lens is concave, a collimated (parallel) beam of light passing through it will be diverged (spread); the lens is termed a negative or diverging lens. If a lens is convex, a collimated beam passing through the lens will be converged (focused). In that case, the lens is termed a positive or converging lens.	(eng.)
<b>diverter valve</b>	Weiche, die Diverter valves are used in pneumatic conveying systems.	(eng.)
<b>division</b>	Bereich, der The company has 3 divisions.	(econ.)
<b>dizziness</b>	Schwindelgefühl, das Symptoms of carbon monoxide poisoning include dizziness and fatigue.	(med.)
<b>DoE</b>	<i>Acronym/Abbreviation referral: see design of experiment</i>	(sci.)
<b>dose</b>	Dosis, die Quantities of nutrients, drugs, and toxins are referred to as doses.	(pharm.)
<b>dosing aid</b>	Dosierhilfe, die The worker used a scoop as dosing aid.	(chem.)
<b>double bond</b>	Doppelbindung, die In contrast to Cl <sub>2</sub> , there is a double bond in O <sub>2</sub> .	(chem.)

- double jacket**      Doppelmantel, der      (eng.)  
The mixer is heated via a double jacket.
- doubling time**      Generationszeit, die      (pharm.)  
When the relative growth rate (not the absolute growth rate) is constant, one speaks about exponential growth, which has a constant doubling time.
- doughy**      teigartig      (pharm.)  
The ointment had a doughy consistency.
- downgauging**      Dickenreduktion, die      (chem. eng.)  
The packaging industry has invested heavily in R&D for downgauging. By reducing the wall or film thickness of packaging materials, disposal costs can be reduced.
- downstream**      nachgelagert, nachgeschaltet, flussabwärts      (chem. eng.)  
After pelletizing, the product is treated in several downstream processes such as drying, metal separation, classifying and packaging.

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<b>downtime</b>	Stehzeit, die; Stillstandszeit, die A malfunctioning valve could be identified as the root cause for a 3-hour downtime of the plant.	( <i>econ.</i> )
<b>draft</b>	Entwurf, der The draft layout of the plant was subjected to a review.	( <i>eng.</i> )
<b>drain</b>	Abfluss, der Concentrated acid must not be poured down the drain.	( <i>chem.</i> )
<b>drain nipple</b>	Ablasstutzen, der Drain nipples should be placed at the lowest possible position.	( <i>eng.</i> )
<b>drain valve</b>	Ablassventil, das The drain valve was plugged.	( <i>chem. eng.</i> )
<b>drain, to</b>	entwässern, ablassen After production, the water bath had to be drained completely.	( <i>eng.</i> )
<b>draught tube, draught box</b>	Leitrohr, das  <i>draft tube (AE)</i> A draught tube, which is also called draught box, is used with water wheels.	( <i>chem. eng.</i> )
<b>dredge</b>	Flussbagger, der A dredge is an excavator (digger) that operates under water.	( <i>eng.</i> )
<b>drilling rig</b>	Bohrinsel, die Drilling rigs can be reached by helicopter.	( <i>eng.</i> )
<b>drip, to</b>	träufeln He dripped the acid onto the sample to check for the presence of carbonates.	( <i>pharm.</i> )
<b>drive train, power train</b>	Antrieb, der; Antriebstrang, der The powertrain of a car consists of engine, transmission, driveshaft, differential, and the final drive (wheels).	( <i>eng.</i> )
<b>drop closure</b>	Tropfverschluss, der The drop closure was malfunctioning.	( <i>pharm.</i> )

<b>drop, to</b>	tropfen, Tropfen, der A drop of water has a volume of typically 0.05 ml.	( <i>pharm.</i> )
<b>droplet</b>	Tröpfchen, das Droplets are small drops (liquid particles) of <500 µm diameter.	( <i>pharm.</i> )
<b>dropping bottle</b>	Tropfflasche, die The pH indicator was stored in a dropping bottle with a ground glass joint and a pipette.	( <i>chem.</i> )
<b>drowsiness</b>	Schläfrigkeit, die; Benommenheit, die The inhalation of CO <sub>2</sub> led to drowsiness in the worker.	( <i>chem.</i> )
<b>drug</b>	Droge, die; Heilmittel, das; Medikament, das; Arznei, die; Wirkstoff, der Drugs must not be confused with addictive drugs. Several drugs can be obtained without prescription.	( <i>pharm.</i> )
<b>drug-resistant</b>	resistent gegenüber Arzneimitteln The patient was found to be drug-resistant.	( <i>pharm.</i> )
<b>dry end</b>	Austragsteil, der The dry end (downstream part) of a polymerisation plant includes a dryer and a pelletising unit.	( <i>chem. eng.</i> )
<b>drying agent, desiccant</b>	Trockenmittel, das Silica gel, calcium chloride, and molecular sieves can be used as desiccants.	( <i>pharm.</i> )
<b>drying oven</b>	Trockenschrank, der The drying oven was heated to 115°C.	( <i>pharm.</i> )
<b>dry wall, drywall, gypsum board, wallboard, plasterboard</b>	Trockenmauer, die  Drywall panels contain gypsum (CaSO <sub>4</sub> ·2 H <sub>2</sub> O), which can be mined or obtained from flue gas desulfurization.	( <i>eng.</i> )

<b>DSC</b>		(chem.)
	<i>Acronym/Abbreviation referral: see differential scanning calorimetry</i>	
<b>due</b>	fällig The due date was yesterday.	(econ.)
<b>dump</b>	Notentleerung, die; Notentspannung, die The reactor was dumped because of a disturbance of the process.	(chem. eng.)
<b>dust</b>	Staub, der Dust from this process is typically between 1 and 10 µm large.	(eng.)
<b>dust extraction system</b>	Entstaubungssystem, das The dust extraction system was a significant improvement for operator satisfaction.	(chem. eng.)
<b>dust tight</b>	staubdicht The packaging was not dust tight.	(pharm.)



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<b>dwelt time</b>	Aufenthaltszeit, die see residence time	( <i>pharm.</i> )
<b>dye</b>	Farbstoff, der Triphenylmethane ( $\text{Ph}_3\text{CH}$ , $(\text{C}_6\text{H}_5)_3\text{CH}$ ) is the basis for several synthetic dyes, the so-called triarylmethane dyes. They are used as food dyes.	( <i>chem.</i> )
<b>dye, to</b>	färben Dying of natural fibres needs to take into account fluctuations in raw material brightness.	( <i>eng.</i> )
<b>dynamic friction</b>	Gleitreibung, die To maintain constant speed, dynamic friction has to be overcome.	( <i>eng.</i> )
<b>dyne</b>	Dyn, das Dyne is an outdated unit of force, which was used in the cgs system. 1 dyne = 10 $\mu\text{N}$ .	( <i>eng.</i> )
<b>dyspnoea</b>	Atemnot, die <i>dyspnea</i> (AE) If swallowed, acetic acid (methane carboxylic acid) can lead to dyspnoea.	( <i>chem.</i> )
<b>ear plugs</b>	Ohrenstöpsel, die; Gehörschutzstöpsel, die Since the noise in the plant was > 83 dB(A), ear plugs were compulsory to wear.	( <i>eng.</i> )
<b>ear, eye</b>	Öse, die The banner was attached to the building by placing a rope through its eyes.	( <i>eng.</i> )
<b>earthed socket</b>	Schutzkontaktsteckdose, die The earthed socket was splashwater-proof.	( <i>eng.</i> )
<b>earthing</b>	Erdung, die; Erden, das <i>grounding</i> (AE) Earthing is an important safety practice to conduct electrical charges to ground, preventing dangerous sparks.	( <i>eng.</i> )

<b>EC50</b>	Effektdosis50, die The effective concentration (EC50) is the concentration of a substance in water, which, administered as a single dose, is expected to cause a biological effect on 50% of the tested population.	(chem.)
<b>ECO</b>	<i>Acronym/Abbreviation referral: see change order</i>	(chem. eng.)
<b>ECO</b>	<i>Acronym/Abbreviation referral: (engineering) change order</i>	(chem. eng.)
<b>economiser, preheater</b>	Vorwärmer, der <i>economizer (AE)</i> The economizer was heavily corroded.	(chem. eng.)
<b>eddy</b>	Wirbel, der Eddy currents (Foucault currents) are caused when a conductor is exposed to a changing magnetic field.	(general)
<b>edema</b>	Ödem, das Upon ammonia exposure, lung irritation and pulmonary edema may occur.	(pharm.)
<b>edge</b>	Kante, die The operator hurt his knee on the edge of the transportation box.	(eng.)
<b>edible</b>	essbar The food did not look edible.	(pharm.)
<b>effective concentration</b>	<i>Acronym/Abbreviation referral: see EC50</i>	(chem.)
<b>effervesce, to</b>	sprudeln, aufbrausen The carbonate started to effervesce in the acidic solution.	(chem. eng.)
<b>effervescent</b>	schäumend The following reaction took place in the effervescent drink: $C_6H_8O_7 + 3NaHCO_3 \rightarrow 3 H_2O + 3 CO_2 + Na_3C_6H_5O_7$ (citric acid + sodium bicarbonate ? water + carbon dioxide + sodium citrate).	(pharm.)

<b>effervescent tablet</b>	Brausetablette, die The ingredients of effervescent tablets can penetrate the blood stream within 15 minutes.	( <i>pharm.</i> )
<b>effluent</b>	flüssige Abfälle, die; Abwasser, das The effluent from the plant is monitored regularly.	( <i>chem.</i> )
<b>effluvium</b>	Ausdünstung, die Effluvium stands for the shedding of hair.	( <i>pharm.</i> )
<b>egg white</b>	Eiweiß, das; Eiklar, das Egg white (albumen) consists of approx. 15% proteins in water.	( <i>chem.</i> )
<b>electric scale</b>	elektrische Waage, die The electric scale has an accuracy of +/- 0.1 mg.	( <i>eng.</i> )
<b>electric engineering</b>	Elektrotechnik, die Electrical engineering is one of the most popular disciplines at her university.	( <i>eng.</i> )



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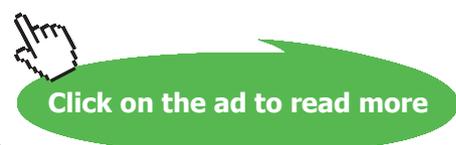
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<b>electrical engineering</b>		(eng.)
	<i>Acronym/Abbreviation referral: electric engineering</i>	
<b>electropolishing</b>	Elektropolieren, das Even surfaces can be obtained by electropolishing.	(eng.)
<b>elementary analysis</b>	Elementaranalyse, die The empirical formula was determined by elementary analysis.	(chem.)
<b>elevation, front elevation</b>	Aufriss, der The client looked at the front elevation and made some comments.	(eng.)
<b>elicit hypersensitivity, to</b>	eine Allergie auslösen, Überempfindlichkeit auslösen The plant was suspected to elicit hypersensitivity.	(chem.)
<b>elucidate, to</b>	aufklären The structure of benzene was elucidated by Kekulé.	(eng.)
<b>eluent</b>	Eluat, das An eluent is the mobile phase in chromatography.	(chem.)
<b>elute, to</b>	auspülen The sample was eluted to the FID (flame ionisation detector).	(chem.)
<b>elutriator</b>	Sichter, der An elutriator can separate pellets from undesirable dust.	(chem. eng.)
<b>embed, to</b>	einbetten The embedded file could not be opened.	(eng.)
<b>embossed</b>	geprägt, erhaben The brand of the manufacturer was embossed on the tablets.	(pharm.)
<b>embrittlement</b>	Versprödung, die Hydrogen embrittlement is dangerous for pressure vessels.	(eng.)
<b>embrocation, liniment</b>	Einreibemittel, das Traditional Chinese medicine (TCM) features a wide variety of liniments.	(pharm.)

<b>emerald</b>	Smaragd, der The green color in emerald stems from traces of chromium. The mineral is beryl: $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$ .	(chem.)
<b>emergency response plan</b>	Notfall-Reaktionsplan, der  <i>Acronym (engl.): ERP</i> The emergency response plan for the 3 plants was updated and discussed with the local mayor.	(chem. eng.)
<b>emergency shutdown</b>	Notabschaltung, die  <i>Acronym (engl.): ESD</i> The ESD, which was caused by a power outage, led to an unplanned shutdown of the plant of 3 days.	(chem. eng.)
<b>emerging</b>	neu entstehend Hydrogen combustion in fuel cells is an emerging technology.	(sci.)
<b>emery</b>	Schmirgel, der Emery paper can be used to remove deposits from glassware.	(chem.)
<b>emetic</b>	Brechmittel, das; brecherregend Syrup of ipecac (ipecac) is a commonly used, herbal emetic.	(pharm.)
<b>emollient</b>	Weichmacher, der Emollients are substances that soften and soothe the skin.	(pharm.)
<b>empirical</b>	empirisch Any theory needs to be proven by empirical results.	(sci.)
<b>empirical formula</b>	Summenformel, die The empirical formula of hexane ( $\text{C}_6\text{H}_{14}$ ) is $\text{C}_3\text{H}_7$ .	(chem.)
<b>empowerment</b>	Ermächtigung, die; Übertragung von Verantwortung an Mitarbeiter, die Empowerment of his employees has greatly reduced the workload of the department head.	(econ.)

<b>emulsifying agent, emulsifier, emulgent</b>	Emulgator, der  Lecithin, a common emulsifier in food, can be extracted from soybeans using hexane.	( <i>pharm.</i> )
<b>enamel</b>	Email, das  Enamel is sensitive to mechanical stress.	( <i>chem.</i> )
<b>enamelled</b>	emailliert <i>enameled (AE)</i>  Enamelled vessels can be used for hot acids.	( <i>pharm.</i> )
<b>endocrine disrupter</b>	Störungen des Hormonsystems verursachender Stoff  Bisphenol A (BPA) is an endocrine disrupter. This organic compound with two phenol functional groups is an important monomer in the production of polycarbonate.	( <i>pharm.</i> )
<b>endothermic</b>	endotherm  The melting of ice and the splitting of water into H <sub>2</sub> and O <sub>2</sub> air are endothermic processes.	( <i>chem.</i> )

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<b>enema</b>	Darmspülung, die An enema is a bowel stimulant.	( <i>pharm.</i> )
<b>energised, to be</b>	unter Spannung stehen <i>energized, to be (AE)</i> The wire was energized.	( <i>eng.</i> )
<b>energy balance</b>	Energiebilanz, die According to the first law of thermodynamics, energy cannot be created or destroyed, but only be modified. The energy balance of a closed system is hence zero.	( <i>chem.</i> )
<b>energy consumption</b>	Energieverbrauch, der The energy consumption of a pump often accounts for more than 90% of the total lifecycle costs.	( <i>chem. eng.</i> )
<b>engine</b>	Motor, der Combustion engines have a higher energy density than batteries.	( <i>eng.</i> )
<b>engineer</b>	Ingenieur(in), der (die) Engineers need to pay attention to minute details.	( <i>chem. eng.</i> )
<b>engineering</b>	Engineering, das; Ingenieurwesen, das; Ingenieursarbeit, die; Maschinenbau, der; Konstruktieren, das Engineering can be categorized into several branches with aerospace engineering, chemical engineering, civil engineering, electrical engineering and mechanical engineering being the traditional ones. Software engineering and genetic engineering are two more recent branches.	( <i>eng.</i> )
<b>Engineering, Procurement and Construction</b>	EPC-Vertrag, der (eine Art Generalunternehmer-Vertrag)  <i>Acronym (engl.): EPC</i> <i>Acronym (dt.): EPC</i> The EPC contractor was chosen from a list of 3 bidders.	( <i>chem. eng.</i> )

<b>Engineering, Procurement and Construction Supervision</b>	EPCS-Vertrag, der (eine Art Generalunternehmer-Vertrag)	<i>(chem. eng.)</i>
	<i>Acronym (engl.): EPCS</i> <i>Acronym (dt.): EPCS</i> The EPCS contract was signed.	
<b>Engineering, Procurement and Construction Commissioning</b>	EPCC-Vertrag, der (eine Art Generalunternehmer-Vertrag)	<i>(chem. eng.)</i>
	<i>Acronym (engl.): EPCC</i> <i>Acronym (dt.): EPCC</i> The plant was built under an EPCC contract.	
<b>Engineering, Procurement, Construction Management</b>	EPCM-Vertrag, der (eine Art Generalunternehmer-Vertrag)	<i>(chem. eng.)</i>
	<i>Acronym (engl.): EPCM</i> <i>Acronym (dt.): EPCM</i> The project was carried out as EPCM.	
<b>enrich, to</b>	anreichern	<i>(chem.)</i>
	In enriched uranium, the fraction of uranium -235 has been increased beyond its natural abundance of 0.711% in uranium, because only <sup>235</sup> U is fissionable by neutrons and <sup>238</sup> U is not.	
<b>enter (a vessel), to</b>	befahren (eines Behälters)	<i>(chem. eng.)</i>
	Entering a nitrogen-containing vessel requires special precautions.	
<b>enteric coated</b>	magensaftresistent überzogen	<i>(pharm.)</i>
	Pills that are enteric coated do not dissolve until they reach the small intestine. Enteric coatings, which can be made from cellulose acetate (the acetate ester of cellulose) or other polymers, are applied to avoid stomach irritation or a reduction in drug effectiveness by stomach acids or enzymes.	

<b>entero soluble</b>	dünndarmlöslich The company was technology leader in the production of entero-soluble gelatin capsules. Gelatin is a protein produced by partial hydrolysis of collagen extracted from bones and connective tissue.	( <i>pharm.</i> )
<b>entire system</b>	Gesamtsystem, das In order to set up a mass balance, the entire system needs to be considered.	( <i>chem.</i> )
<b>entrainment</b>	Einschluss, der Air entrainment is the deliberate creation of small air bubbles in concrete. Unlike entrapped air (larger bubbles), the small bubbles increase performance.	( <i>chem.</i> )
<b>environment</b>	Umwelt, die Before a new plant can be approved in China, an EIA (environmental impact assessment) has to be made to protect the environment.	( <i>chem.</i> )
<b>environmental awareness</b>	Umweltbewusstsein, das Due to media coverage, the environmental awareness of the public has increased.	( <i>chem.</i> )

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<b>environmental engineering, environmental technology</b>	Umwelttechnik, die  Companies working in environmental technology often have a high export rate.	(chem. eng.)
<b>Environmental Protection Agency</b>	EPA, US-Umweltschutzbehörde, die  <i>Acronym (engl.): EPA</i> EPA took up work in 1970 and has close to 20,000 employees.	(chem. eng.)
<b>environmental technology</b>	Umwelttechnik, die  Pollutant reduction is an important area of environmental technology.	(chem. eng.)
<b>EPA</b>	<i>Acronym/Abbreviation referral: see Environmental Protection Agency</i>	(general)
<b>EPC</b>	<i>Acronym/Abbreviation referral: see Engineering, Procurement and Construction</i>	(chem. eng.)
<b>EPC contractor</b>	Generalunternehmer, der The EPC contractor charged an hourly rate of 65€ for its engineers.	(chem. eng.)
<b>EPCC</b>	<i>Acronym/Abbreviation referral: see Engineering, Procurement, Construction and Commissioning</i>	(chem. eng.)
<b>EPCM</b>	<i>Acronym/Abbreviation referral: see Engineering, Procurement, Construction Management</i>	(chem. eng.)
<b>EPCS</b>	<i>Acronym/Abbreviation referral: see Engineering, Procurement and Construction Supervision</i>	(chem. eng.)
<b>equation</b>	Gleichung, die It can take days to derive a complicated equation.	(chem.)

<b>equation of state</b>	Zustandsgleichung, die In thermodynamics, an equation of state is a relation between state variables.	(chem. eng.)
<b>equilateral</b>	gleichseitig An equilateral triangle has three angles of 60°.	(chem.)
<b>equilibrium</b>	Gleichgewicht, das The concept of chemical equilibrium was developed after Berthollet discovered that some chemical reactions are reversible. The equilibrium between CO and CO <sub>2</sub> is described by the Boudouard equation.	(chem.)
<b>equipment</b>	Geräte, die The consultant handed over the equipment list to his client.	(eng.)
<b>ergot</b>	Mutterkorn, das Ergot is a fungus that afflicts grains and grasses.	(chem.)
<b>escalation</b>	Steigerung, die The contract mentioned a price escalation clause.	(econ.)
<b>ESD</b>	<i>Acronym/Abbreviation referral: see emergency shutdown</i>	(chem. eng.)
<b>essential oil</b>	ätherisches Öl, das The yearly production of essential oils from spearmint and peppermint exceeds 1000 tons each.	(pharm.)
<b>estimate (80/20)</b>	Kostenschätzung 80/20, die An estimate (80/20) has got 80% probability for underrun and 20% probability for overrun of project costs.	(chem. eng.)
<b>estimate, to</b>	schätzen The engineer estimated the unplanned shutdown to last at least 3 weeks.	(general)
<b>etching</b>	Ätzen, das Etching is an important unit operation in lithography.	(chem.)

<b>European Chemical Industry Council</b>	Europäischer Chemiefachverband CEFIC, der <i>Acronym (engl.): CEFIC</i> Cefic represents the European chemical industry and thereby stands for approx. 30,000 chemical companies which employ approx. 1.3 million people and account for nearly a third of the world's chemical production.	(chem.)
<b>eutectic point</b>	Eutektikum, das The melting point of a mixture of two or more solids depends on their fractions in that mixture. At the eutectic point, the melting temperature is lowest.	(chem.)
<b>evaluation</b>	Auswertung, die The evaluation of results deserves at least as much time as the experiments themselves.	(sci.)
<b>evaporate, to</b>	verdunsten, verdampfen Liquids and solids have a tendency to evaporate into a gaseous form and to condense back. The vapor pressure expresses the equilibrium condition.	(chem.)

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## Chemical Engineering Vocabulary

<b>even</b>	eben, glatt, gerade 2, 4 and 6 are even numbers.	(eng.)
<b>evolution of gas</b>	Gasentwicklung, die The evolution of H <sub>2</sub> gas from recharging of accumulators has to be evaluated for potential risks.	(chem.)
<b>evolution of heat</b>	Wärmeentwicklung, die The evolution of heat in exothermic reactions has to be controlled.	(chem.)
<b>ex works</b>	ab Werk (Incoterm) <i>Acronym (engl.): EXW</i> The machine will be available ex works in 2 weeks.	(econ.)
<b>excavation work</b>	Aushubarbeit, die The excavation works were delayed by 2 weeks.	(eng.)
<b>excavator</b>	Bagger, der Front loaders and excavators were used to remove the contaminated soil.	(eng.)
<b>exceed, to</b>	übertreffen The market response has exceeded the expectations.	(eng.)
<b>excess</b>	Überschuss, der The cheaper reaction partner was added in excess.	(chem.)
<b>excess pressure</b>	Überdruck, der It needs to be ensured that the excess pressure in the process can never surpass the design pressure of the equipment.	(chem. eng.)
<b>excipient</b>	Hilfsstoff, der; Wirkstoffträger, der Excipients account for a large portion of tablets. For instance, binders hold the ingredients in a tablet together. Binders are usually starches, sugars, cellulose or modified cellulose such as hydroxypropyl cellulose, lactose, or sugar alcohols like xylitol, sorbitol or maltitol.	(pharm.)
<b>excite, to</b>	anregen The OH radicals were excited at 278.5 nm.	(general)

<b>executive</b>	Direktor, der; Führungskraft, die; leitender Angestellter, der; Leiter, der In company A, all executives are entitled to a company car.	(econ.)
<b>executive board</b>	Vorstand, der The executive board holds biweekly meetings.	(econ.)
<b>exhaust, exhaust gas</b>	Abgas, das In modern DeNOx plants, ammonia slip in the exhaust gases is measured.	(chem.)
<b>exothermic</b>	exotherm The mixing of strong acids with water, combustion and most polymerisation reactions are exothermic.	(chem.)
<b>expansion sleeve</b>	Dehnungsmanschette, die The expansion sleeve could compensate thermal expansion between -10 and +300°C.	(chem. eng.)
<b>expat</b>	<i>Acronym/Abbreviation referral: short form for expatriate</i>	(econ.)
<b>expatriate</b>	Mitarbeiter im Auslandseinsatz, der; Auswanderer, der <i>Acronym (engl.): expat</i> For his company, he went to China as an expat for 2 years.	(econ.)
<b>expectation</b>	Erwartung, die In order to fulfil customer requirements, one needs to know their expectations.	(general)
<b>expertise</b>	Wissen, das; Erfahrung, die His expertise was not disputed.	(general)
<b>expiration date, expiry date</b>	Ablaufdatum, das  Shelf life is different from expiration date; the former relates to food quality, the latter to food safety.	(pharm.)
<b>expire, to</b>	auslaufen, ablaufen The software licence has to be renewed before it expires.	(general)

<b>explosion</b>	Explosion, die Explosions in a confined space are particularly dangerous.	(chem.)
<b>explosion proof</b>	explosionssicher, explosionsfest The vessel was designed to be explosion proof in order to avoid the installation of a pressure relief valve.	(chem. eng.)
<b>exposure</b>	Einwirkung, die; Aussetzen, das; Exposition, die; Ausgesetztsein, das Chronic exposure to lead amongst workers in ammunition factories can lead to serious diseases.	(chem.)
<b>exposure limit</b>	Belastungsgrenze, die The exposure limit of CO is 50 ppm.	(chem.)
<b>extensible</b>	ausziehbar His remote control has an extensible antenna.	(eng.)
<b>extinguishing medium</b>	Löschmittel, das Carbon dioxide and water can be used as extinguishing media.	(chem. eng.)

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<b>extractables</b>	lösliche Anteile, die Extractables are chemicals which are released by the packaging and can contaminate a pharmaceutical drug in it.	(chem.)
<b>extraction</b>	Extraktion, die Some essential oils can be obtained by extraction.	(chem.)
<b>extrusion</b>	Extrusion, die Extrusion and injection moulding are two important plastics processing technologies.	(eng.)
<b>EXW</b>	Acronym/Abbreviation referral: see ex works	(econ.)
<b>eye wash equipment</b>	Augendusche, die The lab was equipped with state-of -the-art eye wash equipment.	(chem.)
<b>fabric</b>	Stoff, der; Gewebe, das Fabrics are woven on dedicated machines.	(eng.)
<b>facilitator</b>	Moderator, der; Unterstützer, der To structure the workshop, a facilitator was invited.	(econ.)
<b>factory</b>	Fabrik, die The glass factory is the largest employer of the region.	(chem.)
<b>factory acceptance test</b>	Abnahmeprüfung in der Fabrik, die <i>Acronym (engl.): FAT</i> The FAT was witnessed by three technical experts of the customer to verify that the equipment was functioning according to specifications.	(econ.)
<b>fail closed</b>	bei Störung zu The propane feed line was equipped with a fail closed valve.	(eng.)
<b>fail open</b>	bei Störung offen A fail open shutter should generally not be used on these storage tanks.	(eng.)
<b>fail open valve</b>	bei Ausfall des Versorgungsluftdrucks geöffnetes Ventil The vessel had a fail open valve.	(eng.)

<b>fail safe position</b>	Position im Störfall, die The fail safe position of the valve is “open”.	(chem. eng.)
<b>failed batch</b>	Fehlcharge, die The failed batch was reworked in the subsequent productions.	(chem. eng.)
<b>fail-safe, fail-secure</b>	ausfallsicher, betriebssicher The vessel was made fail-safe by redundant systems.	(chem. eng.)
<b>failure</b>	Versagen, das Denial of the project was considered a failure of the project manager.	(eng.)
<b>failure mode and effect analysis</b>	Fehler-Möglichkeiten- und Einfluss-Analyse, die  <i>Acronym (engl.): FMEA</i> <i>Acronym (dt.): FMEA</i> The customer asked for a process FMEA.	(general)
<b>falsification</b>	Verfälschung, die No falsification could be seen on the packaging.	(general)
<b>fan</b>	Lüfter, der; Ventilator, der The fan provided some air circulation in the room.	(eng.)
<b>FAT</b>	 <i>Acronym/Abbreviation referral: see factory acceptance test</i>	(econ.)
<b>fat</b>	Fett, das Fats are generally triesters of glycerol (propane-1,2,3-triol, C <sub>3</sub> H <sub>5</sub> (OH) <sub>3</sub> ) and fatty acids.	(chem.)
<b>fatigue</b>	Ermüdung, die Material fatigue can be depicted on an S-N curve, which is also known as the Wöhler curve. It is a graph of the magnitude of a cyclical stress (S) against the logarithmic scale of cycles to failure (N).	(eng.)

<b>fatty acid</b>	Fettsäure, die A fatty acid is a carboxylic acid (carbonic acid). It can have a long unbranched aliphatic saturated or unsaturated tail (chain). Most naturally occurring fatty acids have an even number of carbon atoms, because their biosynthesis involves the coenzyme acetyl-CoA.	(chem.)
<b>faulty</b>	fehlerhaft The manual is faulty.	(eng.)
<b>FDA</b>	<i>Acronym/Abbreviation referral: see Food and Drug Administration</i>	(eng.)
<b>feasibility</b>	Machbarkeit, die The economic feasibility of the project was doubtful.	(general)
<b>feasibility study</b>	Machbarkeitsstudie, die In the feasibility study, the production process was chosen.	(chem. eng.)

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<b>feasible</b>	machbar According to the laws of physics, the construction of a perpetuum mobile is not feasible.	(chem.)
<b>federal</b>	bundesstaatlich The use of that chemical is regulated by federal law.	(general)
<b>Federal Environment(al) Agency</b>	Umweltbundesamt, das  <i>Acronym (dt.): UBA</i> The German Federal Environmental Agency had a study on PAH conducted.	(general)
<b>Federal Register (AE)</b>	Federal Register (ähnl. Bundesanzeiger) <i>Acronym (engl.): Fed. Reg.</i> The Federal Register is an official, daily publication issued by Federal agencies and organizations in the United States.	(general)
<b>feed port</b>	Einspeisestelle, die The PFD does not show the feed ports of the catalyst.	(chem. eng.)
<b>feed water</b>	Speisewasser, das The feed water consumption of a plant has to be estimated in the basic engineering phase.	(chem. eng.)
<b>FEL</b>	<i>Acronym/Abbreviation referral: see front end loading</i>	(chem. eng.)
<b>felt</b>	Filz, der Felt, a nonwoven cloth, is the oldest fabric.	(chem.)
<b>fermentation</b>	Gärung, die; Vergärung, die Acetic acid is produced from ethanol by fermentation.	(chem.)
<b>ferric</b>	Fe III Iron(III) oxide, Fe <sub>2</sub> O <sub>3</sub> , also known as ferric iron, is rust. It is red.	(chem.)
<b>ferrous</b>	Fe II Iron(II) oxide, FeO, also known as ferrous oxide, is black.	(chem.)

<b>ferrous metal</b>	Eisenmetall, das Ferrous metals (Fe, Ni, Co) are attracted by a magnet.	(chem.)
<b>fertiliser, fertilizer</b>	Dünger, der <i>fertilizer (AE)</i> Most fertilizers contain the three major plant nutrients (nitrogen, phosphorus, potassium: N-P-K).	(chem. eng.)
<b>FIBC</b>	<i>Acronym/Abbreviation referral: see flexible intermediate bulk container</i>	(chem. eng.)
<b>fibre</b>	Faser, die <i>fiber (AE)</i> The fiber was made from PP (polypropylene).	(chem.)
<b>fibre glass, glass fibre</b>	Glasfaser, die <i>fiber glass, glass fiber (AE)</i> Fibre glass can be used in plastics compounds.	(chem.)
<b>fibre reinforced</b>	faserverstärkt <i>fiber reinforced (AE)</i> Fibre reinforced materials have a good performance/weight ratio.	(chem.)
<b>fibrous</b>	faserig Wollastonite has a fibrous structure.	(chem.)
<b>field erection</b>	Fertigung auf der Baustelle, die The silo was field-erected to save transportation costs.	(eng.)
<b>field force</b>	Außendienst, der The field force has to understand the strengths and weaknesses of a company's products.	(econ.)
<b>field size</b>	Feldgröße, die The asset field size is 20,000 m <sup>2</sup> .	(eng.)
<b>field test</b>	Feldtest, der The prototype was subjected to a 3-week field test.	(eng.)

<b>FIFO</b>	<i>Acronym/Abbreviation referral: see first in, first out</i>	(econ.)
<b>file</b>	Feile, die; Datei, die; Karteikarte, die A good filing stucture greatly facilitates searching for old data.	(eng.)
<b>film coated tablet</b>	Filmtablette, die The film coated tablet could be swallowed easily by the patient.	(pharm.)
<b>film forming agent</b>	Filmbildner, der Polyvinylpyrrolidone (PVP, povidone, polyvidone) is a film-forming agent.	(pharm.)
<b>filter residue</b>	Filterrückstand, der The toxic filter residue was disposed of.	(pharm.)
<b>fin</b>	Kühlrippe, die Fins on a heat exchanger can improve heat transfer.	(eng.)
<b>final study</b>	abschließende Studie, die; Abschlussstudie, die Verification of the business case is a vital part of a final study.	(chem. eng.)

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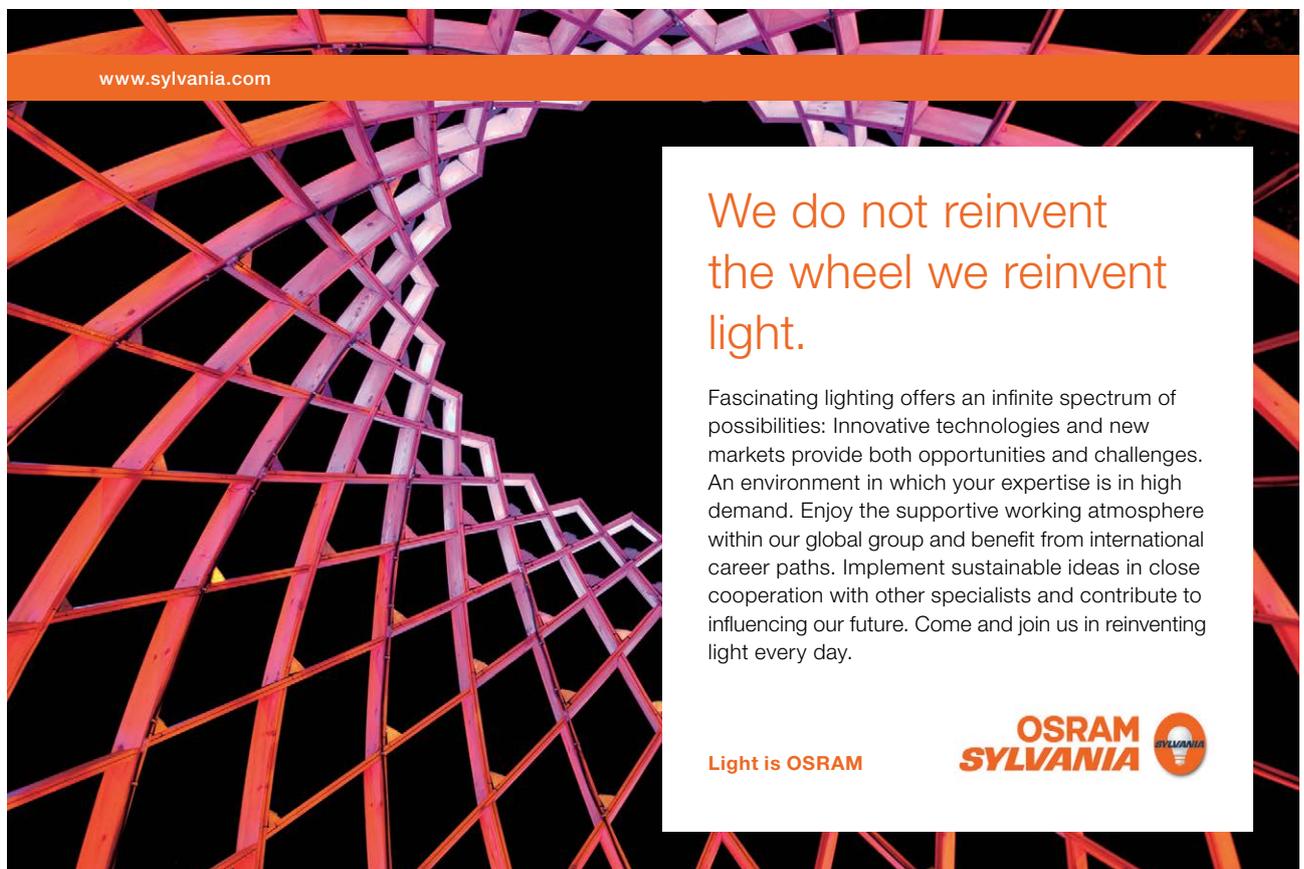
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<b>final yield</b>	Endausbeute, die The final yield can be increased to 85% when the reaction is conducted in the most preferable solvent.	( <i>chem.</i> )
<b>financial accounting, financial accountancy</b>	Finanzbuchhaltung, die; Finanzierung, die Financial accounting needs to follow local and international accounting standards.	( <i>econ.</i> )
<b>fine adjustment</b>	Feineinstellung, die By fine adjustment of the reactor, the yield could be increased by 3%.	( <i>pharm.</i> )
<b>fir</b>	Tanne, die Fir, which is not suitable as timber, is often used as plywood.	( <i>general</i> )
<b>fire</b>	Brand, der; Feuer, das The smoke detector set off the fire alarm.	( <i>chem.</i> )
<b>fire diamond</b>	Feuerdiamant, der The fire diamond is a symbol designed by the NFPA to provide a quick overview about the hazards of a substance by a number code in colored boxes: Blue stands for health, red for flammability, yellow for the reactivity and white for specific hazard of the substance in question.	( <i>chem. eng.</i> )
<b>fire extinguisher</b>	Feuerlöscher, der Potassium bicarbonate (potassium hydrogen carbonate, $\text{KHCO}_3$ ) is used in class B and class C fire extinguishers.	( <i>general</i> )
<b>firebox</b>	Brennkammer, die The firebox is the area where fuel is burnt.	( <i>chem. eng.</i> )
<b>fireproof</b>	feuerfest, hitzebeständig A concrete lining made the traffic tunnel fireproof.	( <i>chem. eng.</i> )
<b>fireproofing</b>	Feuerfestmachen, das Historically, asbestos was used for fireproofing in buildings.	( <i>chem. eng.</i> )
<b>firewater</b>	Branntwein, der; Löschwasser, das Firewater was stored in a pond.	( <i>eng.</i> )

<b>first in, first out</b>	<p>die Ältesten (Waren, Rohstoffe, Lagerbestände, Anträge,...) zuerst (econ.)</p> <p>Acronym (engl.): <i>FIFO</i></p> <p>FIFO is a stock valuation technique where the value of materials that are taken out of a warehouse is set equal to the value of the oldest material in stock.</p>	
<b>first order reaction</b>	<p>Reaktion erster Ordnung, die (chem.)</p> <p>A first-order reaction depends on the concentration of only one reactant. An example is the unimolecular reaction <math>\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + 1/2 \text{H}_2</math>.</p>	
<b>fixed</b>	<p>befestigt, fixiert (eng.)</p> <p>The meeting could be fixed for October 23.</p>	
<b>fixed costs</b>	<p>Fixkosten, die (econ.)</p> <p>Costs that do not change in line with production output, e.g. factory rent, depreciation of plant and machinery, are termed fixed costs. Also salaries are included in fixed costs since they can be reduced only in a very long time perspective.</p>	
<b>flake</b>	<p>Flocke, die (chem.)</p> <p>Snow flakes exhibit a 6-fold symmetry, which arises from the hexagonal crystal structure of ice.</p>	
<b>flame sieve, flame arrestor, flame arrester</b>	<p>Flammensperre, die; Flammsieb, das (chem. eng.)</p> <p>Flame arrestors which are designed to stop deflagrations might be overridden by a detonation.</p>	
<b>flammable</b>	<p>brennbar, leicht entflammbar (chem.)</p> <p>Acetone and ethanol are flammable liquids. Their autoignition temperatures are 465°C and 425°C, respectively.</p>	
<b>flange</b>	<p>Flansch, der (chem. eng.)</p> <p>Pipe flanges can be divided into pressure classes.</p>	
<b>flap</b>	<p>Klappe, die (eng.)</p> <p>The flap was actuated to stop the material flow.</p>	

<b>flare, to</b>	abfackeln Flaring is generally only performed at startup and shutdown of the plant.	(chem. eng.)
<b>flashback</b>	Flammenrückschlag, der; Flashback, der A flashback can occur with an acetylene torch if the gas pressure is too low (i.e. the gas flow of the combustible mixture is slower than the laminar flame speed so that the flame can travel backwards).	(chem.)
<b>flashover</b>	Feuersprung, der; Funkenüberschlag, der In household fires, a flashover typically occurs at 500°C, when the combustible gases, which have accumulated in the room, ignite simultaneously. If this phenomenon occurs in an unconfined space, it is termed firestorm.	(chem.)
<b>flashpoint, flash point</b>	Flammpunkt, der The flashpoint of gasoline is below -20°C, whereas its autoignition temperature is 246°C. For diesel, the values are approx. 62°C and 210°C, respectively.	(chem.)
<b>flask</b>	Kolben, der; Glaskolben, der; Fläschchen, das The lab technician was looking for a clean flask.	(pharm.)



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<b>flavouring agent</b>	<p>Geschmackstoff, der; Aromastoff, der  <i>flavoring agent (AE)</i></p> <p>Synthetic vanillin, instead of natural vanilla extract, which contains several hundred different compounds in addition to vanillin, is sometimes used as a flavoring agent in foods, beverages, and pharmaceuticals. It can be made from guaiacol (2-methoxyphenol, C<sub>7</sub>H<sub>8</sub>O<sub>2</sub>) or lignin. The lignin-derived product contains acetovanillone (apocynin, 1-(4-Hydroxy-3-methoxyphenyl)ethanone, C<sub>9</sub>H<sub>10</sub>O<sub>3</sub>) as an impurity.</p>	(pharm.)
<b>fleece</b>	<p>Vlies, das</p> <p>Sheep were among the earliest animals to be domesticated for agricultural purposes. They give fleece, meat (lamb or mutton) and milk.</p>	(general)
<b>flexibiliser, plasticiser</b>	<p>Weichmacher, der (für Kunststoffe)  <i>flexibilizer, plasticizer (AE)</i></p> <p>Plasticizers for plastics are additives, most commonly phthalates, that give hard plastics like PVC the desired flexibility and durability. They are often based on esters of polycarboxylic acids with linear or branched aliphatic alcohols of moderate chain length.</p>	(chem.)
<b>flexible</b>	<p>biegsam</p> <p>The construction was held together by flexible wire.</p>	(general)
<b>flexible intermediate bulk container</b>	<p><i>Acronym (engl.): FIBC</i>  <i>Acronym/Abbreviation referral: see big bag</i></p>	(chem. eng.)
<b>flint stone</b>	<p>Feuerstein, der</p> <p>Flint is a hard, cryptocrystalline form of quartz, which can be found as nodules in sedimentary rocks such as chalk and limestone.</p>	(chem.)
<b>floating roof</b>	<p>Schwimmdach, das</p> <p>The fuel storage tank, which has a capacity of approx. 5,000,000 litres, is equipped with a fixed roof with internal floating roof.</p>	(eng.)
<b>flocculate, to</b>	<p>ausflocken</p> <p>The emulsion was flocculated using multivalent cations such as aluminium, calcium and magnesium ions.</p>	(chem.)

<b>flocculation</b>	Ausflockung, die In flocculation, unlike precipitation, the solute coming out of the solution does so at a concentration below its solubility limit.	(chem.)
<b>flow limiter, flow restrictor</b>	Durchflussbegrenzer, der An orifice plate is a simple flow limiter (flow restrictor).	(chem. eng.)
<b>flow rate, volume flow, volume flow rate</b>	Volumenstrom, der The blower supplies a flow rate of 5,400 m <sup>3</sup> /h.	(chem. eng.)
<b>flow sheet</b>	Fließschema, das; Fließbild, das The engineer attempted to simplify the flow sheet.	(chem. eng.)
<b>fluent</b>	fließend Fluent English is vital in many roles.	(general)
<b>fluid</b>	Fluid, das (Flüssigkeit/Gas) The instrument was designed for fluid flows from 0.1 to 50 t/h.	(chem.)
<b>fluid dynamics, fluid mechanics</b>	Stömungslehre, die; Hydromechanik, die An important set of equations in fluid dynamics are the Navier-Stokes equations. These differential equations describe the motion of viscous fluids.	(eng.)
<b>fluidised bed</b>	Wirbelschicht, die <i>fluidized bed</i> (AE) Fluidized beds show good heat and mass transfer and can hence be used for numerous processes such as combustion.	(chem. eng.)
<b>fluorine</b>	Fluor, das <i>Acronym (engl.): F</i> <i>Acronym (dt.): F</i> Fluorine is the most reactive and most electronegative element.	(chem.)
<b>flush, to</b>	spülen Before the Grignard reaction could be started, flushing of the entire system with nitrogen had to be done.	(chem.)

<b>flywheel</b>	Schwungrad, das A flywheel can store mechanical energy and release it within a short period of time.	(eng.)
<b>FMEA</b>	<i>Acronym/Abbreviation referral: see failure mode and effect analysis</i>	(general)
<b>foam</b>	Schaum, der Foam can have open and closed cells.	(chem.)
<b>foam extinguisher</b>	Schaumfeuerlöscher, der Foam extinguishers can be found in many households.	(eng.)
<b>focal point</b>	Brennpunkt, der The focal point of a lens, a spherical or parabolic mirror, is a point onto which light parallel to the axis is focused.	(eng.)
<b>fog</b>	Nebel, der (flüssig in Gas) People suspected that the chemical plant was responsible for the fog.	(chem.)



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<b>Food and Drug Administration</b>	<p>FDA, Arzneimittelzulassungsbehörde der Vereinigten Staaten, die (Teil des Gesundheitsministeriums)</p> <p><i>Acronym (engl.): FDA</i></p> <p>The company expected an FDA inspection in the next weeks.</p>	<i>(eng.)</i>
<b>food approval</b>	<p>Lebensmittelzulassung, die</p> <p>Since the new additive did not yet have food approval, it could not be used in packaging materials designed for food contact.</p>	<i>(jur.)</i>
<b>food supplement</b>	<p>Nahrungsergänzungsmittel, das</p> <p>Food supplements are generally over-the-counter drugs.</p>	<i>(pharm.)</i>
<b>foodborne illness, foodborne disease, food poisoning</b>	<p>Lebensmittelvergiftung, die</p> <p>There are two reasons of foodborne diseases: food infection and food intoxication. The former refers to the presence of bacteria or other microbes which infect the body after food consumption. The latter refers to the ingestion of toxins in the food.</p>	<i>(pharm.)</i>
<b>fool's gold</b>	<p>Katzengold, das</p> <p>The nickname of pyrite (<math>\text{FeS}_2</math>) is fool's gold.</p>	<i>(eng.)</i>
<b>force</b>	<p>Kraft, die</p> <p>The SI unit of force is Newton (N). <math>1 \text{ N} = 1 \text{ kgm/s}^2</math>.</p>	<i>(eng.)</i>
<b>force discharge, forced discharge</b>	<p>Zwangsentleerung, die</p> <p>The liquid was too viscous for gravity discharge, therefore, forced discharge was used.</p>	<i>(eng.)</i>
<b>force per volume</b>	<p>Wichte, die</p> <p>In contrast to density (unit <math>\text{kg/m}^3</math>), the force per volume (unit <math>\text{N/m}^3</math>) is irrespective of the location.</p>	<i>(eng.)</i>
<b>forced ageing</b>	<p>beschleunigte Alterung, die</p> <p><i>forced aging (AE)</i></p> <p>Forced ageing tests can speed up product development time.</p>	<i>(eng.)</i>

<b>forced ventilation</b>	Fremdbelüftung, die; Zwangsbelüftung, die The solvent storage room is equipped with forced ventilation.	( <i>chem. eng.</i> )
<b>forecast</b>	Prognose, die; Voraussage, die The sales forecast for the upcoming quarter looked gloomy.	( <i>general</i> )
<b>foreman</b>	Vorarbeiter, der; Polier, der; Bauführer, der The foremen showed role model conduct in terms of safety.	( <i>eng.</i> )
<b>forensic chemistry</b>	Gerichtsmedizin, die Forensic chemistry can reveal the root cause of poisonings.	( <i>jur.</i> )
<b>forge, to</b>	schmieden The tool was forged.	( <i>eng.</i> )
<b>forklift</b>	Gabelstapler, der In a warehouse, electrically operated forklifts are preferred over diesel-fuelled ones.	( <i>chem. eng.</i> )
<b>formation</b>	Bildung, die; Schaffung, die The formation of carbonaceous deposits on viewing windows of combustors can be prevented by purging the windows.	( <i>chem.</i> )
<b>formation</b>	Bildung, die; Zusammenstellung, die The formation of a task force could be completed in half a day.	( <i>eng.</i> )
<b>formic acid</b>	Ameisensäure, die Formic acid (HCOOH, methanoic acid) is the simplest carboxylic acid.	( <i>chem.</i> )
<b>formula</b>	Formel, die Some formulae need to be learnt by heart.	( <i>chem.</i> )
<b>fortification</b>	Befestigung, die The fortification of the cooling tower was designed for high wind loads.	( <i>eng.</i> )
<b>foul, to</b>	verschmutzen, verstopfen Boiler fouling reduces the lifetime of the unit.	( <i>chem.</i> )

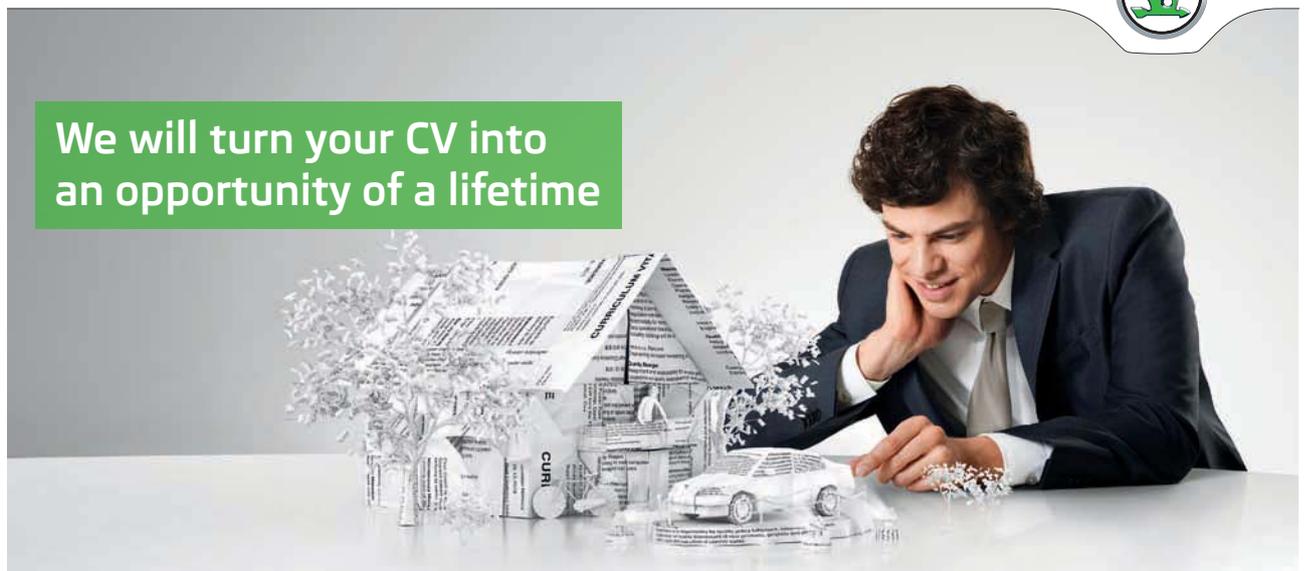
<b>fouling</b>	Verschmutzen, das Without the addition of special anti-fouling agent, the water bath showed algae growth within days.	(chem.)
<b>foundation</b>	Grundfeste, die; Fundament, das; Grundmauerwerk, das The foundation of the building was made of concrete.	(eng.)
<b>foundry</b>	Gießerei, die Due to lack of orders, the foundry was closed down.	(eng.)
<b>four stroke engine</b>	Viertaktmotor, der Diesel engine and Otto engine are four stroke engines.	(eng.)
<b>fraction</b>	Bruch, der A fraction has a numerator and denominator.	(sci.)
<b>frame building</b>	Fachwerkbau, der Framed buildings were common in Germany.	(eng.)

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<b>freeze-drying, lyophilisation, cryodesiccation</b>	Gefriertrocknung, die  <i>lyophilization (AE)</i> The process of freeze-drying is used to preserve food and make it lightweight.	(chem.)
<b>freezing range</b>	Erstarrungsbereich, der Chocolate exhibits a freezing range rather than a freezing point.	(chem.)
<b>frequency converter</b>	Frequenzumrichter, der By investing in a frequency converter for the blower, the air flow could be matched to the process requirements in an energy-efficient way.	(eng.)
<b>freshwater</b>	Süßwasser, das 3% of the water on earth are freshwater, most of which is frozen.	(chem.)
<b>friability</b>	Bröckeligkeit, die; Zerreibbarkeit, die Low friability is an important quality parameter of pharmaceutical tablets.	(pharm.)
<b>friction</b>	Reibung, die Friction creates heat.	(eng.)
<b>front end loading</b>	Eingangsdaten, die <i>Acronym (engl.): FEL</i> Front end loading of the project was poor, leading to significant cost overruns during project execution.	(chem. eng.)
<b>frostbite</b>	Frostbeule, die; Erfrierungen, die Forstbite is damage on tissue from exposure to extreme cold or contact with extremely cold liquids or solids.	(pharm.)
<b>FTE</b>	<i>Acronym/Abbreviation referral: see full time equivalent</i>	(econ.)
<b>fuel</b>	Treibstoff, der CNG (compressed natural gas) can be used as fuel for cars.	(chem.)
<b>fuel-lean mixture</b>	mageres Gemisch, das Modern gas engines operate on fuel-lean mixtures.	(chem. eng.)

## Chemical Engineering Vocabulary

<b>fuel-rich mixture</b>	fettes Gemisch, das Fuel-rich mixtures facilitate engine startup.	(chem. eng.)
<b>fugitive</b>	flüchtig Fugitive emissions are harder to control than stack emissions.	(chem.)
<b>fugitive emissions</b>	diffuse Emissionen, die Unlike stack emissions, fugitive emissions are difficult to quantify.	(chem. eng.)
<b>fulcrum</b>	Drehpunkt, der The fulcrum is the pivot on which a lever moves.	(eng.)
<b>full time equivalent</b>	Mitarbeiterkapazität, die; Vollzeitäquivalent, das Acronym (engl.): FTE Acronym (dt.): MAK, VZÄ The project needed 3 additional FTE.	(econ.)
<b>fume cupboard</b>	Abzug, der The fume cupboard should not be misused as storage area.	(chem.)
<b>funnel</b>	Trichter, der The funnel was too small for the filter.	(chem.)
<b>funnel flow</b>	Kernfluss, der The funnel flow behavior of the raw material silo has a slight homogenisation effect.	(chem. eng.)
<b>fuse</b>	Sicherung, die A fuse needs to have a short response time.	(eng.)
<b>fused glass</b>	Sinterglas, das; geschmolzenes Glas, das The main constituent of fused glass is silica (SiO <sub>2</sub> ).	(chem.)
<b>galvanised sheet</b>	verzinktes Blech, das <i>galvanized sheet</i> (AE) Galvanized steel can be recognized by the crystallization pattern on the surface ("spangle").	(chem. eng.)

<b>gangrene</b>	Wundbrand, der; Gangrän, das A gangrene can be caused by an ischaemia or an infection, the latter being a detrimental colonization of a host organism by a foreign species.	( <i>med.</i> )
<b>gap</b>	Abstand, der; Lücke, die; Spalt, der The consultant proposed to make a gap analysis.	( <i>general</i> )
<b>gargle, to</b>	gurgeln Antiseptic mouthwash can be gargled, too, in order to remove bacteria from the throat.	( <i>pharm.</i> )
<b>gas liquid interface</b>	Grenzschicht gas/flüssig, die The formula describes gas exchange at the gas liquid interface.	( <i>chem.</i> )
<b>gas mileage</b>	Kraftstoffverbrauch, der The car has a gas mileage of 25 mpg.	( <i>eng.</i> )
<b>gas scrubber</b>	Gaswäscher, der The gas scrubber can reduce the concentration of SO <sub>2</sub> in the exhaust gas from 7 mg/m <sup>3</sup> to less than 1 mg/m <sup>3</sup> .	( <i>chem. eng.</i> )

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<b>gaseous</b>	gasförmig The gaseous fuel/air mixture was ignited.	(chem.)
<b>gasification</b>	Vergasung, die A pilot plant for biomass gasification was built in Guessing/Austria.	(chem. eng.)
<b>gasify, to</b>	vergasen Coal can be gasified with water to yield CO and H <sub>2</sub> .	(chem.)
<b>gasket</b>	Dichtungsring, der; Dichtungsscheibe, die She selected gaskets for the aggressive process media.	(eng.)
<b>gasometer</b>	Gasbehälter, der The gasometer can store up to 3,500 Nm <sup>3</sup> of butane.	(chem.)
<b>gastric juice</b>	Magensaft, der Gastric juice is a strong acidic liquid with a pH of 1 to 3 in humans. Its main components are the digestive enzymes pepsin and rennin, plus hydrochloric acid and mucus.	(pharm.)
<b>gastro resistant</b>	magensaftresistent überzogen The capsules were designed to be gastro-resistant and enterosoluble.	(pharm.)
<b>gate</b>	Tor, das The gate was made from wood.	(eng.)
<b>gate valve</b>	Schieber, der; Absperrschieber, der; Absperrventil, das; Absperrhahn, der A gate valve is a valve that opens by lifting a round or rectangular gate/wedge out of the path of the fluid. Gate valves are sometimes used for regulating flow, but mostly they are designed to be fully opened or closed. When fully open, a gate valve typically has no obstruction in the flow path.	(chem. eng.)
<b>gauge pressure</b>	Manometerdruck, der; Überdruck, der <i>Acronym (engl.): barg</i> The gauge pressure was 1.2 bar.	(eng.)

<b>gauze</b>	Mull, der Gauze is a thin, translucent fabric, often made from cotton. It is used for bandages to dress wounds where other fabrics might stick to the burn or laceration.	(pharm.)
<b>gauze bandage</b>	Mullbinde, die The gauze bandage is sterile unless the package is opened or damaged.	(pharm.)
<b>gearbox</b>	Getriebe, das Vibration monitoring on gearboxes is state of the art for large, stationary engines.	(eng.)
<b>gearing</b>	Verschuldungsgrad, der; Verhältnis von Fremd- zu Eigenkapital, das The company targets for a gearing (net debt divided by equity) between 40– 60%, which is a good balance between costs of capital and risk.	(econ.)
<b>gellant</b>	Geliermittel, das The gellant was produced in China.	(pharm.)
<b>gelling agent</b>	Geliermittel, das Gelling agents are used to thicken and stabilize emulsions and suspensions. Typical gelling agents include natural gums, starches, pectins, agar-agar and gelatin. Often they are based on polysaccharides or proteins.	(pharm.)
<b>general terms and conditions</b>	Allgemeine Geschäftsbedingungen, die  <i>Acronym (engl.): T&amp;C, GT&amp;C</i> <i>Acronym (dt.): AGB</i> The general terms and conditions can be found on the company website.	(econ.)
<b>generate, to</b>	erzeugen CO <sub>2</sub> , H <sub>2</sub> and H <sub>2</sub> S can be generated in Kipp's apparatus from an acid reacting with CaCO <sub>3</sub> , Zn and FeS, respectively.	(chem.)
<b>generic medicinal products, generic drugs, generics</b>	Generika, die (Generikum, das)  Generic drugs must contain the same active ingredients as the brand name formulation. They need to be identical or bioequivalent to the original medication.	(pharm.)

<b>generic name</b>	Freiname, der The generic name was proposed by the WHO.	( <i>pharm.</i> )
<b>genetic engineering</b>	Gentechnik, die The first genetically engineered medicine was synthetic human insulin (1982).	( <i>chem. eng.</i> )
<b>genetics</b>	Genetik, die A milestone in genetics was the determination of the structure of DNA by James D. Watson and Francis Crick in 1953.	( <i>chem.</i> )
<b>germ</b>	Keim, der Germs are microorganisms, especially pathogenic ones.	( <i>pharm.</i> )
<b>germicidal</b>	keimtötend Iodine, hydrogen peroxide, boric acid, alcohols and quaternary ammonium compounds have germicidal effects.	( <i>chem.</i> )
<b>germicide</b>	keimtötendes Mittel, das Overusing germicides might lead to an increase in dangerous, resistant strains of bacteria.	( <i>chem.</i> )

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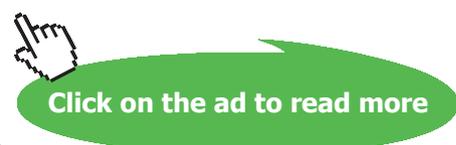
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<b>germinate, to</b>	keimen Germinated barley grains are used for the production of beer.	(chem.)
<b>gingival</b>	Zahnfleisch- The formulation was developed for gingival use.	(pharm.)
<b>gland</b>	Stopfbuchse, die; Dichtschraube, die Glands are used to seal a rotating or reciprocating shaft against a fluid.	(eng.)
<b>glass rod</b>	Glasstab, der The laboratory assistant stirred the solution with a glass rod.	(chem.)
<b>glassware</b>	Glasgeräte, die (Glasgerät, das) Glassware needs to be handled with care.	(chem.)
<b>globe valve</b>	Ringkolbenventil, das Globe valves are used to regulate the flow in a pipeline.	(chem. eng.)
<b>gloss</b>	Glanz, der The gloss on the surface disappeared after 2 weeks.	(eng.)
<b>GLP</b>	<i>Acronym/Abbreviation referral: see good laboratory practise</i>	(chem. eng.)
<b>GMP</b>	<i>Acronym/Abbreviation referral: see good manufacturing practise</i>	(chem. eng.)
<b>good laboratory practise</b>	GLP, gute Laborpraxis, die  <i>practice (AE)</i> <i>Acronym (engl.): GLP</i> GLP, which applies to non-clinical studies, provides a framework within which laboratory studies are planned, performed, monitored, recorded, reported and archived.	(chem. eng.)

<b>good manufacturing practise</b>	<p>GMP, gute Herstellungspraxis, die <span style="float: right;">(chem. eng.)</span></p> <p><i>practice (AE)</i>  <i>Acronym (engl.): GMP</i>                      An important aspect of GMP is documentation of every process step.</p>
<b>gout</b>	<p>Gicht, die <span style="float: right;">(pharm.)</span></p> <p>Gout (metabolic arthritis) is a disease created by a buildup of uric acid (2,6,8 Trioxypurine, C<sub>5</sub>H<sub>4</sub>N<sub>4</sub>O<sub>3</sub>). In this condition, crystals of monosodium urate or uric acid are deposited on the articular cartilage of joints, tendons and surrounding tissues. These crystals cause inflammation and pain.</p>
<b>grain</b>	<p>Korn, das <span style="float: right;">(eng.)</span></p> <p>A single grain of contamination can destroy a wafer.</p>
<b>Gram staining</b>	<p>Gramfärbung, die <span style="float: right;">(pharm.)</span></p> <p>Gram staining (or Gram's method) is an empirical method of differentiating bacterial species into two large groups (Gram-positive and Gram-negative) based on the chemical and physical properties of their cell walls.</p>
<b>grassroot plant</b>	<p style="text-align: right;">(chem.)</p> <p><i>see greenfield plant</i></p>
<b>grease</b>	<p>Fett, das <span style="float: right;">(chem.)</span></p> <p>Grease, which is used as a lubricant, consists of an oil or another liquid lubricant which is mixed with a soap to yield a solid.</p>
<b>green chemistry</b>	<p>nachhaltige Chemie, die <span style="float: right;">(chem.)</span></p> <p>Green chemistry is a field that has attracted numerous researchers in the last years.</p>
<b>greenfield plant</b>	<p>komplett neue Anlage, die; Anlage auf der grünen Wiese, die <span style="float: right;">(chem.)</span></p> <p>The company built a greenfield plant close to Seoul in Korea.</p>
<b>greenhouse effect</b>	<p>Treibhauseffekt, der <span style="float: right;">(chem.)</span></p> <p>Without the natural greenhouse effect, the average surface temperature of Earth of 14°C would be approx. -18°C.</p>

## Chemical Engineering Vocabulary

<b>grid</b>	Gitter, das; Netz, das For his computer simulation, he placed a grid over the reactor.	(eng.)
<b>grind, to</b> (ground, ground)	schleifen, malen He ground the knife so much that a significant loss of metal could be seen.	(eng.)
<b>grindstone</b>	Schleifstein, der Grindstones, tools to sharpen various bodies, were often made from sandstone in the shape of a wheel.	(eng.)
<b>groove</b>	Rille, die; Nut, die; Fuge, die The groove could not be seen.	(eng.)
<b>grooved</b>	geriffelt The grooved surface enabled him to walk safely despite the rainfall.	(eng.)
<b>gross</b>	brutto The gross weight of the container is 33,850 kg.	(general)

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<b>ground glass</b>	Glasschliff, der By using ground glass joints in laboratories, a leak-tight apparatus can be fitted together in a fast and easy way.	(chem.)
<b>ground stopper</b>	Schliffstopfen, der The ground stopper broke on the floor.	(chem.)
<b>groundbreaking</b>	Spatenstich, der 100 employees attended the groundbreaking ceremony.	(chem. eng.)
<b>grounding</b>	Erden, das Grounding of electrical equipment is specified in national standards.	(eng.)
<b>grout, grouting</b>	Einspritzmörtel, der; Auspressmörtel, der; Einpressmörtel, der Grout is a construction material used to embed rebars in masonry walls or to fill voids. It is generally composed of a mixture of water, cement, sand and sometimes fine gravel.	(eng.)
<b>guarantee</b>	Garantie, die In addition to the warranty, which is stated by law, a seller can give an additional, voluntary guarantee to a customer that the product will comply with the specifications for a longer period of time, e.g. 10 years.	(econ.)
<b>gums, gingiva</b>	Zahnfleisch, das Inflammation of the gums, which can be recognized by a change in color, can be caused by the accumulation of bacterial plaque.	(pharm.)
<b>gunpowder</b>	Schwarzpulver, das A typical mixture of gunpowder contains 75% potassium nitrate, 15% softwood charcoal and 10% sulfur.	(chem.)
<b>gypsum</b>	Gips, der Desert roses consist of gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ).	(chem.)
<b>gyroscope</b>	Kreisel, der In his final exam, he had to explain a gyroscope.	(eng.)

<b>half-life</b>	Halbwertszeit, die The half-life of uranium-238, which decays to thorium-234 by the emission of alpha particles, is 4.5 billion years.	(chem.)
<b>halide</b>	Halogenid, das <i>Acronym (engl.): X</i> <i>Acronym (dt.): X</i> All metals from group 1 form halides with the halogens. These binary compounds are white solids (salts).	(chem.)
<b>hallway</b>	Korridor, der; Vorzimmer, das The hallway of the building was misused for storage purposes.	(general)
<b>hardness</b>	Härte, die Hardness, which can be defined as the resistance to scratching or permanent deformation, can be measured on the scales of Mohs, Rockwell, Vickers, and Brinell.	(eng.)
<b>harmful</b>	schädlich Noise > 85 dB(A) is harmful.	(eng.)
<b>harmless</b>	unschädlich Air humidity is harmless to the transformer.	(eng.)
<b>hazard classification</b>	GefahrenEinstufung, die The hazard classification of the warehouse was challenged by the insurance company.	(chem. eng.)
<b>hazardous</b>	gefährlich Fluorine is a hazardous gas.	(chem.)
<b>hazardous material (AE)</b>	<i>Acronym (engl.): hazmat</i> <i>Acronym/Abbreviation referral: see dangerous good</i>	(chem.)

**hazardous materials identification system** HMIS (chem.)

*Acronym (engl.): HMIS*

HMIS is a database that provides information on health, flammability, and reactivity hazards of substances that are encountered in the workplace. A number is assigned to a material indicating the degree of hazard, from 0 for the least up to 4 for the most severe. Letters are used to designate suggested personal protective equipment.

**hazardous substance** Gefahrenstoff, der (chem.)  
Before hazardous substances are manipulated, the safety data sheets ought to be consulted.

**hazardous waste** gefährlicher Abfall, der (chem.)  
Hazardous waste needs to be properly labelled.

**hazmat** (chem.)  
*Acronym/Abbreviation referral: see hazardous material*



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<b>head office</b>	Firmensitz, der; Hauptbüro, das; Hauptniederlassung, die For tax reasons, the head office was moved to Bern.	(econ.)
<b>health, safety, environment</b>	Gesundheit, Sicherheit, Umwelt(schutz)  <i>Acronym (engl.): HSE</i> The company is considered a leader in HSE.	(chem. eng.)
<b>heartburn</b>	Sodbrennen, das; Pyrosis, die Heartburn is a painful and burning sensation in the esophagus, usually associated with regurgitation of gastric acid.	(med.)
<b>heat recovery</b>	Wärmerückgewinnung, die A project for heat recovery from cooling water often has a short payback time.	(eng.)
<b>heat tracing</b>	Begleitheizung, die Water pipelines in industrial plants sometimes require heat tracing.	(eng.)
<b>heat transfer</b>	Wärmeübergang, der Heat transfer could be improved by increasing the turbulence.	(eng.)
<b>heat value, fuel value</b>	Heizwert, der  The heat value is often given in BTU (British Thermal Unit). 1 BTU is approx. 1.05 kJ or $2.9 \times 10^{-4}$ kWh.	(eng.)
<b>heating ventilation air conditioning</b>	Heizungs -, Klima- und Lüftungstechnik, die;  <i>Acronym (eng.) HVAC</i> <i>Acronym (dt.): HKL, KHL</i> The HVAC engineer overdesigned the cooling tower by 20%.	(eng.)
<b>heavy metal</b>	Schwermetall, das The term “heavy metal” is misleading. Many different definitions have been proposed, e.g. based on density, atomic number, atomic weight or toxicity. Beryllium, the fourth lightest element, is much more poisonous than bismuth, the heaviest stable element.	(eng.)

<b>hemp</b>	Hanf, der Hemp can be used to produce natural fibers.	(chem.)
<b>HEPA</b>	<i>Acronym/Abbreviation referral: see high efficiency particulate air filter</i>	(eng.)
<b>hepatic</b>	hepatisch, zur Leber gehörig Tetrachloroethylene can lead to hepatic disorders.	(pharm.)
<b>heterogeneous</b>	heterogen In chemical kinetics, a heterogeneous reaction takes place at the interface of two phases, e.g. a solid and a gas or a liquid and a gas.	(chem.)
<b>high efficiency particulate air filter</b>	HEPA Filter, der The HEPA filter needed be be replaced, because it had become wet.	(eng.)
<b>highly alloyed</b>	hochlegiert Highly alloyed steel contains between 4 and 50% of elements such as molybdenum, manganese, nickel, chromium, vanadium, silicon or boron.	(eng.)
<b>highly toxic</b>	sehr giftig A chemical in any of the following categories is considered highly toxic: <ul style="list-style-type: none"><li>• A chemical with a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats between 200 and 300 grams each.</li><li>• A chemical with a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.</li><li>• A chemical with a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.</li></ul> <p>Antimony compounds are highly toxic.</p>	(chem.)

- high voltage current** Starkstrom, der (eng.)  
High voltage can be defined as min. 1000 V for alternating current and at least 1500 V for direct current. High voltage current is used in electrical power transmission.
- hinge** Scharnier, das; Türangel, die (eng.)  
Hinges can either be made of flexible material or of moving parts.
- hinged** zusammenklappbar, klappbar (eng.)  
The hinged lid was too heavy to lift.
- hippuric acid** Hippursäure, die (chem.)  
High concentrations of hippuric acid (benzoylaminoacetic acid,  $C_9H_9NO_3$ ) can indicate a toluene intoxication. Hippuric acid is an organic acid which is found in the urine of horses and other herbivores.
- HMIS** (chem.)  
*Acronym/Abbreviation referral: see hazardous materials identification system*

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<b>hoist</b>	Winde, die A hoist was deployed to transport the raw materials to the bag slitting station.	(eng.)
<b>hoisting device</b>	Hebevorrichtung, die The hoisting device could handle loads of up to 5 tons.	(eng.)
<b>holding company</b>	Dachgesellschaft, die; Beteiligungsgesellschaft, die; Holding, die Berkshire Hathaway is one of the largest publicly-traded holding companies.	(econ.)
<b>hole punch</b>	Locher, der A hole punch is an office tool used to make holes in a sheet of paper.	(general)
<b>homeopathy</b>	Homöopathie, die Homeopathic preparations are effective, they may make people feel better via the placebo effect. A central thesis of homeopathy is that a sick person can be treated by a substance (in serial dilution) which can produce similar symptoms to those of the sickness.	(pharm.)
<b>homogeneous</b>	homogen Homogeneous catalysts work in the same phase as the reactants, an example being organometallic catalysts.	(chem.)
<b>hood</b>	Haube, die Noisy equipment can be placed under a hood.	(eng.)
<b>hopper</b>	Trichter, der The main feed hopper of the extruder was blocked with agglomerates.	(eng.)
<b>horse power</b>	Pferdestärke, die <i>Acronym (engl.): HP</i> <i>Acronym (dt.): PS</i> An engine rated at 75 kW has got 100 HP.	(eng.)
<b>hose</b>	Schlauch, der Hoses lying on the floor can lead to serious accidents.	(eng.)
<b>hose coupling, hose fixture</b>	Schlauchkupplung, die The hose coupling was worn out.	(eng.)

<b>HP</b>		(eng.)
	<i>Acronym/Abbreviation referral: see hydroprocessing</i>	
<b>HSE</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see health, safety, environment</i>	
<b>hue</b>	Farbton, der A hue is an element of the color wheel.	(eng.)
<b>husbandry</b>	Landwirtschaft, die Modern husbandry often relies heavily on fertilisers.	(general)
<b>HVAC</b>		(eng.)
	<i>Acronym/Abbreviation referral: see heating ventilation air conditioning</i>	
<b>hydrated lime</b>	gelöschter Kalk, der Hydrated lime (Ca(OH) <sub>2</sub> ) is used in the manufacture of ebonite, which was one of the earliest plastics. Ebonite is a very hard rubber with a high sulphur content.	(chem.)
<b>hydraulic diameter</b>	hydraulischer Durchmesser, der The hydraulic diameter was determined to be 12 µm.	(chem. eng.)
<b>hydraulic fluid, hydraulic liquid</b>	Druckflüssigkeit, die; Hydraulikflüssigkeit, die; Hydrauliköl, das  Brake fluid is a hydraulic fluid with high boiling point and low freezing point. It is hygroscopic in order to absorb moisture which would otherwise cause corrosion in the brake system.	(chem. eng.)
<b>hydraulic lock, hydrostatic lock</b>		(eng.)
	<i>Acronym/Abbreviation referral: see hydrolock</i>	
<b>hydrocarbon</b>	Kohlenwasserstoff, der Butadiene (C <sub>4</sub> H <sub>6</sub> ) is an unsaturated hydrocarbon.	(chem.)
<b>hydrochloric acid</b>	Salzsäure, die Hydrochloric acid is the solution of hydrogen chloride (HCl) in water. HCl is a monoprotic acid.	(chem.)

- hydrofluoric acid**      Flusssäure, die (chem.)  
Hydrofluoric acid, which can etch glass, is used as a precursor for Teflon™, which is a registered trademark of DuPont for products made from fluorine-containing polymers (fluoropolymers).
- hydrogen**      Wasserstoff, der (chem.)  
*Acronym (engl.): H<sub>2</sub>*  
*Acronym (dt.): H<sub>2</sub>*  
Hydrogen, the most abundant element in the universe, accounts for 75% of matter by mass and for over 90% by the number of atoms.
- hydrogen chloride**      Chlorwasserstoff, der (chem.)  
*Acronym (engl.): HCl*  
*Acronym (dt.): HCl*  
Hydrogen chloride is a colorless gas, which can form white fumes of hydrochloric acid at contact with air humidity.



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<b>hydrogen peroxide</b>	<p>Wasserstoff peroxid, das <span style="float: right;">(chem.)</span>  <i>Acronym (engl.):</i> <math>H_2O_2</math>  <i>Acronym (dt.):</i> <math>H_2O_2</math>                      Hydrogen peroxide can be used in the production of epoxides such as propylene oxide, which can be processed to polyurethane. Epoxides are ethers with only 3 ring atoms.</p>
<b>hydrolock, hydro lock</b>	<p>Hydrosperre, die; Hydrauliksperre, die <span style="float: right;">(eng.)</span>                      Hydrolock (short for hydraulic lock or hydrostatic lock) is an unwanted condition of an internal combustion engine in which an incompressible liquid such as water has entered into the cylinders. The pistons' movement is prevented, and the engine will suffer significant damage.</p>
<b>hydrolysis</b>	<p>Hydrolyse, die <span style="float: right;">(chem.)</span>                      Polymers which are susceptible to hydrolysis such as PET, polycarbonate and nylon need to be dried prior to processing.</p>
<b>hydronics</b>	<p>Hydronik, die; Wärme – und Kälteübertragung durch Wasser, die <span style="float: right;">(eng.)</span>                      In hydronics, water is used as medium for heat transfer for heating and cooling applications.</p>
<b>hydrophilic</b>	<p>hydrophil, wasserbindend <span style="float: right;">(chem.)</span>                      Soap molecules have a hydrophilic head and a hydrophobic tail.</p>
<b>hydrophobic</b>	<p>hydrophob, wasserabweisend <span style="float: right;">(chem.)</span>                      Alkanes, oils and fats are hydrophobic molecules.</p>
<b>hydroprocessing</b>	<p>Hydroprocessing, das <span style="float: right;">(chem.)</span>  <i>Acronym (engl.):</i> HP                      During the hydroprocessing of heavy oils, asphaltenes act as coke precursors which leads to catalyst deactivation.</p>
<b>hypergolic</b>	<p>hypergol <span style="float: right;">(chem.)</span>                      A hypergolic propellant is either of the two rocket propellants used in a hypergolic rocket engine, which spontaneously ignite when they come into contact. The terms "hypergol" or "hypergolic propellant" denote the most common such propellant combination, hydrazine plus dinitrogen tetroxide.</p>

<b>hypoxia</b>	Hypoxie, die Hypoxia is a medical condition in which the body as a whole or a part of it is deprived of oxygen.	( <i>med.</i> )
<b>I/A</b>	<i>Acronym/Abbreviation referral: see instrument air</i>	( <i>chem. eng.</i> )
<b>ICA</b>	<i>Acronym/Abbreviation referral: see instrumentation control automation</i>	( <i>eng.</i> )
<b>ICE</b>	<i>Acronym/Abbreviation referral: see internal combustion engine</i>	( <i>eng.</i> )
<b>ideal batch reactor</b>	absatzweise betriebener idealer Rührkessel, der <i>Acronym (engl.): IBR</i> The ideal batch reactor can be modelled more easily than an actual one.	( <i>chem. eng.</i> )
<b>ideal plug flow reactor</b>	ideales Strömungsrohr, das <i>Acronym (engl.): IPFR</i> The ideal plug flow reactor is easy to model.	( <i>chem. eng.</i> )
<b>idle</b>	im Leerlauf An idle running engine has a low fuel consumption.	( <i>eng.</i> )
<b>IDLH</b>	<i>Acronym/Abbreviation referral: see immediately dangerous to life and health</i>	( <i>chem.</i> )
<b>ignition</b>	Zündung, die The auto ignition temperature of hydrogen is 571°C.	( <i>chem.</i> )
<b>immediately dangerous to life and health</b>	unmittelbar schädlich für Leben und Gesundheit, akuttoxisch, IDLH-Konzentration, die <i>Acronym (engl.): IDLH</i> IDLH is the maximum concentration from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects.	( <i>chem.</i> )
<b>immersion bath</b>	Tauchbad, das The workpieces were treated in an immersion bath prior to shipment.	( <i>chem.</i> )

<b>immiscible</b>	unmischbar The workpieces were treated in an immersion bath prior to shipment.	(chem.)
<b>impair, to</b>	beeinträchtigen Chronic exposure to methanol can lead to impaired vision and damage to kidneys, heart and other organs.	(pharm.)
<b>impermeable, nonpermeable, impervious</b>	dicht, undurchlässig The landfill was sealed with an impermeable plastic foil.	(chem.)
<b>impetus</b>	Impuls, der The impetus is a conserved quantity.	(eng.)
<b>implant</b>	Implantat, das A hip implant can consist of a titanium hip prosthesis with a ceramic head.	(pharm.)
<b>imprint</b>	Aufdruck, der The imprint on the packaging was hard to read.	(pharm.)

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<b>improper fraction</b>	unechter Bruch, der 9/7 is an improper fraction.	( <i>pharm.</i> )
<b>impurity</b>	Verunreinigung, die Raw material income control can detect impurities in received goods.	( <i>eng.</i> )
<b>in excess</b>	im Überschuss If the solvent is a reaction partner, it is normally supplied in excess.	( <i>chem.</i> )
<b>inadvertent use</b>	versehntlicher Gebrauch, der Inadvertent use of household chemicals can be prevented by properly labelling them and avoiding to put them into bottles designed for food.	( <i>pharm.</i> )
<b>Inc.</b>	<i>Acronym/Abbreviation referral: see incorporated</i>	( <i>econ.</i> )
<b>inch</b>	Zoll, der <i>Acronym (engl.): in</i>	( <i>eng.</i> )
<b>inch rod</b>	Zollstock, der Carpenters use inch rods.	( <i>eng.</i> )
<b>incident</b>	Vorfall, der Learning from previous indicents will eventually increase the safety of a plant.	( <i>eng.</i> )
<b>incinerate, to</b>	einäschern Hazardous waste is generally incinerated.	( <i>eng.</i> )
<b>inclination</b>	Gefälle, das; Neigung, die The inclination of the factory floor is not acceptable for installing the new equipment.	( <i>eng.</i> )
<b>inclusion</b>	Einschluss, der The pellets showed brown inclusions of degraded product.	( <i>chem.</i> )
<b>incorporated</b>	Aktiengesellschaft, die <i>Acronym (engl.): Inc.</i> <i>Acronym (dt.): AG</i> He works for XYZ Ltd.	( <i>econ.</i> )

<b>incoterms (international commercial terms)</b>	Incoterms, die; Lieferbedingungen ins Ausland, die  Incoterms can be: EXW, FCA, FAS, FOB, CFR, CIF, CPT, CIP, DAF, DES, DEQ, DDU and DDP. Terms outside of those should be avoided as these are then typically not clearly defined and may lead to disputes between buyer and seller. EXW = ex works, FCA = free carrier, FAS = free alongside ship, FOB = free on board, CFR = cost and freight, CIF = cost, insurance and freight, CPT = carriage paid to, CIP = carriage and insurance paid to, DAF = delivered at frontier, DES = delivered ex ship, DEQ = delivered ex quay, DDU = delivery, duty unpaid, DDP = delivery, duty paid.	<i>(econ.)</i>
<b>incremental costs</b>	Grenzkosten, die  To fully load a plant, it might be advisable to sell overcapacity close to incremental costs.	<i>(eng.)</i>
<b>indelible</b>	unauslöschar  He used an indelible marker to cross out the name on the packaging.	<i>(pharm.)</i>
<b>industrial accident</b>	Arbeitsunfall, der  Industrial accidents have to be reported.	<i>(general)</i>
<b>industrial water</b>	Brauchwasser, das  The plant cannot obtain more than 450 m <sup>3</sup> /h of industrial water.	<i>(chem. eng.)</i>
<b>inert gas purging</b>	Inertbegasung, die  The Grignard reaction, which is an important technique to form carbon- carbon, carbon-phosphorus and carbon-silicon bonds with alkyl- or aryl- magnesium halides, required inert gas purging.	<i>(pharm.)</i>
<b>inertia</b>	Trägheit, die  Inertia makes a moving body continue on his path.	<i>(eng.)</i>
<b>infiltration</b>	Einsickern, das  Fast action by the fire brigade could prevent oil infiltration into the ground.	<i>(eng.)</i>
<b>infinite</b>	unendlich  There are seemingly infinite opportunities.	<i>(sci.)</i>

<b>inflammable, flammable</b>	brennbar, leicht entzündbar, entflammbar  If inflammable substances such as acetone are transported on the road, a special sign has to be placed on the vehicle.	(chem.)
<b>inflammation</b>	Entzündung, die  An inflammation of the skin can be caused by burns, chemical irritants, infections by pathogens or foreign bodies/physical injury.	(med.)
<b>inflatable</b>	aufblasbar  Rotary valves with an inflatable gasket require more maintenance than standard ones.	(eng.)
<b>inflow</b>	Zustrom, der  The inflow was sent through a metal separator.	(chem. eng.)
<b>ingest, to</b>	(Nahrung) aufnehmen  If methanol is ingested, blindness can occur.	(pharm.)

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<b>inhale, to</b>	einatmen If inhaled, the chemical poses a serious choking hazard.	( <i>pharm.</i> )
<b>inhibitor</b>	Hemmstoff, der Volatile amines added to steam are an example of corrosion inhibitors; For instance, they can be used in boilers used to drive turbines to protect the pipelines by increasing the pH.	( <i>chem.</i> )
<b>inhomogeneous</b>	inhomogen Inhomogeneous raw materials can lead to fluctuations in a downstream process.	( <i>chem.</i> )
<b>initial value</b>	Anfangswert, der A recipe stores the initial value of the various feeds.	( <i>eng.</i> )
<b>INN</b>	<i>Acronym/Abbreviation referral: see International Nonproprietary Name</i>	( <i>chem.</i> )
<b>inoculate, to</b>	mit Keimen beimpfen The cow was inoculated against the disease.	( <i>pharm.</i> )
<b>inoculation</b>	Beimpfung, die; Impfung, die By inoculation, immunity against various infectious diseases can be obtained. The earliest record of inoculation dates back to India in the 8 <sup>th</sup> century.	( <i>pharm.</i> )
<b>inorganic</b>	anorganisch Inorganic carbon compounds are, for example, carbon monoxide (CO), carbon dioxide (CO <sub>2</sub> ), carbonates (CO <sub>3</sub> <sup>2-</sup> ), cyanides (CN <sup>-</sup> ), cyanates (OCN <sup>-</sup> ), carbides, and thiocyanates (SCN <sup>-</sup> , rhodanide). Urea was the first organic molecule that could be synthesized from inorganic precursors.	( <i>chem.</i> )
<b>inquiry</b>	Anfrage, die The inquiry about 300 tons of antioxidant was a huge opportunity.	( <i>general</i> )
<b>insect infestation</b>	Insektenbefall, der By monitoring temperature and moisture of grain storage rooms, insect infestation can be controlled.	( <i>pharm.</i> )

<b>inside battery limits</b>	ISBL; Bereich Kernanlage, der <i>Acronym (engl.): ISBL</i> ISBL is typically the process unit itself, whereas OSBL consists of all connections to make ISBL work, such as utilities, feed streams and product streams.	<i>(chem. eng.)</i>
<b>insoluble</b>	unlöslich Barium sulfate ( $\text{BaSO}_4$ ) is virtually insoluble in water (0.00115 g/l at 18°C).	<i>(pharm.)</i>
<b>inspect, to</b>	befahren Prior to inspecting the vessel, the engineer measured the atmosphere inside.	<i>(chem. eng.)</i>
<b>instrument air, plant air</b>	Instrumentenluft, die; I-Luft, die  <i>Acronym (engl.): I/A</i> The instrument air was supplied at 10 bar (150 psi).	<i>(chem. eng.)</i>
<b>Instrumentation Control Automation</b>	Messen, Steuern, Regeln  <i>Acronym (engl.): ICA</i> <i>Acronym (dt.): MSR</i> The ICA engineer received his training at Munich University of Technology.	<i>(eng.)</i>
<b>insufflation</b>	Einblasen, das Insufflation of inert, nontoxic gases such as carbon dioxide into a body cavity is done to expand workroom during surgery.	<i>(med.)</i>
<b>insulate, to</b>	isolieren (gegen Wärmeübertragung) Thermal insulation can strongly decrease operating costs.	<i>(chem.)</i>
<b>insulator</b>	Isolator, der Silicon dioxide is a very good electrical insulator.	<i>(chem.)</i>
<b>intellectual property</b>	geistiges Eigentum, das <i>Acronym (engl.): IP</i> Patents offer intellectual property protection.	<i>(eng.)</i>
<b>intellectual property rights</b>	gewerblicher Rechtsschutz, der; Immaterialgüterrecht, das  The company employs three IPR officers.	<i>(econ.)</i>

<b>interact, to</b>	wechselwirken Light and matter can interact by absorption, emission and scattering.	(chem.)
<b>interest</b>	Zinsen, die (Zins, der) Debts bear interest.	(econ.)
<b>inteface</b>	Grenzschicht, die The interface between the solid and the surrounding liquid was studied.	(chem.)
<b>interim storage</b>	Zwischenlagerung, die There was no room for interim storage of the raw materials.	(pharm.)
<b>interlock</b>	Verriegelung, die The accident happened because a safety interlock had been bypassed.	(chem. eng.)
<b>intermediate product, intermediate</b>	Zwischenprodukt, das  In the production of ethylene from sugar cane, ethanol is an intermediate product. Metabolites are intermediates and products of metabolism.	(chem.)



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<b>intermediate stage</b>	Zwischenstufe, die Sodium pyrosulfate ( $\text{Na}_2\text{S}_2\text{O}_7$ ) is produced in an intermediate stage in the preparation of sulfur trioxide ( $\text{SO}_3$ ).	(pharm.)
<b>intermediate storage</b>	Zwischenlager, das Also intermediate storage areas have to fulfill all safety requirements.	(chem.)
<b>intermixing</b>	Untermischung, die The researcher investigated atom intermixing at metal/semiconductor interfaces at the nano-scale.	(pharm.)
<b>internal combustion engine</b>	Verbrennungsmotor, der  Most internal combustion engines run on liquid or gaseous fuels.	(eng.)
<b>internal rate of return</b>	interner Zinsfuß, der <i>Acronym (engl.): IRR</i> The IRR is the “yield” of a project. It can be used to rank competing projects by their profitability.	(econ.)
<b>International Nonproprietary Name</b>	internationaler Freiname, der  <i>Acronym (engl.): INN</i> The International Nonproprietary Name (INN, rINN (recommended International Nonproprietary Name), pINN (proposed International Nonproprietary Name)) of a pharmaceutical substance is the official non-proprietary or generic name, assigned by the WHO, e.g. “paracetamol”.	(pharm.)
<b>International Protection, Ingress Protection</b>	 <i>Acronym/Abbreviation referral: see IP code</i>	(eng.)
<b>interpolate, to</b>	interpolieren Data from interpolation are more reliable than those from extrapolation.	(sci.)
<b>interpret, to</b>	deuten The engineer interpreted the damage to the engine as a result of knocking.	(sci.)

<b>intersect, to</b>	sich kreuzen The engineer wondered why the 2 lines did not intersect.	( <i>sci.</i> )
<b>intestine</b>	Darm, der; innerlich Gastroenteritis is an inflammation of the intestines and is the most common disease of the intestines. Colitis is an inflammation of the large intestine.	( <i>med.</i> )
<b>intimate mixture</b>	innige Mischung, die A plastics compound is an intimate mixture of base resin, color and mineral fillers.	( <i>chem.</i> )
<b>intrinsically safe</b>	eigensicher, intrinsisch sicher, von innen heraus sicher An intrinsically safe piece of electronic equipment can be deployed in explosive atmospheres.	( <i>eng.</i> )
<b>invention</b>	Erfindung, die Generally, a patent grants protection of an invention for up to 20 years.	( <i>sci.</i> )
<b>inventory</b>	Inventar, das A huge inventory can block significant amounts of working capital.	( <i>econ.</i> )
<b>investigation</b>	Untersuchung, die The incident led to an official investigation.	( <i>general</i> )
<b>iodine</b>	Iod, das <i>Acronym (engl.): I</i> <i>Acronym (dt.): I</i> Iodine is the heaviest element known to be necessary for all living organisms.	( <i>chem.</i> )
<b>IP</b>	<i>Acronym/Abbreviation referral: see intellectual property</i>	( <i>econ.</i> )

<b>IP code</b>	<p>IP-Kodex, der <span style="float: right;">(chem. eng.)</span></p> <p>The IP Code consists of the letters IP followed by two digits and an optional letter. It classifies the degrees of protection offered by electrical enclosures. The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e. g. electrical conductors and moving parts) and the ingress of solid foreign objects. The second digit indicates the level of protection of the equipment inside the enclosure against ingress of water. The highest level of protection, IP 68, stands for complete dust – tightness and water-tightness.</p>
<b>IPR</b>	<p style="text-align: right;">(econ.)</p> <p><i>Acronym/Abbreviation referral: see intellectual property rights</i></p>
<b>iron</b>	<p>Eisen, das <span style="float: right;">(chem.)</span></p> <p><i>Acronym (engl.): Fe</i></p> <p><i>Acronym (dt.): Fe</i></p> <p>Hematite (Fe<sub>2</sub>O<sub>3</sub>) and magnetite (Fe<sub>3</sub>O<sub>4</sub>) are iron oxide minerals.</p>
<b>IRR</b>	<p style="text-align: right;">(econ.)</p> <p><i>Acronym/Abbreviation referral: see internal rate of return</i></p>



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## Chemical Engineering Vocabulary

<b>irradiate, to</b>	bestrahlen By irradiating certain plastics, cross-linking can be achieved.	( <i>pharm.</i> )
<b>irrigate, to</b>	bewässern Farmers regularly need to irrigate dry fields.	( <i>eng.</i> )
<b>Irrigation</b>	Bewässerung, die By irrigation, the yield of a crop can be increased.	( <i>eng.</i> )
<b>Irritant to the skin</b>	hautreizend Formaldehyde (methanal, HCHO) is irritant to the skin, the eyes, and the mucous membranes.	( <i>chem.</i> )
<b>irritate, to</b>	reizen The product irritates the skin upon contact.	( <i>chem.</i> )
<b>irritating</b>	reizend Acetone ((CH <sub>3</sub> ) <sub>2</sub> CO) shows an irritating effect on the skin due to defatting action. The vapors are irritating to the eyes, too.	( <i>pharm.</i> )
<b>IS</b>	<i>Acronym/Abbreviation referral: see intrinsically safe</i>	( <i>eng.</i> )
<b>ISBL</b>	<i>Acronym/Abbreviation referral: see inside battery limits</i>	( <i>chem.eng.</i> )
<b>isolate, to</b>	isolieren (abtrennen) The contaminated room was isolated.	( <i>chem.</i> )
<b>isolation</b>	Isolation, die To prevent contagious diseases from being spread from one patient to another, the victims were kept in isolation.	( <i>chem.</i> )
<b>issue</b>	Ausgabe, die; Angelegenheit, die People issues had led to the low plant performance.	( <i>general</i> )
<b>issue, to</b>	ausstellen The final report was issued three weeks after the incident.	( <i>general</i> )

<b>jack, screw jack</b>	Dehnschraube, die; Schraubspindel, die; Wagenheber, der A self-locking jack screw is intrinsically safer than other hydraulic actuators that require continuous pressure to remain in a locked position.	(eng.)
<b>jar</b>	Weithalsgefäß, das The contents of the jar had to be thrown away because the label was missing.	(chem.)
<b>jaundice</b>	Gelbsucht, die Jaundice is a yellowish discoloration of tissue, whites of the eyes, and bodily fluids with bile pigment caused by liver problems.	(pharm.)
<b>jet pump, injector</b>	Injektor, der The steam injector was insulated to prevent burns at the hot surface.	(chem. eng.)
<b>jigsaw</b>	Laubsäge, die She needs a new blade for her jigsaw.	(eng.)
<b>job application</b>	Bewerbung, die A job application by email deserves the same attention to spelling mistakes as one sent by letter.	(eng.)
<b>jobsite</b>	Arbeitsplatz, der The wearing of PPE is mandatory at the jobsite.	(general)
<b>join, to</b>	verbinden The man joined the two wires.	(eng.)
<b>joiner</b>	Tischler, der The joiner was looking out for a successor.	(general)
<b>jointless</b>	fugenlos, durchgängig Jointless railway tracks are made of steel with a low coefficient of thermal expansion.	(eng.)
<b>keg</b>	Fass, das A Munich-based company develops and markets a keg for beer which can be cooled down without electricity.	(eng.)

**key performance indicators** Kennzahlen, die (econ.)

*Acronym (engl.): KPI*

The KPI of the plant could be fulfilled easily.

**kilopond** (eng.)

*Acronym/Abbreviation referral: see kp*

**knob** Knopf, der (eng.)

Door knobs need to have good haptics.

**knowledge** Wissen, das (general)

Some knowledge expires, so it has to be constantly increased.

**kp** Kilopond, das (eng.)

1 kilogram-force (kilopond, kp) is equal to 9.81 N, which is the SI unit of force.

The unit kp is outdated.

**KPI** (econ.)

*Acronym/Abbreviation referral: see key performance indicators*

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<b>K<sub>v</sub> flow factors</b>	K <sub>v</sub> -Wert, der; Durchflussfaktor, der; Durchflusskoeffizient, der The K <sub>v</sub> flow factor, measured in m <sup>3</sup> /h or l/min, is used to describe the flow through a valve at a pressure difference of 1 bar.	(eng.)
<b>L/C</b>	<i>Acronym/Abbreviation referral: see letter of credit</i>	(econ.)
<b>lab coat</b>	Laborkittel, der She exchanged her lab coat made of cotton with one made of a flame-retardant material.	(chem.)
<b>label</b>	Etikett, das The label on the flask did not reveal the quantity of the substance therein.	(general)
<b>label, to (labelled)</b>	beschriften <i>label, to (labeled) (AE)</i> The flask with the brown liquid was not labelled.	(general)
<b>laboratory</b>	Labor, das The laboratory is equipped with two fume cupboards.	(chem.)
<b>laboratory assistant</b>	Laborant(in), der (die) Laboratory assistants have to make sure that they record all experimental data.	(chem.)
<b>laboratory notebook</b>	Laborjournal, das After he had spilled a bottle of acetic acid over his laboratory notebook, the entries were barely readable.	(chem.)
<b>laboratory technician</b>	Laborant(in), der (die) During the last years, the laboratory technician has gained vast experience.	(chem.)
<b>labour</b>	Arbeit, die; schwere Arbeit, die; Personal, das; Personalaufwand, der <i>labor (AE)</i> Technology has made redundant a lot of hard labour.	(general)
<b>lacrimal fluid</b>	Tränenflüssigkeit, die There are basal tears, reflex tears and emotional tears. The lacrimal fluid of emotional tears contains more protein-based hormones such as prolactin and leucine enkephalin (a natural painkiller) than basal or reflex tears.	(pharm.)

<b>lacrimator,</b> <b>lacrymator, lachrymator,</b> <b>lachrymatory agent</b>	tränenreizender Stoff, der  Bromoacetone ( $\text{CH}_3\text{COCH}_2\text{Br}$ ) is a lachrymatory agent.	( <i>chem.</i> )
<b>lactic acid</b>	Milchsäure, die  Lactic acid (2-hydroxypropanoic acid) is chiral and has two optical isomers. The L-(+)-lactic acid is biologically important.	( <i>chem.</i> )
<b>lacotse</b>	Milchzucker, der  Lactose (milk sugar) makes up 2–8% of milk (by weight).	( <i>chem.</i> )
<b>laminated core</b>	Blechkpaket, das; Blechkern, der (laminiertes Kern in Transformatoren)  In a rapidly changing field, e.g. a transformer, iron cannot be used in bulk form, because its good conductivity leads to intense eddy currents, resulting in huge losses (this is used advantageously in induction heating, though). Two techniques are commonly used together to increase the resistivity of iron for use in transformers: lamination (yielding a laminated core) and alloying of the iron with silicon.	( <i>eng.</i> )
<b>laminated foil</b>	Verbundfolie, die  The laminated foil consists to 60% of cardboard.	( <i>eng.</i> )
<b>laminated tablet</b>	Manteltablette, die  The laminated tablet has a coating made out of polystyrene.	( <i>pharm.</i> )
<b>landfill</b>	Mülldeponie, die  Landfill gas can be used to produce electricity.	( <i>eng.</i> )
<b>large scale production</b>	größtechnische Produktion, die  Downtime in large scale production plants is rigorously minimized.	( <i>chem. eng.</i> )
<b>large-scale synthesis,</b> <b>industrial synthesis</b>	größtechnische Synthese, die  Industrial synthesis of ammonia exceeds 100 million tonnes/year.	( <i>chem.eng</i> )

<b>last in, first out</b>	LIFO, die zuletzt Eintreffenden (Waren, Rohstoffe, Lagerbestände, Anträge,...) zuerst The consultant proposed not to run the warehouse for perishable goods according to the LIFO principle.	(econ.)
<b>lasting</b>	dauerhaft Glue offers a lasting connection.	(eng.)
<b>latency period, incubation period</b>	Latenzzeit, die; Inkubationszeit, die  The incubation period, i.e. the time that elapses between exposure and the first manifestations of a disease, is often longer in adults than in children.	(med.)
<b>lattice</b>	Gitter, das; Kristallgitter, das The monoclinic crystal system is one of the 7 lattice point groups.	(chem.)
<b>laxative, purgative</b>	Abführmittel, das The monoclinic crystal system is one of the 7 lattice point groups.	(pharm.)

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<b>layer</b>	Schicht, die (Aufbau) The oil formed an even layer on the water.	(eng.)
<b>Layer of Protection Analysis</b>	LOPA  <i>Acronym (engl.): LOPA</i> LOPA is a tool for hazard evaluation and risk assessment.	(chem. eng.)
<b>layout</b>	Aufstellung, die; Aufriss, der The layout of the utility building was still unclear.	(eng.)
<b>layout diagram</b>	Bestückungsplan, der The layout diagram of the warehouse did not show the firefighting equipment.	(chem. eng.)
<b>layout plan</b>	Aufstellungsplan, der The plant layout plan was well organized.	(eng.)
<b>LC50</b>	LC50-Wert, der; letale Konzentration, die The LC50 (lethal concentration 50, median lethal concentration) is the concentration of a substance in air that, via the respiratory route, is expected to kill 50% of a population of test animals when administered as a single exposure in a specific time period, usually 1 hour.	(chem.)
<b>LCLO</b>	geringste letale Konzentration, die LCLO (lethal concentration low) is the lowest concentration of a substance in air reported to have caused death in humans or animals. The reported concentrations may be entered for periods of exposure that are less than 24 h (acute) or greater than 24 h (subacute and chronic).	(chem.)
<b>LD50</b>	LD50-Wert, der; mittlere letale Dosis, die The LD50 or median lethal dose is a dose which will kill 50% of an exposed population.	(chem.)
<b>LDLO</b>	geringste letale Dosis, die LDLO (lethal dose low) is the lowest dose of a substance introduced by any route, other than inhalation, reported to have caused death in humans or animals.	(chem.)

<b>leaching</b>	Auslaugen, das Leaching is commonly used in metallurgy to convert metals into soluble salts, as illustrated for zinc oxide here: $ZnO + H_2SO_4 \rightarrow ZnSO_4 + H_2O$ .	(chem.)
<b>lead</b>	Blei, das <i>Acronym (engl.): Pb</i> <i>Acronym (dt.): Pb</i> Lead glass is composed of 10–30% lead oxide.	(chem.)
<b>lead time</b>	Vorlaufzeit, die The lead time for a new product is 8 months.	(econ.)
<b>leak, to</b>	lecken A leaking valve poses a safety risk.	(chem. eng.)
<b>lean</b>	mager Fuel-lean combustion produces low $NO_x$ emissions, however, unburnt hydrocarbons and CO can increase.	(chem.)
<b>ledger</b>	Hauptbuch, das; Kassenbuch, das The whole department frantically looked for the missing ledger.	(econ.)
<b>legal enforcement</b>	Durchsetzung vor Gericht, die He wanted legal enforcement of the contract. <b>legend drugs (AE)</b> <i>Acronym/Abbreviation referral: see POM</i>	(jur.) (pharm.)
<b>legible</b>	leserlich The handwriting was barely legible.	(pharm.)
<b>LEL</b>	<i>Acronym/Abbreviation referral: see lower explosive limit</i>	(chem.)
<b>lesion</b>	Läsion, die; Wunde, die; Verletzung, die A lesion is an abnormal change, injury, or damage to tissue or to an organ.	(med.)
<b>lethal concentration low</b>	<i>Acronym (engl.): LCLO</i>	(chem.)

<b>letter of credit</b>	Bankgarantie, die <i>Acronym (engl.): L/C</i> A duly confirmed and irrevocable L/C guarantees full payment.	(econ.)
<b>lever</b>	Hebel, der He lifted the machine using a steel bar as lever.	(eng.)
<b>lever rule</b>	Hebelgesetz, das The lever rule can be understood intuitively.	(eng.)
<b>levorotary</b>	linksdrehend If a chiral molecule is dextrorotary, its enantiomer will be levorotary, and vice-versa.	(chem.)
<b>liabilities</b>	Verbindlichkeiten, die All debts and liabilities of a company can be found in the balance sheet.	(econ.)

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<b>licence to operate</b>	Betriebsgenehmigung, die <i>license to operate (AE)</i> <i>Acronym (engl.): LTO</i> The licence to operate was coupled to a few requirements by authorities.	(chem. eng.)
<b>lid</b>	Deckel, der The space between vessel and lid showed significant contamination.	(eng.)
<b>life science</b>	Biowissenschaft, die Life sciences offer interesting career opportunities.	(chem.)
<b>LIFO</b>	<i>Acronym/Abbreviation referral: see last in, first out</i>	(econ.)
<b>light alloy</b>	Leichtmetall, das He bought light alloy rims.	(eng.)
<b>light bulb</b>	Glühbirne, die Conventional light bulbs only convert 1% of the electrical energy into light.	(eng.)
<b>light metal</b>	Leichtmetall, das Lithium, beryllium, sodium, magnesium and aluminum are light metals.	(eng.)
<b>lighting</b>	Beleuchtung, die The skylight provided sufficient lighting for the production hall.	(eng.)
<b>lightning rod</b>	Blitzableiter, der The lightning rod of the house protrudes 1 m into the air.	(eng.)
<b>lignite</b>	Braunkohle, die Lignite, which contains approx. 60% carbon, has got an ash content between 6% to 19% compared to bituminous coal, where it is only 6% to 12%.	(eng.)
<b>lime</b>	gebrannter Kalk, der <i>Acronym (engl.): CaO</i> <i>Acronym (dt.): CaO</i> When working with lime, protective goggles should be worn.	(chem.)

<b>lime, calcium carbonate</b>	Kalk, der <i>Acronym (engl.):</i> $\text{CaCO}_3$ <i>Acronym (engl.):</i> $\text{CaCO}_3$ Marble is made of calcite, a crystalline modification of $\text{CaCO}_3$ . $\text{CaCO}_3$ is also the main component of shells of marine organisms and eggshells.	(chem.)
<b>limited</b>	GmbH, die He works for Company ABC Ltd.	(econ.)
<b>line voltage</b>	Netzspannung, die The line voltage in China is 220V.	(eng.)
<b>linear programming</b>	lineare Optimierung, die Linear programming for chemical engineering problems, e.g. yield increase of a plant, can be facilitated by several software packages.	(eng.)
<b>lining</b>	Auskleidung, die The lining was damaged by the corrosive medium.	(chem.)
<b>lining disk</b>	Beilagscheibe, die The apprentice bought a set of lining disks.	(eng.)
<b>lin-log graph</b>	linear-logarithmische Darstellung, die A lin-log graph uses a logarithmic scale on the x axis, and a linear scale on the y axis.	(sci.)
<b>linseed oil</b>	Leinöl, das Linseed oil is used by some painters.	(chem.)
<b>liquefaction</b>	Verflüssigung, die The Bergius process is a method to produce liquid hydrocarbons by the hydrogenation of lignite (brown coal) at elevated temperature and pressure. The coal liquefaction can be described as $n\text{C} + (n+1)\text{H}_2 \rightarrow \text{C}_n\text{H}_{2n+2}$ .	(chem. eng.)
<b>liquefied propane gas</b>	Flüssiggas, das; Propangas, das; verflüssigtes Propangas, das <i>Acronym (engl.):</i> LPG <i>Acronym (dt.):</i> LPG The energy density of LNG is approx. 60% of that of diesel fuel.	(chem. eng.)

<b>liquefy, to</b>	verflüssigen LNG (liquefied natural gas) can be transported on special ships.	(chem. eng.)
<b>liquid</b>	flüssig, Flüssigkeit, die By supercooling, a liquid can be chilled below its freezing point without becoming solid. For water, supercooling down to -42°C is feasible.	(chem.)
<b>liquidated damages, ascertained damages</b>	vereinbarte Vertragsstrafe, die; Vertragsstrafe, die Liquidated damages were 2 MEUR.	(econ.)
<b>liquor</b>	Flüssigkeit, die; Körperflüssigkeit, die; geistiges Getränk, das Black liquor is a byproduct of the Kraft process, where pulp is produced from wood.	(chem.)
<b>litigation</b>	Rechtsstreit, der; Prozess, der The costs of litigation pose a great threat, since they typically have to be borne by the losing party.	(jur.)

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<b>litmus</b>	Lackmus, der (das) Litmus paper is one of the oldest pH indicators changing from blue (acidic) to red (alkaline) between a pH of 4.5–8.3.	(chem.)
<b>live vaccine</b>	Lebendimpfstoff, der A live vaccine is prepared from living attenuated organisms or viruses.	(pharm.)
<b>load</b>	Beanspruchung, die The shear load was too high for the material.	(eng.)
<b>lock nut</b>	Kontermutter, die The engineer tightened the lock nut.	(eng.)
<b>lock washer</b>	Sicherungsscheibe, die; Federring, der Due to its special design, the piece outperforms similar lock washers.	(eng.)
<b>locknut</b>	Sicherungsmutter, die; Klemmmutter, die In applications where a standard nut would loosen over time due to vibration, a so-called locknut can be tightened against it to permanently fix its position.	(eng.)
<b>lockout/tagout</b>	Verriegelungssysteme, die A good lockout/tagout system is important to guarantee safe maintenance conditions in chemical plants (lock out = protection with a padlock, tag out = protection with a notice).	(chem. eng.)
<b>log-lin graph</b>	logarithmisch-lineare Darstellung, die A log-lin graph uses a linear scale on the x axis, and a logarithmic scale on the y axis.	(sci.)
<b>log-log graph, log-log plot</b>	doppelt logarithmische Darstellung, die  $y = a \cdot x^b$ will appear as a straight line on a log-log graph, in which b will be the slope of the line and $\log(a)$ will be the y value corresponding to $x=1$ . These graphs are useful when the parameters a and b need to be estimated from numerical data.	(sci.)
<b>long-pass filter</b>	für langwelliges Licht durchlässiger Filter, der A long-pass filter transmits wavelengths longer than a specific wavelength.	(eng.)

<b>loose, bulk, not fixed</b>	lose The string was hanging loosely from the ceiling.	(general)
<b>LOPA</b>	<i>Acronym/Abbreviation referral: see Layer of Protection Analysis</i>	(chem. eng.)
<b>lose, to (lost, lost)</b>	verlieren After exposure to propanol vapours, the operator lost his consciousness.	(general)
<b>loss of containment</b>	Materialaustritt, der; Verlust der Einkapselung, der Loss of containment was the root cause for the fire in the refinery.	(chem. eng.)
<b>lot, batch</b>	Charge, die; Los, das Steel cooking is typically carried out as a discontinuous batch process.	(chem.)
<b>louvre</b>	Dachaufsatz, der; Lüftungsschlitz, der; Jalousie, die Louvres were installed on 2 sides of the building.	(eng.)
<b>low current, weak current</b>	Schwachstrom, der  Low current LEDs work at 1–2 mA.	(eng.)
<b>low voltage</b>	Kleinspannung, die; Schwachstrom, der The IEC (International Electrotechnical Commission) defines low voltage as any voltage between 50–1000 V AC or 120–1500 V DC.	(eng.)
<b>lower explosion limit</b>	<i>Acronym/Abbreviation referral: see lower explosive limit</i>	(chem.)
<b>lower explosive limit</b>	untere Explosionsgrenze, die <i>Acronym (engl.): LEL</i> <i>Acronym (dt.): UEG</i> The LEL of 1,3 butadiene is ~2%.	(chem.)
<b>lozenge</b>	Lutschtablette, die; Rhombus (math.) Cough tablets have taken the name lozenge, based on their original shape.	(pharm.)
<b>LPG</b>	<i>Acronym/Abbreviation referral: see liquefied propane gas</i>	(chem. eng.)

<b>Ltd.</b>		(econ.)
	<i>Acronym/Abbreviation referral: see limited</i>	
<b>LTO</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see licence to operate</i>	
<b>lube</b>	Gleitmittel, das Lubes are often silicone-based.	(pharm.)
<b>lubricant</b>	Schmiermittel, das; Schmierstoff, der Molybdenum disulfide (MoS <sub>2</sub> ) is a solid lubricant suitable for elevated temperatures.	(eng.)
<b>lubricate, to</b>	schmieren Machines need to be lubricated according to the manufacturers' recommendations.	(eng.)
<b>lug</b>	Henkel, der; Öse, die 3 lugs were used to lift the reactor.	(eng.)

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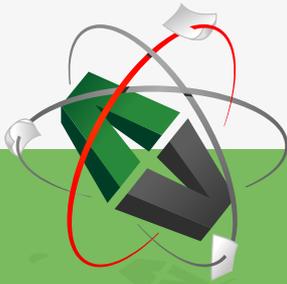
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<b>lukewarm</b>	handwarm, lauwarm The water was lukewarm.	(general)
<b>lumber</b>	Bauholz, das She found a cheap source for lumber.	(eng.)
<b>lump</b>	Brocken, der; Klumpen, der Moisture has led to the formation of lumps in the product.	(eng.)
<b>lye scrubber</b>	Laugenwäscher, der A lye scrubber is used to wash out acid gases.	(chem. eng.)
<b>lyophilised</b>	gefriergetrocknet <i>lyophilized (AE)</i> The lyophilised blood sample was retrieved from the storage room.	(pharm.)
<b>magic potion</b>	Zaubertrank, der Magic potions are prepared by a magician, sorcerer, dragon or witch to heal, poison or bewitch people.	(pharm.)
<b>magnetic stirring bar</b>	Rührstäbchen, das The magnetic stirring bar was coated with polybutadiene rubber.	(pharm.)
<b>magnifying glass</b>	Lupe, die In order to read the comments on the P&ID, he had to use a magnifying glass.	(eng.)
<b>main group</b>	Hauptgruppe, die Main group elements are the most abundant elements both on earth and in the universe.	(chem.)
<b>main header (cooling water)</b>	Hauptsammler, der The main header could handle a flow of 500 m <sup>3</sup> /h.	(eng.)
<b>maintenance</b>	Instandhaltung, die A rule of thumb is that yearly maintenance costs are approx. 2% of the investment value of an equipment.	(chem. eng.)

<b>major constituent</b>	Hauptbestandteil, der Nitrogen is the major constituent of air.	( <i>chem.</i> )
<b>malaise</b>	Unwohlsein, das Malaise is a feeling of general discomfort, distress, or uneasiness.	( <i>pharm.</i> )
<b>malfunction</b>	Funktionsstörung, die Malfunction of a single valve has led to a complete plant shutdown.	( <i>eng.</i> )
<b>malignant</b>	bösartig, malign The term malignant tumor is synonymous with cancer.	( <i>med.</i> )
<b>malleable</b>	plastisch, verformbar, kalt verformbar, schmiedbar, hämmerbar In material science, ductility specifically refers to a material's ability to deform under tensile stress (e.g. stretching into a wire). Malleability, a similar concept, refers to a material's ability to deform under compressive stress (e.g. forming a thin sheet by hammering or rolling). Ductility and malleability do not always correlate with each other; for instance, gold is both ductile and malleable, but lead is only malleable. The most malleable metals are, in descending order: gold, silver, lead, copper, aluminium, tin, platinum, zinc, iron, and nickel.	( <i>eng.</i> )
<b>mammal</b>	Säugetier, das There are approximately 5,400 species of mammals, all of which (except the egg-laying monotremes) give birth to live young. Mammals are vertebrates.	( <i>pharm.</i> )
<b>management ratio</b>	betriebliche Kennzahl, die ROE (return on equity) and ROA (return on assets) are two commonly used management ratios. The former is calculated as net profit/equity, the latter as net income/total assets.	( <i>econ.</i> )
<b>manganese</b>	Mangan, das <i>Acronym (engl.): Mn</i> <i>Acronym (dt.): Mn</i> The salt potassium permanganate ( $\text{KMnO}_4$ ), where manganese is found in the +7 oxidation state, is a strong oxidizer that produces $\text{MnO}_2$ , which is also known as pyrolusite.	( <i>chem.</i> )

<b>manganese module</b>	Manganknolle, die Manganese nodules are made of concentric layers of iron and manganese hydroxides. The growth process is one of the slowest of all geological phenomena with a rate of 1 centimeter over several million years.	(chem. eng.)
<b>manhole</b>	Mannloch, das The vessel was inspected via the manhole.	(chem. eng.)
<b>manifold</b>	Sammelrohr, das; Druckluftverteiler, der; Übergangsstück, das; Verteilerrohr, das; Verteilerbatterie, die A manifold is a distribution piece of pipes or channels in systems that handle fluids.	(eng.)
<b>manual</b>	Handbuch, das It is advisable to read the manual before use of the instrument.	(chem.)
<b>MAOP</b>	<i>Acronym/Abbreviation referral: see maximum allowable operating pressure</i>	(eng.)

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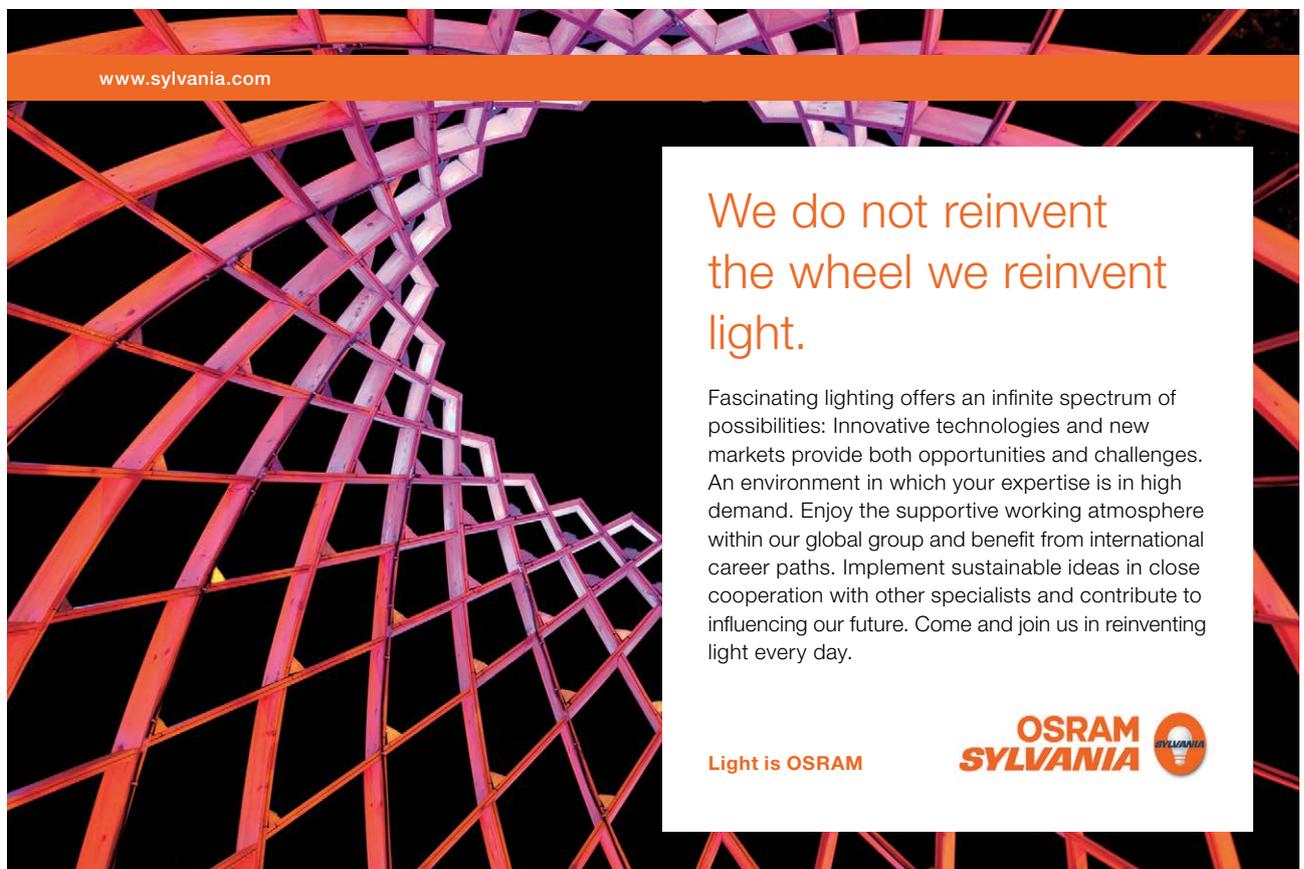
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<b>marble</b>	Marmor, der Finely ground marble is used in toothpaste.	(chem.)
<b>marginal costs</b>	Grenzkosten, die The larger a plant is, the lower the marginal costs are.	(econ.)
<b>markup</b>	Handelsspanne, die; Preisaufschlag, der Items that went via the consultant's books were subjected to a 5% markup.	(econ.)
<b>masonry</b>	Mauerwerk, das The masonry was made from concrete.	(eng.)
<b>mass</b>	Masse, die The mass of the earth and the sun is $6 \cdot 10^{24}$ kg and $2 \cdot 10^{30}$ kg, respectively.	(chem.)
<b>mass balance</b>	Massenbilanz, die The mass balance results from the conservation of mass.	(chem. eng.)
<b>mass flow</b>	Massenfluss, der The angle in the cone of the silo did not permit mass flow.	(chem. eng.)
<b>mass flow, mass flow rate</b>	Massenstrom, der  The mass flow through the PFR (plug flow reactor) was 50 kg/h.	(chem. eng.)
<b>master formula</b>	Herstellungsvorschrift, die He did not disclose the master formula of the ointment.	(pharm.)
<b>masticator</b>	Walzwerk, das Masticators are extensively used in the rubber industry.	(eng.)
<b>material</b>	Werkstoff, der Plywood is a common composite material.	(chem.)
<b>material safety data sheet</b>	Sicherheitsdatenblatt, das  <i>Acronym (engl.): MSDS, SDS</i> Operators need to have access to MSDS in their native language.	(chem. eng.)

<b>material science, materials science</b>	Werkstoffkunde, die  Tribology, the study of wear due to friction, is part of material science.	(chem.)
<b>matter</b>	Materie, die  Granite, an igneous rock, is an example of inhomogeneous matter.	(chem.)
<b>maximum allowable concentration</b>	maximale Arbeitsplatzkonzentration, die  <i>Acronym (engl.): MAC</i> <i>Acronym (dt.): MAK-Wert</i> <i>Acronym/Abbreviation referral. see threshold limit value</i> Granite, an igneous rock, is an example of inhomogeneous matter.	(chem.)
<b>maximum allowable operating pressure</b>	höchstzulässiger Betriebsdruck, der  <i>Acronym (engl.): MAOP</i> The vessel ruptured 0.5 MPa above its MAOP.	(eng.)
<b>MBTU</b>	1000 BTU  Though an unofficial unit, the MBTU is still used in many countries, for instance for air conditioning units.	(eng.)
<b>MC room</b>	  <i>Acronym/Abbreviation referral: see motor control room</i>	(eng.)
<b>MCC</b>	  <i>Acronym/Abbreviation referral: see motor control cabinet</i>	(eng.)
<b>mean free path</b>	mittlere freie Weglänge, die  The mean free path of a gas molecule decreases with increasing pressure.	(chem.)
<b>mean lethal dose</b>	  <i>Acronym/Abbreviation referral: see LD50</i>	(chem.)
<b>measure, to</b>	messen  The flow was measured at three locations in the process.	(eng.)

<b>measurement</b>	Messung, die In-situ measurements are more timely, accurate and reliable than offline analyser results.	(eng.)
<b>measurement and control, instrumentation and control</b>	Messen, Steuern, Regeln; MSR  The instrumentation and control engineer attended a training.	(chem. eng.)
<b>measuring station</b>	Messwerte, die The measuring station was situated in the middle of the production hall.	(chem. eng.)
<b>mechanical advantage</b>	Hebelarm, der; Hebelübersetzung, die A block and tackle is commonly used on boats, where motorized aids are often not available, and where the mechanical advantage can be used to lift heavy loads.	(eng.)
<b>mechanical engineering</b>	Maschinenbau, der Germany is strong in exporting mechanical engineering know-how.	(eng.)



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<b>medicated</b>	medizinisch, heilend, Arzneistoffe enthaltend An ointment may be medicated or not.	(pharm.)
<b>medication</b>	Arzneimittelanwendung, die; medizinische Behandlung, die There was no medication to treat his rash.	(pharm.)
<b>medicinal product</b>	Arzneistoff, der Medicinal products are used to treat or prevent diseases in human beings.	(pharm.)
<b>melamine</b>	Melamin, das Melamine, a trimer of cyanamide, together with formaldehyde yields melamine resin, a very durable thermosetting plastic. Cyanamide can be obtained by hydrolysis of calcium cyanamide in the presence of carbon dioxide by the Frank-Caro process according to: $\text{CaCN}_2 + \text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{NH}_2\text{-CN} + \text{CaCO}_3$ .	(chem.)
<b>melting point</b>	Schmelzpunkt, der The melting point of polypropylene is approx. 160°C.	(chem.)
<b>memorandum of understanding</b>	Absichtserklärung, die; Memorandum, das  <i>Acronym (engl.): MoU</i> The two parties signed a brief MoU.	(econ.)
<b>mercury, quicksilver</b>	Quecksilber, das <i>Acronym (engl.): Hg</i> <i>Acronym (dt.): Hg</i> The melting point of mercury is -38.83°C.	(chem.)
<b>mesh</b>	Masche, die; Netz, das The mesh was made from polypropylene.	(eng.)
<b>metabolic path</b>	Abbauweg, der Toluene ( $\text{C}_7\text{H}_8$ ) is less toxic than benzene ( $\text{C}_6\text{H}_6$ ), because its methyl group is more readily oxidized than the aromatic ring. This metabolic path leads to less toxic metabolites.	(pharm.)
<b>metabolite</b>	Metabolit, der; Abbauprodukt, das Urea (aminomethylamide, carbamide, $(\text{NH}_2)_2\text{CO}$ ) is an end product (metabolite) of protein degradation in mammals.	(pharm.)

<b>metallic</b>	metallisch Metallic bonding is based on delocalized electrons.	(chem.)
<b>metallic compound</b>	Legierung, die Steel is a metallic compound that contains between 0.02% and 1.7% (by mass) carbon.	(chem.)
<b>metalloid</b>	Metalloid, das; metallartig; Halbmetall, das Metalloids (B, Si, Ge, As, Sb, Te, Po) often behave as semiconductors (B, Si, Ge) or semimetals (Sb). Also, they tend to form amphoteric oxides (these can react as either acid or base).	(chem.)
<b>meter, to</b>	dosieren The active ingredient was metered with an accurate instrument.	(pharm.)
<b>methane</b>	Methan, das <i>Acronym (engl.):</i> CH <sub>4</sub> <i>Acronym (dt.):</i> CH <sub>4</sub> The bond angles in methane are 109.5 degrees.	(chem.)
<b>metrology</b>	Messtechnik, die; Messkunde, die The market for industrial metrology in Asia is expanding heavily.	(eng.)
<b>mica</b>	Glimmer, der Mica is a sheet silicate (phyllosilicate) mineral.	(chem.)
<b>microbial count</b>	Keimzahl, die The airborne microbial count in the cleanroom was determined twice per day.	(pharm.)
<b>microbiological strain</b>	Bakterienstamm, der; Stammlösung, die The researcher isolated a new microbiological strain.	(pharm.)
<b>microprobe</b>	Mikrosonde, die The team has developed a microprobe for the speciation of Fe with a lateral resolution of only 2 μm.	(chem.)
<b>mildew</b>	Mehltau, der Mildew refers to certain kinds of mold or fungus.	(pharm.)

<b>mildewed</b>	von Mehltau befallen The mildewed roses had to be discarded.	( <i>pharm.</i> )
<b>mileage, milage</b>	Kilometerstand, der; Laufleistung, die The mileage of the car was estimated at > 500,000 km.	( <i>eng.</i> )
<b>miles per gallon (AE)</b>	Meilen pro Gallone, die <i>Acronym (engl.): mpg</i> A fuel consumption of 7.83 l/100 km corresponds to 30 mpg.	( <i>eng.</i> )
<b>miner</b>	Bergmann, der Several hundred miners lost their jobs.	( <i>eng.</i> )
<b>mineral coal</b>	Steinkohle, die Mineral coal accounts for approx. 10% of the primary energy production in Brazil.	( <i>eng.</i> )
<b>mineral wool</b>	Steinwolle, die Mineral wool, which is produced from molten rock, can be used for thermal insulation and filtration purposes.	( <i>eng.</i> )



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<b>minor constituent</b>	Nebenbestandteil, der Depending on regulations, minor constituents need not be mentioned on the packaging.	(chem.)
<b>minute of arc</b>	Bogenminute, die 1 minute of arc (MOA), which is 1/60 of 1 degree, corresponds to 2.91 cm in a distance of 100 m.	(eng.)
<b>minutes (of meeting)</b>	Besprechungsnotiz, die; Besprechungsprotokoll, das <i>Acronym (eng.) MoM</i> The minutes were distributed one week after the meeting.	(eng.)
<b>miscellaneous</b>	Verschiedenes, das At the end of the meeting, miscellaneous items were discussed.	(general)
<b>miscibility</b>	Mischbarkeit, die Octanol (C <sub>8</sub> H <sub>18</sub> ) shows no miscibility with water. It is commonly used as a standard for partition equilibria.	(chem.)
<b>miscible</b>	mischbar Water and ethanol are fully miscible, whereas copper and cobalt are not miscible.	(chem.)
<b>misfire</b>	Fehlzündung, die Misfire leads to emissions of unburnt hydrocarbons.	(eng.)
<b>misidentification</b>	Verwechslung, die A misidentification of the samples led to a wrong treatment.	(pharm.)
<b>mist</b>	Nebel, der (flüssig in gas) The mist disappeared in the afternoon.	(chem.)
<b>mixed fraction</b>	gemischter Bruch, der 3 1/3 is a mixed fraction.	(sci.)
<b>mixer</b>	Mischer, der A plow mixer is more complicated to clean than a container mixer because the mixing tool cannot be removed.	(chem. eng.)

<b>mixture</b>	Gemenge, das A mixture of salt and iron particles can be separated easily.	( <i>chem.</i> )
<b>MMBTU, mmBTU</b>	1 Million BTU For natural gas, 1 mmBTU is defined as ~ 1.05 GJ (28.26m <sup>3</sup> of natural gas at the defined temperature and pressure).	( <i>eng.</i> )
<b>moisten, to</b>	befeuchten She moistened her finger before turning over the book page.	( <i>chem.</i> )
<b>moisture</b>	Feuchtigkeit, die The customer filed a complaint because of moisture in the product.	( <i>chem.</i> )
<b>molar mass</b>	molare Masse, die The molar mass of NaCl is 58.443 g/mol. 1 mol is $6.02214 \times 10^{23}$ entities of a given substance (Avogadro's number).	( <i>chem.</i> )
<b>mole</b>	Mol, das; Maulwurf, der The mole (symbol: mol) is the SI base unit for the amount of substance. 1 mole is the amount of substance which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon 12, the most abundant of the two stable isotopes of the element carbon, accounting for 98.89% of carbon. Avogadro's constant in SI units is $6.022 \times 10^{23} \text{ mol}^{-1}$ .	( <i>chem.</i> )
<b>monitor, to</b>	überwachen The study was closely monitored.	( <i>pharm.</i> )
<b>monocrystal</b>	Einkristall, der Wafers are produced from silicon monocrystals.	( <i>chem.</i> )
<b>monograph</b>	Monographie, die; Monografie, die; wissenschaftliche Einzeldarstellung, die She wrote a monograph about combustion diagnostics.	( <i>sci.</i> )
<b>monovalent</b>	einwertig Cl <sup>-</sup> is a monovalent ion.	( <i>chem.</i> )

<b>mordant</b>	Beize, die Mordants are used for dyeing fabrics. They include several salts of aluminium, chromium, copper, iron and tin.	(chem.)
<b>mortar</b>	Mörtel, der The bricklayer ran out of mortar.	(eng.)
<b>mortar</b>	Mörser, der Mortars and pestles were traditionally used in pharmacies to crush various ingredients prior to preparing an extemporaneous prescription.	(pharm.)
<b>mother liquor</b>	Mutterlauge, die The crystal was taken out of the mother liquor.	(chem.)
<b>mother lye</b>	Mutterlauge, die The mother lye was discarded.	(chem.)
<b>motor control cabinet</b>	<i>Acronym (engl.): MCC</i> <i>Acronym/Abbreviation referral: see motor control room</i>	(eng.)

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<b>motor control room</b>	Raum für Motorsteuerung, der <i>Acronym (engl.): MC room</i> The MC room was placed next to the transformer room.	(eng.)
<b>mottled</b>	gesprenkelt The pill is mottled.	(pharm.)
<b>MoU, MOU</b>	<i>Acronym/Abbreviation referral: see memorandum of understanding</i>	(econ.)
<b>mould</b>	Schimmel, der <i>mold (AE)</i> In contrast to yeast, which has single fungi cells, moulds are fungi that grow in multicellular filaments (hyphae).	(chem.)
<b>mould</b>	Formkörper, der; Gießform, die <i>mold (AE)</i> The mould was designed for a lifetime of 2 years or 1,000,000 injection- moulded parts.	(eng.)
<b>moulded</b>	geformt, gepresst Injection moulded parts can be mass manufactured.	(eng.)
<b>mouldy</b>	schimmelig <i>moldy (AE)</i> Mouldy buildings pose a serious health risk.	(pharm.)
<b>mount, to</b>	montieren Mounting of the building took 2 weeks.	(eng.)
<b>mouthwash</b>	Mundwasser, das Active ingredients in mouthwash can include thymol, menthol, methylparaben, hydrogen peroxide and fluoride.	(pharm.)
<b>mpg (AE)</b>	<i>Acronym/Abbreviation referral: see miles per gallon</i>	(eng.)
<b>MSDS</b>	<i>Acronym/Abbreviation referral: see material safety data sheet</i>	(chem.)

<b>mucilage</b>	Schleimstoff, der; Schleim, der Some carnivorous plants use mucilage to catch insects.	(chem.)
<b>mucous</b>	schleimig The precipitated substance had a mucous appearance.	(pharm.)
<b>mucous membrane</b>	Schleimhaut, die HCl can cause severe irritations to the mucous membranes.	(pharm.)
<b>mucus</b>	Schleim, der Mucus is a slippery secretion produced by and covering mucous membranes in vertebrates. Also some invertebrates like snails produce it.	(pharm.)
<b>mud guard</b>	Kotflügel, der Mud guards increase air resistance and fuel consumption of a car.	(eng.)
<b>multi stage</b>	mehrstufig Multi stage combustion can reduce pollutant emission.	(chem. eng.)
<b>n/a</b>	<i>Acronym/Abbreviation referral: see not applicable</i>	(general)
<b>nail</b>	Nagel, der Joiners are skilled at using nails.	(eng.)
<b>name plate</b>	Typenschild, das The name plate capacity of the pump was 3,500 l/h.	(chem.eng.)
<b>naphtha</b>	Rohbenzin, das; Naphtha, das In a refinery, oil and gas are separated into different products (fractions) by distillation. Naphtha is the light fraction from oil. It can be further processed in a cracker.	(chem. eng.)
<b>narcotic drug</b>	Rauschgift, das Effects of narcotic drugs, apart from addiction, include sleeplessness, inability to concentrate, apathy and vomiting.	(pharm.)

**narcotic substance,** Betäubungsmittel, das (pharm.)  
**narcotic, anaesthetic**

*anesthetic (AE)*

Anaesthetic agents in widespread current use are isoflurane ( $C_3H_2ClF_5O$ , a halogenated ether), desflurane ( $C_3H_2F_6O$ , a highly fluorinated methyl ethyl ether) and sevoflurane ( $C_4H_3F_7O$ , a highly fluorinated methyl isopropyl ether).

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NFPA, US- Institution zum Feuerschutz, die (eng.)

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NIOSH (chem. eng.)

*Acronym (engl.): NIOSH*

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<b>native</b>	gediegen Metals from the gold group and the platinum group can be found native in nature. The gold group is made up of gold, copper, lead, mercury, and silver. The platinum group is made up of platinum, iridium, osmium, palladium, rhodium, and ruthenium.	(chem.)
<b>natural gas</b>	Erdgas, das Methane is the main constituent of natural gas.	(chem.)
<b>natural rubber</b>	Kautschuk, der Natural rubber is produced from the sap of the rubber tree. It is a milky colloidal suspension (latex) of natural, elastic polymers.	(chem.)
<b>nausea</b>	Breachreiz, der; Übelkeit, die Food poisoning can lead to nausea.	(pharm.)
<b>nebulise, to</b>	vernebeln <i>nebulize, to (AE)</i> The peroxide was nebulized by a nozzle with an orifice of 0.2 mm diameter.	(pharm.)
<b>nebuliser</b>	Zerstäuber, der <i>nebulizer (AE)</i> Piezoelectric nebulizers are used in electronic cigarettes.	(chem.)
<b>necking</b>	Einschnürung, die; Einschnüren, das Necking is a localised reduction in cross-section that can occur in a material under tensile stress as the start of failure.	(eng.)
<b>needle valve</b>	Nadelventil, das; Kegelventil, das A needle valve is a type of valve with a small orifice and a threaded, needle – like plunger. It allows precise regulation of flow. It is only used for small flow rates.	(chem. eng.)
<b>negotiate, to</b>	verhandeln In business, you do not get what you deserve, but rather what you negotiate.	(econ.)
<b>net</b>	netto Her net income has increased by 7% over the last three years.	(econ.)

<b>net present value</b>	Barwert, der <i>Acronym (engl.): NPV</i> The NPV is the economic value of a project calculated by summing up its costs and revenues over its full life. Future costs and revenues need to be discounted by the relevant interest rate (e.g. the cost of capital).	(econ.)
<b>neutral conductor</b>	Nulleiter, der The neutral conductor has the color green/yellow.	(eng.)
<b>NFPA</b>	<i>Acronym/Abbreviation referral: see National Fire Protection Association</i>	(eng.)
<b>niche</b>	Nische, die The company is specialized on the synthesis of nice chemicals.	(pharm.)
<b>NIOSH</b>	<i>Acronym/Abbreviation referral: National Institute for Occupational Safety and Health</i>	(chem. eng.)
<b>nitric acid</b>	Salpetersäure, die White fuming nitric acid, also called 100% nitric acid, and red fuming nitric acid, which contains substantial quantities of dissolved nitrogen dioxide (NO <sub>2</sub> ) are strong acids.	(chem.)
<b>nitrile rubber</b>	Nitrilkautschuk, der; Acrylkautschuk, der Nitrile rubber is a copolymer of acrylonitrile (CH <sub>2</sub> CHCN) and butadiene (C <sub>4</sub> H <sub>6</sub> ). Nitrile rubber has considerable resistance to oils and abrasion.	(chem.)
<b>nitrogen</b>	Stickstoff, der <i>Acronym (engl.): N<sub>2</sub></i> <i>Acronym (dt.): N<sub>2</sub></i> The triple bond in N <sub>2</sub> is extremely strong. Therefore, NO <sub>x</sub> from N <sub>2</sub> and O <sub>2</sub> is only formed at elevated temperatures (thermal NO <sub>x</sub> ).	(chem.)
<b>nitrogen blanketing, nitrogen flushing</b>	Beschleiern mit Stickstoff, das; Spülen mit Stickstoff, das Nitrogen blanketing of the silo was used to prevent the formation of an explosive atmosphere.	(chem. eng.)

**No Observed Adverse Effect Level**    NOAEL    (chem.)

*Acronym (engl.): NOAEL*

NOAEL is the highest dose known to show no adverse effects.

**No Observed Effect Level**    NOEL    (chem.)

*Acronym (engl.): NOEL*

NOEL is the highest dose known to show no effect.

**NOAEL**    (chem.)

*Acronym/Abbreviation referral: see No Observed Adverse Effect Level*

**noble gas**    Edelgas, das    (chem.)  
XeF<sub>4</sub> was one of the first discovered noble gas compounds.

**noble metal**    Edelmetall, das    (chem.)  
Because of their resistance to corrosion and oxidation, copper and silver are counted to the group of noble metals.

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<b>NOEL</b>		(chem.)
	<i>Acronym/Abbreviation referral: see No Observed Effect Level</i>	
<b>noise</b>	Lärm, der; Rauschen, das	(eng.)
	The signal-to-noise ratio (SNR or S/N) in the spectrum was not good enough to determine the concentration.	
<b>non abrasive</b>	abriebfest	(eng.)
	When processing glass fibres, non abrasive materials have to be used for all machine parts that are in contact with the product.	
<b>non return valve, check valve</b>	Rückschlagventil, das	(chem. eng.)
	A check valve only permits fluid flow in one direction.	
<b>non-disclosure agreement</b>	Geheimhaltungsvereinbarung, die	(econ.)
	When entering a cooperation with another company, it is wise to sign a non-disclosure agreement upfront.	
<b>nonflammable</b>	unbrennbar	(chem.)
	Water and carbon tetrachloride are nonflammable liquids.	
<b>non-intrusive</b>	berührungslos	(chem. eng.)
	Laser spectroscopy works non-intrusively. Therefore, the probed system is hardly influenced.	
<b>non-positive, force-fit, friction-locked</b>	kraftschlüssig	(eng.)
	The metal piece was friction-locked.	
<b>non-steroidal anti-inflammatory drug</b>	Nicht-steroidaler Entzündungshemmer, der; Nicht-steroidales Antirheumatikum, das	(pharm.)
	<i>Acronym (engl.): NSAID</i>	
	<i>Acronym (dt.): NSAR</i>	
	Acetylsalicylic acid (C <sub>9</sub> H <sub>8</sub> O <sub>4</sub> , Aspirin) belongs to the class of NSAIDs.	

<b>nonwoven fabric</b>	Vlies, das In a nonwoven fabric, the single fibres have no defined order and are not connected through weaving, but by local attachment.	(eng.)
<b>nootropics</b>	Nootropika, die; Antidementiva, die Ginko is a herbal, nootropic substance.	(pharm.)
<b>noria</b>	Wasserhebewerk, das; Paternosterwerk, das One of the largest norias in the world, which has a diameter of 20 m, is located in Hama in Syria.	(eng.)
<b>not applicable</b>	keine Angabe, entfällt, nicht anwendbar <i>Acronym (engl.): n/a</i> Vapour pressure of NaCl: n/a	(general)
<b>notch</b>	Kerbe, die The worker made a notch in the wood using an axe.	(eng.)
<b>notch, to</b>	einkerben The Charpy test uses a notched specimen in order to improve the reproducibility of the results.	(eng.)
<b>notification</b>	In-Kenntnis -Setzen, das; Meldung, die; Mitteilung, die; Benachrichtigung, die A notification about potential delays in the project was not issued to the steering committee in time.	(general)
<b>novation</b>	Forderungsübertragung, die; Novation, die; Schuldumwandlung, die The novation agreement was exercised.	(econ.)
<b>noxious</b>	giftig, schädlich Phosphine is a noxious gas.	(chem.)
<b>nozzle</b>	Düse, die It is recommended to use a filter upstream of the nozzle to prevent clogging.	(chem. eng.)
<b>nozzle head</b>	Sprühkopf, der The spray from the nozzle head did not reach all corners of the vessel.	(chem.eng.)

<b>NPV</b>		(econ.)
	<i>Acronym/Abbreviation referral: see net present value</i>	
<b>NSAIDs, NAIDs</b>		(pharm.)
	<i>Acronym/Abbreviation referral: see non-steroidal anti-inflammatory drug</i>	
<b>nuisance particles</b>	Immisionsstaub, der	(chem.eng.)
	Nuisance particles are dusts that do not produce significant toxic effects.	
<b>nuisance particulates</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see nuisance particles</i>	
<b>nut</b>	Gegenmutter, die; Schraubenmutter, die; Mutter, die	(eng.)
	A nut is a fastener with internal screw thread. Nuts can be left-threaded or right-threaded.	
<b>nutraceutical water</b>	Funktionswasser, das	(pharm.)
	Nutraceutical water is a new lifestyle product.	

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<b>nutrient</b>	Nährstoff, der Organic nutrients include carbohydrates, fats, proteins (or their building blocks, amino acids), and vitamins.	(chem.)
<b>nuts and bolts</b>	A und O, das; praxisbezogen The book claims to present the nuts and bolts of engineering.	(general)
<b>oak</b>	Eiche, die Oak wood, which has a density of about 750 kg/m <sup>3</sup> , shows good resistance to insects and fungi due to its high content in tannins. Tannins are polyphenols.	(eng.)
<b>oar</b>	Ruder, das The oar created an eddy in the water.	(eng.)
<b>obtuse angle</b>	stumpfer Winkel, der Angles between 90° and 180° are called obtuse angles. Angles of 180° are called straight angles.	(eng.)
<b>occlusion</b>	Einschluss, der Natural occlusions are responsible for the pattern in marble.	(eng.)
<b>occultation</b>	Bedeckung, die; Verfinsterung, die; Verdeckung, die The smoke resulted in an occultation of the sunlight.	(general)
<b>occupational exposure limit</b>	<i>Acronym (engl.): OEL</i> <i>Acronym/Abbreviation referral: see Permissible Exposure Limit</i>	(chem.)
<b>Occupational Health and Safety Assessment Systems</b>	gesundheitlicher und technischer Arbeitsschutz, der  <i>Acronym (engl.): OHSAS</i> The company is certified according to OHSAS 18001.	(chem. eng.)
<b>Occupational Health, Safety and Environment</b>	<i>Acronym/Abbreviation referral: see HSE</i>	(general)

<b>Occupational Safety and Health Administration (AE)</b>	OSHA (Arbeitsschutzorganisation in den USA, die)	<i>(chem. eng.)</i>
	<i>Acronym (engl.): OSHA</i>	
	OSHA is a branch of the Department of Labor (DOL). It regulates the use of personal protective equipment in the workplace. Since the creation of OSHA in 1971 with a mission to prevent work-related injuries, illnesses and deaths, occupational deaths have been cut by 62% and injuries have declined by 42% in the US.	
<b>odd</b>	ungerade 1, 3 and 5 are odd numbers.	<i>(eng.)</i>
<b>odour</b>	Geruch, der <i>odor (AE)</i> The foul odor of rotten eggs stems from H <sub>2</sub> S.	<i>(chem.)</i>
<b>OEL</b>	<i>Acronym/Abbreviation referral: see occupational exposure limit</i>	<i>(chem.)</i>
<b>offensive smell</b>	schlechter Geruch, der; Gestank, der H <sub>2</sub> S is characterized by an offensive smell.	<i>(chem.)</i>
<b>offer</b>	Angebot, das The offer was sold out quickly.	<i>(econ.)</i>
<b>OHSE</b>	<i>Acronym/Abbreviation referral: see Occupational Health, Safety and Environment</i>	<i>(general)</i>
<b>oil</b>	Öl, das Oil is not miscible with water.	<i>(chem.)</i>
<b>ointment</b>	Salbe, die; Heilsalbe, die; Wundsalbe, die The nurse put an ointment onto the wound.	<i>(pharm.)</i>
<b>ointment base</b>	Salbengrundlage, die Petrolatum (which can be hardened with wax) is the most widely used greasy ointment base.	<i>(pharm.)</i>

<b>oleaginous</b>	ölig, ölhaltig Petrolatum is suitable for the incorporation of oleaginous materials.	(chem.)
<b>olefin</b>	Olefin, das Olefins are mono-unsaturated hydrocarbons like ethylene and propylene, which are monomers for polyolefins.	(chem.)
<b>oleochemicals</b>	oleochemische Produkte, die Oleochemicals are chemicals derived from biological oils or fats. They are analogous to petrochemicals which are chemicals derived from petroleum. Hydrolysis and alcoholysis of oils or fats form the basis of the oleochemical industry.	(chem. eng.)
<b>olfactory</b>	den Geruch betreffend, Geruchs – Some vertebrates have a well developed olfactory sense.	(chem.)
<b>OP</b>	<i>Acronym/Abbreviation referral: see operating profit</i>	(econ.)

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<b>operating pressure</b>	Betriebsdruck, der The operating pressure of the pump was 2.5 barg.	(eng.)
<b>operating profit</b>	Betriebsergebnis, das; Gewinn, der <i>Acronym (engl.): OP</i> The operating profit of the energy-intense products was adjusted by the controller.	(econ.)
<b>operating temperature</b>	Betriebstemperatur, die The lifetime of electronic components is often inversely proportional to their operating temperature.	(eng.)
<b>operations</b>	Betrieb, der; operatives Geschäft, das He enjoyed working in operations.	(chem. eng.)
<b>operations research</b>	Unternehmensforschung, die The student acquainted himself with operations research.	(econ.)
<b>operator</b>	Anlagenfahrer, der The operator had 10 years of experience in the process industry.	(chem. eng.)
<b>opportunity</b>	Möglichkeit, die Multinational corporations offer plenty of opportunities for graduates.	(general)
<b>optical rotation, optical activity</b>	optische Rotation, die; optische Aktivität, die  Optical rotation or optical activity is the rotation of linearly polarized light as it travels through certain materials. It occurs in solutions of chiral molecules such as sucrose (sugar), in solids such as quartz, and in gases of spin-polarized atoms or molecules.	(chem.)
<b>ore</b>	Erz, das He is in the ore trading business.	(chem.)
<b>orifice</b>	Blende, die; Öffnung, die Lasers can be used to produce an orifice < 1 µm.	(eng.)
<b>OSBL</b>	<i>Acronym/Abbreviation referral: see outside battery limits</i>	(chem. eng.)

<b>OSHA</b>		(eng.)
	<i>Acronym/Abbreviation referral: see Occupational Safety and Health Administration</i>	
<b>osmosis</b>	Osmose, die Reverse osmosis is a process to produce freshwater in dry areas.	(chem.)
<b>OTC</b>		(pharm.)
	<i>Acronym/Abbreviation referral: see over the counter</i>	
<b>ounce</b>	Unze, die <i>Acronym (engl.): oz</i> 1 ounce (oz) is 1/16 of 1 pound (lb) or ~28.35 g	(general)
<b>outflow</b>	Ausfluss, der The outflow from the reactor has a temperature of 80°C.	(chem. eng.)
<b>outlier</b>	Ausreißer, der The outlier was detected using the student t test.	(sci.)
<b>outpatient, out-patient</b>	ambulant The nurse provided outpatient care.	(pharm.)
<b>outside battery limits</b>	OSBL, Bereich Peripherie der Anlage, der <i>Acronym (engl.): OSBL</i> As OSBL often does not get the same attention as ISBL, there can be a big potential for cost savings.	(chem. eng.)
<b>over the counter</b>	im Freihandel erhältlich, nicht rezeptpflichtig <i>Acronym (engl.): OTC</i> Medications can be grouped into the following categories: over-the-counter (OTC) medications, which are available in pharmacies and supermarkets without special restrictions, behind-the-counter (BTC), which are dispensed by a pharmacist without needing a doctor's prescription, and prescription only medicines (POM).	(pharm.)
<b>overall</b>	Gesamt- The overall project costs are often underestimated.	(eng.)

<b>overexposure</b>	übermäßige Belastung, die; Überbelichtung, die; übermäßige Exposition, die After overexposure, the MSDS recommends prompt medical attention.	(chem.)
<b>overhaul</b>	Überholung, die Machines need to be overhauled regularly to ensure uninterrupted operation.	(eng.)
<b>overpressure</b>	Überdruck, der The safety valve opens at an overpressure of 2.5 bar.	(chem.eng.)
<b>over-the-counter drug</b>	rezeptfreies Medikament, das <i>Acronym (engl.): OTC</i> OTC drugs are generally used to treat conditions not necessarily requiring care from a health care professional. They are less prone for errors with self-medication by patients and often have a low strength.	(pharm.)
<b>overvoltage</b>	Überspannung, die The overvoltage damaged his PC.	(eng.)

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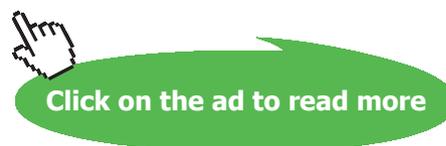
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<b>oxidizing agent</b>	Oxidationsmittel, das Hydrogen peroxide is a powerful oxidizing agent.	(chem.)
<b>oxygen</b>	Sauerstoff, der <i>Acronym (engl.):</i> O <sub>2</sub> <i>Acronym (dt.):</i> O <sub>2</sub> Oxygen is a paramagnetic molecule.	(chem.)
<b>oxygenate, to</b>	mit Sauerstoff versetzen The liquid turned turbid upon oxygenation.	(chem.)
<b>oxyhydrogen gas</b>	Knallgas, das A mixture of methane and oxygen shows a similar behaviour as oxyhydrogen gas.	(chem.)
<b>oz</b>	<i>Acronym/Abbreviation referral: see ounce</i>	(eng.)
<b>oz (tr)</b>	<i>Acronym/Abbreviation referral: see troy ounce</i>	(general)
<b>ozone</b>	Ozon, das <i>Acronym (engl.):</i> O <sub>3</sub> <i>Acronym (dt.):</i> O <sub>3</sub> Ozone turns cyanides to the significantly less toxic cyanates according to $CN^- + O_3 \rightarrow CNO^- + O_2$ .	(chem.)
<b>ozone layer</b>	Ozonschicht, die The ozone layer absorbs highly energetic UV light.	(chem.)
<b>ozt</b>	<i>Acronym/Abbreviation referral: see troy ounce</i>	(eng.)
<b>P&amp;ID</b>	<i>Acronym/Abbreviation referral: see piping and instrumentation diagram</i>	(chem. eng.)
<b>P&amp;L</b>	<i>Acronym/Abbreviation referral: see profit and loss statement</i>	(econ.)

<b>p. a.</b>		(chem.)
	<i>Acronym/Abbreviation referral: see pro analysi</i>	
<b>package</b>	Packung, die The package contains 50 tablets.	(pharm.)
<b>package insert, prescribing information, patient information leaflet</b>	Beipackzettel, der  <i>Acronym (engl.): PIL</i> The section about contraindications on package inserts should be studied in detail to learn about situations in which the medication should not be used, for instance in patients with special medical conditions such as kidney problems or allergies.	(pharm.)
<b>package, to</b>	verpacken Medication should always be packaged in a child-proof way.	(pharm.)
<b>packaging</b>	Verpackung, die The packaging was damaged during transportation.	(pharm.)
<b>pad</b>	Tupfer, der Cotton pads are used for medical and cosmetic purposes.	(pharm.)
<b>padlock</b>	Vorhängeschloss, das For maintenance work, the machine was secured by a padlock.	(general)
<b>PAH</b>		(chem.)
	<i>Acronym/Abbreviation referral: see polycyclic aromatic hydrocarbons</i>	
<b>pain killer, painkiller</b>	Schmerzmittel, das Aspirin (acetylsalicylic acid, 2-acetyloxybenzoic acid, C <sub>9</sub> H <sub>8</sub> O <sub>4</sub> ) is often used as a painkiller (analgesic), as an antipyretic and as anti-inflammatory medication.	(pharm.)
<b>pallet</b>	Palette, die Pallets made from 25 kg bags are wrapped to be stable enough for transportation.	(eng.)
<b>palletize, to</b>	palettieren Manual palletizing demands a lot of labour and is limited to low throughput.	(eng.)

<b>palpitation</b>	Herzklopfen, das; heftiges Schlagen, das; unregelmäßiger Herzschlag, der Caffeine C <sub>8</sub> H <sub>10</sub> N <sub>4</sub> O <sub>2</sub> ) intake can trigger heart palpitations (irregular, rapid heartbeat).	( <i>med.</i> )
<b>panacea</b>	Wundermittel, das The company was hoping to develop a panacea against cancer.	( <i>pharm.</i> )
<b>panel</b>	Bedienpult, das The panel was only labelled in English.	( <i>chem. eng.</i> )
<b>panel operator</b>	Messwartenfahrer, der The panel operator immediately called the fire bridge.	( <i>chem. eng.</i> )
<b>partial pressure</b>	Partialdruck, der According to Dalton's law (= Dalton's law of partial pressures), the total pressure of a gaseous mixture is equal to the sum of the partial pressures of each individual component in a gas mixture.	( <i>chem.</i> )



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<b>particle</b>	Teilchen, das Nanoparticles have unique properties, but their health effects have not yet been fully studied.	(chem.)
<b>partition coefficient</b>	Verteilungskoeffizient, der; Nernstscher Verteilungskoeffizient, der The partition coefficient is a ratio of the concentrations of a neutral compound between two solutions. In case of ionizable solutes, the pH of the aqueous phase is adjusted to transform the compound into its non-ionized state.	(chem.)
<b>partner, shareholder, associate</b>	Gesellschafter, der  The 3 partners decided to venture into oil trading.	(econ.)
<b>pastille</b>	Pastille, die A pastille is a medical pill. Originally, it was a pill made from compressed herbs, which was burnt to release its medicinal properties.	(pharm.)
<b>PAT</b>	 <i>Acronym/Abbreviation referral: see process analytical technology</i>	(chem. eng.)
<b>patent infringement</b>	Patentverletzung, die Deliberate patent infringements are often difficult to prove.	(econ.)
<b>patentable</b>	patentfähig Information that was already disclosed, e.g. in a scientific publication, is no longer patentable.	(econ.)
<b>pathogen, infectious agent, germ</b>	Erreger, der; Keim, der  By water treatment, the threat from pathogens (pathogenic bacteria and viruses) can be reduced.	(pharm.)
<b>patient information leaflet</b>	Beipackzettel, der  <i>Acronym (engl.): PIL</i> A prescription drug usually contains a PIL.	(pharm.)
<b>PC</b>	 <i>Acronym/Abbreviation referral: see polycarbonate</i>	(chem.)

<b>PCB</b>		(chem.)
	<i>Acronym/Abbreviation referral: see polychlorinated biphenyl(s)</i>	
<b>PEG</b>		(chem.)
	<i>Acronym/Abbreviation referral: see polyethylene glycol</i>	
<b>PEL</b>		(chem.)
	<i>Acronym/Abbreviation referral: see permissible exposure limit</i>	
<b>pelletize, to</b>	granulieren Underwater pelletizing is a common process for thermoplastics.	(chem. eng)
<b>pellets</b>	Granulat, das Pellets of a product can be handled easily.	(chem. eng.)
<b>pending</b>	anhängig, bevorstehend, schwebend The pending lawsuit was a key topic at the shareholders' meeting.	(jur.)
<b>peptide</b>	Peptid, das Peptides are short polymers of $\alpha$ -amino acids.	(chem.)
<b>perceive, to</b>	wahrnehmen The color change could hardly be perceived.	(general)
<b>percolating filter</b>	Sickerkörper, der; Tropfkörper, der Perkolationsfilter, der The percolating filter was made from activated carbon.	(chem. eng.)
<b>pe rester</b>	Perester, der Peresters have the general structure $RC(O)OOR$ .	(chem.)
<b>perforated</b>	gelocht Stamps are perforated.	(eng.)
<b>performance</b>	Leistung, die; Leistungsfähigkeit, die The performance of a team is dependent on the qualities of the leader.	(general)

**periodic table of elements** Periodensystem, das; Periodensystem der Elemente, das (chem.)

*Acronym (engl.): PTE*

*Acronym (dt.): PSE*

The PTE finishes with element 111, Rg (roentgenium).

**peristaltic pump** Schlauchpumpe, die, Quetschpumpe, die (chem. eng.)  
Peristaltic pumps can be used to handle clean or aggressive fluids without the risk of contamination.

**Permissible Exposure Limit** PEL, Höchstbelastungsgrenze, die; (chem.)  
maximale Arbeitsplatzkonzentration, die  
PEL is the highest concentration permitted under US OSHA regulations.

**Personal Exposure Limit** (chem.)  
*Acronym (engl.): PEL*  
*Acronym/Abbreviation referral: see Permissible Exposure Limit*  
PEL is the highest concentration permitted under US OSHA regulations.

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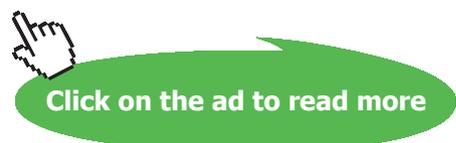
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<b>personal protective equipment</b>	<p>Persönliche Schutzausrüstung, die <span style="float: right;">(<i>general</i>)</span></p> <p><i>Acronym (engl.): PPE</i>  <i>Acronym (dt.): PSA</i></p> <p>Flame-resistant PPE is often made from aramid fibres, which are an asbestos substitute. The name is short for “aromatic polyamide”.</p>
<b>Perturbation</b>	<p>Störung, die <span style="float: right;">(<i>general</i>)</span></p> <p>After the perturbation, the pendulum returned to its initial condition.</p>
<b>petrochemicals</b>	<p>Petrochemikalien, die <span style="float: right;">(<i>chem. eng.</i>)</span></p> <p>Ethylene, propylene, toluene, and benzene are four major petrochemicals.</p>
<b>petrolatum, petroleum jelly</b>	<p>Petrolatum, das; Vaseline, die <span style="float: right;">(<i>chem.</i>)</span></p> <p>Petrolatum is a semi-solid mixture of hydrocarbons (with carbon numbers mainly higher than 25).</p>
<b>petroleum</b>	<p><span style="float: right;">(<i>chem.</i>)</span></p> <p><i>Acronym/Abbreviation referral: see crude oil</i></p>
<b>PFD</b>	<p><span style="float: right;">(<i>chem. eng.</i>)</span></p> <p><i>Acronym/Abbreviation referral: see process flow diagram</i></p>
<b>PFD</b>	<p><span style="float: right;">(<i>chem. eng.</i>)</span></p> <p><i>Acronym/Abbreviation referral: see probability of failure on demand</i></p>
<b>PFR</b>	<p><span style="float: right;">(<i>chem. eng.</i>)</span></p> <p><i>Acronym/Abbreviation referral: see plug flow reactor</i></p>
<b>pharmacist</b>	<p>Apotheker(in), der (die); Pharmazeut(in), der (die) <span style="float: right;">(<i>pharm.</i>)</span></p> <p>Pharmacists are sometimes referred to as dispensing chemists, which may cause confusion with scientists in the field of chemistry (chemists).</p>
<b>pharmacopoeia</b>	<p>Arzneibuch, das <span style="float: right;">(<i>pharm.</i>)</span></p> <p>The European Pharmacopoeia, in its 2005 edition, includes 1,800 monographs. These contain quality standards with which all medicines must comply to guarantee a certain quality level for consumers.</p>

<b>pharmacy, chemist's shop</b>	Apotheke, die; Drogerie, die  <i>drugstore (AE)</i> In the US, several drugstores are open 24/7.	( <i>pharm.</i> )
<b>PhD</b>	Dr. (doctor of philosophy), der <i>Acronym (dt.): Dr.</i> She obtained her PhD from the University of Toronto/Canada.	( <i>chem.</i> )
<b>phlegm</b>	Schleim, der; Gleichgültigkeit, die Phlegm is expelled by coughing.	( <i>pharm.</i> )
<b>phosphor</b>	Leuchtstoff, der; phosphoreszierender Stoff, der Zinc sulfide (ZnS) with about 5 ppm of copper as activator is a common phosphor.	( <i>chem.</i> )
<b>phosphorus</b>	Phosphor, der <i>Acronym (engl.): P</i> <i>Acronym (dt.): P</i> Phosphorus, a multivalent nonmetal of the nitrogen group, cannot be found as a free element in nature because of its high reactivity.	( <i>chem.</i> )
<b>physician, medical practitioner, medical doctor</b>	Mediziner, der; Arzt, der  The physician worked in an interdisciplinary team with 2 chemists.	( <i>pharm.</i> )
<b>PI</b>	<i>Acronym/Abbreviation referral: see process intensification</i>	( <i>chem. eng.</i> )
<b>pickle, to</b>	beizen, pökeln, abbeizen He did not like the taste of pickled meat.	( <i>chem.</i> )
<b>piecework</b>	Akkordarbeit, die Piecework pay is the oldest form of performance pay.	( <i>econ.</i> )
<b>PIL</b>	<i>Acronym/Abbreviation referral: see Patient Information Leaflet</i>	( <i>pharm.</i> )

<b>piling</b>	Pfahltreiben, das; Stapeln, das; Pfählung, die For piling of the construction site, the contractor took 2 weeks.	(eng.)
<b>pillar</b>	Pfeiler, der Pillars offer vertical support.	(eng.)
<b>pilot plant</b>	Technikumsanlage, die; Pilotanlage, die The pilot plant can produce samples of up to 200 kg.	(eng.)
<b>pinch valve, squeeze valve, squeezing valve</b>	Quetschventil, das The pinch valve was damaged by abrasive material.	(chem. eng.)
<b>pine</b>	Kiefer, die The resin of pine trees, which are a significant source of softwood, can be used to produce turpentine.	(general)
<b>pipe</b>	Rohr, das Plastics sewage pipes are designed for a lifetime exceeding 100 years.	(chem. eng.)

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<b>pipe cap</b>	Rohrkappe, die Pipe caps prevent contamination of pipes on a construction site.	(chem. eng.)
<b>pipeline</b>	Pipeline, die; Rohrleitung, die The Trans-Alaska Pipeline System (Alaska Pipeline) measures 48 inch (1.22 m) in diameter and almost 800 miles (1,286 km) in length.	(chem. eng.)
<b>pipng and instrumentation diagram</b>	Rohrleitungs – und Instrumentierungs-Schema, das  <i>Acronym (engl.): P&amp;ID, PID</i> <i>Acronym (dt.): R&amp;I, R&amp;I Schema</i> A HAZOP study will be carried out as soon as updated P&IDs are available.	(chem. eng.)
<b>piston</b>	Kolben, der Pistons are used in reciprocating engines and some pumps.	(eng.)
<b>pit</b>	Grube, die Oil and water had accumulated in the pit.	(eng.)
<b>pitch</b>	Neigungswinkel, der; Pech, das Petroleum -derived pitch is also called bitumen.	(chem.)
<b>pitting</b>	Grübchenbildung, die Pitting is a special type of corrosion.	(chem.)
<b>pivot</b>	Drehpunkt, der; Achse, die The technician pointed to the pivot of the lever.	(eng.)
<b>plaintiff</b>	Kläger, der; Ankläger, der The plaintiff's damages may include compensatory and punitive damages. Punitive damages are only awarded in the event of wanton and reckless conduct.	(jur.)
<b>plant</b>	Anlage, die; Pflanze, die A modern pharmaceutical plant is highly automated.	(chem. eng.)

<b>plant engineering and construction</b>	Anlagenbau, der  Before becoming an independent consultant, he worked as project manager in a plant engineering and construction company.	<i>(chem. eng.)</i>
<b>plasma</b>	Plasma, das  Blood serum is blood plasma without clotting factors such as fibrinogen.	<i>(chem.)</i>
<b>plaster</b>	Gips, der  Plaster is a building material.	<i>(chem.)</i>
<b>plastered wall</b>	verputzte Wand, die  The paint did not stick to the plastered wall.	<i>(chem.)</i>
<b>plastics</b>	Kunststoffe, die  The worldwide plastics production has increased from 1.5 million tonnes in 1950 to 245 million tonnes in 2006.	<i>(chem. eng.)</i>
<b>plate</b>	Trennstufe, die  The concept of theoretical plates (equilibrium stages, theoretical trays) is used for the design of distillation processes.	<i>(chem. eng.)</i>
<b>plate, blanking plate, isolating plate</b>	Steckscheibe, die  The isolating plate was not clearly visible from the ground.	<i>(eng.)</i>
<b>platinum</b>	Platin, das  <i>Acronym (engl.): Pt</i> <i>Acronym (dt.): Pt</i>  The six platinum family metals (ruthenium, rhodium, palladium, osmium, iridium, platinum) show outstanding catalytic behaviour.	<i>(chem.)</i>
<b>PLC</b>	  <i>Acronym/Abbreviation referral: see programmable logic control(ler)</i>	<i>(chem.)</i>
<b>pliable</b>	biegeweich, biegsam  The shell was pliable.	<i>(chem.)</i>

<b>pliers</b>	Zange, die Pliers were probably first used to handle hot objects.	(eng.)
<b>plough</b>	Pflug, der <i>plow (AE)</i> Oxen were used to drag ploughs. (1 ox, 2 oxen).	(eng.)
<b>plug</b>	Stöpsel, der She did not hear her cell phone because of the ear plugs.	(chem.)
<b>plug flow reactor, tubular reactor</b>	Rohrreaktor, der; Strömungsrohr, das  <i>Acronym (engl.): PFR</i> The model of a plug flow reactor (PFR) is used to describe chemical reactions in continuous, flowing systems under ideal situations.	(chem. eng.)
<b>plug valve</b>	Stopfenventil, das; Kegelhahn, der; Kegelventil, das Plug valves are often used as shut-off valves in domestic natural gas lines.	(chem. eng.)



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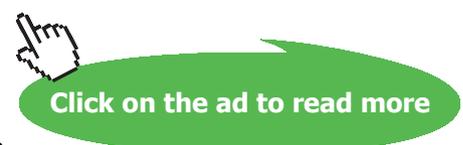
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<b>plugged</b>	verstopft When a pipeline is plugged, it needs to be brought back into operation as fast as possible.	(eng.)
<b>plumbing</b>	Rohrleitungen, die; Klempnerarbeit, die; Armaturenfertigung, die The plumbing contractor did not meet the time schedule.	(eng.)
<b>plywood</b>	Schalungsplatte, die; Sperrholz, das The plies (layers) of plywood can be bonded together by phenol formaldehyde resin. Therefore, plywood can be considered a composite material.	(eng.)
<b>PMC</b>	<i>Acronym/Abbreviation referral: see Project Management Consultancy</i>	(chem. eng.)
<b>pneumatic conveying</b>	pneumatische Förderung, die Dense phase conveying (plug flow conveying) causes less product attrition than dilute phase conveying.	(chem. eng.)
<b>PO</b>	<i>Acronym/Abbreviation referral: see purchase order</i>	(econ.)
<b>pollutant</b>	Schadstoff, der PAH (polycyclic aromatic hydrocarbons) are combustion-derived pollutants.	(chem.)
<b>polycarbonate</b>	Polycarbonat, das; Polykarbonat, das <i>Acronym (engl.): PC</i> Polycarbonates are thermoplastic polymers. They derive their name from carbonate groups (-O-(C=O)-O-) in the molecular backbone chain.	(chem.)
<b>polychlorinated biphenyl(s)</b>	Polychloriertes Biphenyl, das; polychlorierte Biphenyle, die <i>Acronym (engl.): PCB</i> <i>Acronym (dt.): PCB</i> PCBs (C <sub>12</sub> H <sub>10-x</sub> Cl <sub>x</sub> ) were used as coolants and insulating fluids in transformers and as additives in flexible PVC before their ban.	(chem.)

<b>polycyclic aromatic hydrocarbons</b>	<p>polyzyklische aromatische Kohlenwasserstoffe, die</p> <p><i>Acronym (engl.): PAH</i>  <i>Acronym (dt.): PAK</i></p> <p>Benzopyrene (Benzo[a]pyrene), C<sub>20</sub>H<sub>12</sub>, is a five-ring polycyclic aromatic hydrocarbon that is mutagenic and highly carcinogenic. It acts as a procarcinogen, because the ultimate metabolite that causes cancer is benzo[a]pyrene diol epoxide, by interacting with the DNA.</p>	(chem.)
<b>polyethylene glycol</b>	<p>Polyethylenglykol, das</p> <p><i>Acronym (engl.): PEG</i>  <i>Acronym (dt.): PEG</i></p> <p>PEG (PEO, POE, HO-(CH<sub>2</sub>-CH<sub>2</sub>-O)<sub>n</sub>-H) is a polyether. It is the oligomer or polymer of ethylene oxide. Polyethylene glycol can be used to create very high osmotic pressures (&gt;10<sup>6</sup> Pa).</p>	(chem.)
<b>polyolefins</b>	<p>Polyolefine, die (Polyolefin, das)</p> <p>Polyethylene and polypropylene are two ubiquitous polyolefins.</p>	(chem.)
<b>polyvalent</b>	<p>mehrwertig</p> <p>Polyvalent atoms such as carbon are capable of forming more complex structures than monovalent ones.</p>	(chem.)
<b>POM (BE)</b>	<p><i>Acronym/Abbreviation referral: see prescription only medicine</i></p>	(pharm.)
<b>poppet valve</b>	<p>Tellerventil, das</p> <p>Poppet valves are generally very robust and resilient, so they are frequently used as industrial directional control valves.</p>	(eng.)
<b>port</b>	<p>Hafen, der</p> <p>The goods could not leave the port because some documents were missing.</p>	(eng.)
<b>port, portside</b>	<p>backbord</p> <p>Portside is the left side of a ship.</p>	(general)
<b>positioner</b>	<p>Stellungsregler, der; Stellgerät, das</p> <p>Valve positioners are available as pneumatic, electro-pneumatic and digital models.</p>	(eng.)

<b>positive locking</b>	formschlüssig, Formschluss, der The metal piece was installed with positive locking.	(eng.)
<b>postgraduate</b>	Aufbaustudiengang – He earned a postgraduate degree in economics.	(sci.)
<b>potable</b>	trinkbar, genießbar The tap water was not potable.	(pharm.)
<b>potable water</b>	Trinkwasser, das 1.3 billion people do not have access to sufficient potable water.	(chem.)
<b>potassium</b>	Kalium, das <i>Acronym (engl.): K</i> <i>Acronym (dt.): K</i> Potassium ions are colorless in water.	(chem.)
<b>pottery</b>	Tonware, die Pottery is sensitive to shock.	(chem.)



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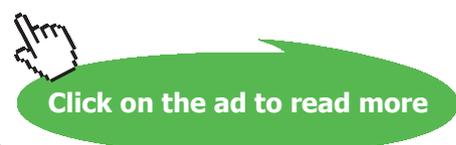
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<b>poultice</b>	Umschlagpaste, die; Kataplasma A poultice can be applied to inflamed parts of the body.	(pharm.)
<b>pound</b>	Pfund, das <i>Acronym (engl.): lb, lbm</i> 1 pound weighs approx. 0.45 kg.	(eng.)
<b>pounds per square inch</b>	<i>Acronym/Abbreviation referral: see psi</i>	(chem.)
<b>pounds per square inch absolute</b>	<i>Acronym/Abbreviation referral: see psia</i>	(chem. eng.)
<b>pounds per square inch gauge</b>	<i>Acronym/Abbreviation referral: see psig</i>	(chem.)
<b>pounds per square inch, pound-force per square inch (lbf/in<sup>2</sup>)</b>	Pfund pro Quadratzoll, das (lbf/in <sup>2</sup> ) <i>Acronym (engl.): psi</i> <i>Acronym/Abbreviation referral: see psi</i> 1 psi is approx. 0.069 bar or 6900 Pa. The atmospheric pressure at sea level (standard) is 14.7 psi.	(eng.)
<b>pounds-force per square inch absolute</b>	Absolutdruck in Pfund pro Quadratzoll, der <i>Acronym (engl.): psia</i> <i>Acronym/Abbreviation referral: see psia</i> A 4.3 psia pressure suit was developed for astronauts in the International Space Station.	(eng.)
<b>pounds-force per square inch gauge</b>	Pfund pro Quadratzoll Überdruck, der <i>Acronym (engl.): psig</i> <i>Acronym/Abbreviation referral: see psig</i> The solenoid valve operates from vacuum to 3,000 psig.	(eng.)

<b>pour point</b>	Stockpunkt, der; Fließpunkt, der The pour point is an important parameter for lubricants and other petroleum products.	(chem.)
<b>pour, to</b>	gießen The worker poured the mixture into the vessel.	(eng.)
<b>powder</b>	Puder, das; Pulver, das The aerodynamic properties of powders can be used to transport them in industrial applications by pneumatic conveying. There are 2 regimes: dilute phase conveying and dense phase conveying. Hydraulic conveying (i.e. conveying with water instead of air) is another option.	(chem.)
<b>power</b>	Leistung, die Power is measured in Watt (W).	(eng.)
<b>power factor</b>	Leistungsfaktor, der; Phasenwinkel, der The power factor can be between 0 and 1. In a purely resistive AC circuit, voltage and current waves are in phase. When reactive loads such as capacitors or inductors are present, energy storage in the loads results in a time difference between the current and voltage waves. The following memory hook helps to memorize the relations: "CIVIL" – in a Capacitor, I (current) leads Voltage, Voltage leads I (current) in an inductor L.	(eng.)
<b>power plant</b>	Kraftwerk, das Power plants can be situated close to the feedstock or to the consumer.	(eng.)
<b>PPE</b>	<i>Acronym/Abbreviation referral: see personal protective equipment</i>	(chem. eng.)
<b>precious metal</b>	Edelmetall, das The best-known precious metals are gold and silver.	(chem.)
<b>precipitant</b>	Fällungsmittel, das Silver was reclaimed by precipitation of AgCl.	(chem.)
<b>precipitation</b>	Niederschlag, der; Fällung, die The solution showed hardly any precipitation.	(chem.)

<b>pre-clinical studies</b>	vorklinische Studien, die Pre-clinical studies involve in vitro (test tube) and in vivo (animal) experiments.	( <i>med.</i> )
<b>precommissioning</b>	Vorbereitungen zur Inbetriebnahme, die; Precommissioning, das In the construction of a (chemical) plant, precommissioning is the testing, adjustment and verification that the entire installation is working according to the designed purpose so that the systems involved are brought to a stage where they are ready for commissioning. Precommissioning is a part of the Mechanical Completion activity.	( <i>chem. eng.</i> )
<b>preliminary</b>	vorläufig A preliminary report was issued 2 weeks after the incident.	( <i>general</i> )
<b>premium</b>	Prämie, die; Aufschlag, der; Zuschlag, der Fine chemicals of superior purity can be sold with a premium.	( <i>econ.</i> )
<b>prescription</b>	Verschreibung, die; Rezept, das He was given a prescription for sedative drugs.	( <i>pharm.</i> )

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<b>prescription drug</b>		( <i>pharm.</i> )
	<i>Acronym/Abbreviation referral: see POM</i>	
<b>prescription drug, rx-only drug, legend drug, prescription only drug</b>	rezeptpflichtiges Medikament, das	( <i>pharm.</i> )
	<i>Acronym/Abbreviation referral: see prescription only medicine</i> Vitamins are generally no prescription drugs.	
<b>prescription only medicine</b>	verschreibungspflichtiges Arzneimittel, das; rezeptpflichtiges Arzneimittel, das	( <i>pharm.</i> )
	<i>Acronym/Abbreviation referral: see POM</i> Many antibiotics are POM.	
<b>pressure</b>	Druck, der	( <i>chem.</i> )
	The pressure in the combustion chamber can reach 142 bar.	
<b>pressure gauge</b>	Druckmesser, der; Manometer, das	( <i>eng.</i> )
	The pressure gauge was destroyed by overstretching.	
<b>pressure regulator</b>	Druckregler, der	( <i>chem.</i> )
	The pressure regulator was set at 2.3 bar.	
<b>pressure relief valve</b>	Abblaseventil, das; Überdruckventil, das	( <i>eng.</i> )
	A pressure relief valve has to vent into an unconfined area.	
<b>pressure swing adsorption</b>	Druckwechseladsorption, die	( <i>chem. eng.</i> )
	N <sub>2</sub> can be produced by fractionation of air, membrane separation or pressure swing adsorption.	
<b>prestressed concrete</b>	Spannbeton, der	( <i>eng.</i> )
	With prestressed concrete, bridges with a longer span than feasible with ordinary reinforced concrete can be built.	
<b>prestudy</b>	Vorstudie, die	( <i>chem. eng.</i> )
	During the prestudy, it was discovered that the warehouse needs an expansion, too.	

<b>prevailing</b>	vorherrschend The prevailing opinion about waste incineration is positive.	(general)
<b>primary air</b>	Primärluft, die The primary air preheater was designed for a maximum pressure of $2 \cdot 10^6$ Pa.	(chem. eng.)
<b>primer</b>	Grundieranstrich, der; Initialsprengstoff, der Azides are commonly used as primers.	(eng.)
<b>pro analysi</b>	in Analysenqualität <i>Acronym (engl.): p.a.</i> The company sells p.a. grade chemicals.	(chem.)
<b>probability of failure on demand</b>	Ausfallswahrscheinlichkeit bei Bedarf, die <i>Acronym (engl.): PFD</i> SIL 4 has a PFD better than $10^{-4}$ .	(chem. eng.)
<b>probe</b>	Sonde, die The sample was taken by a water-cooled probe.	(eng.)
<b>procedure</b>	Anweisung, die The operating procedure for the distillation column was updated only 2 weeks ago.	(general)
<b>process</b>	Verfahren, das The process has not yet been implemented in a large scale plant.	(chem. eng.)
<b>process analytical technology (process analytical techniques)</b>	Process Analytical Technology, Technologie zur (pharmazeut.) Prozessanalyse, die <i>Acronym (eng.): PAT</i> <i>Acronym (dt.): PAT</i> Process Analytical Technology (PAT) has been defined by the United States Food and Drug Administration (FDA) as a concept to analyze and control pharmaceutical manufacturing processes through the measurement of Critical Process Parameters (CPP).	(chem. eng.)

<b>process capability</b>	<p>Prozessfähigkeit, die <span style="float: right;"><i>(chem. eng.)</i></span></p> <p>The process capability can be expressed by the <math>c_{pk}</math> (six sigma approach), which basically means that the standard deviation of a production process needs to be smaller than the product specifications.</p>
<b>process chemistry, process engineering</b>	<p>Verfahrenstechnik, die <span style="float: right;"><i>(chem. eng.)</i></span></p> <p>He holds a tenure in process chemistry.</p>
<b>process development</b>	<p>Verfahrensentwicklung, die <span style="float: right;"><i>(chem. eng.)</i></span></p> <p>During process development, one should also think about the energy consumption.</p>
<b>process engineer</b>	<p>Prozessingenieur (in), der (die); <span style="float: right;"><i>(chem. eng.)</i></span>          Verfahrenstechniker(in), der (die)</p> <p>The process engineer proposed to lower the temperature in the discharge zone.</p>
<b>process flow diagram</b>	<p>Fließbild, das <span style="float: right;"><i>(chem. eng.)</i></span>  <i>Acronym (engl.): PFD</i></p> <p>A process flow diagram (PFD) is a diagram commonly used in chemical and process engineering to indicate the general flow of plant processes and equipment. The PFD displays the relationship between major equipment of a plant and does not show minor details such as piping details and designations (those can be seen on a P&amp;ID). Another commonly-used term for a PFD is a flow sheet.</p>
<b>process industry</b>	<p>Prozessindustrie, die <span style="float: right;"><i>(chem. eng.)</i></span></p> <p>Chemicals, food and drinks and pharmaceuticals are produced by the process industry.</p>
<b>process intensification</b>	<p>Prozess-Intensivierung, die <span style="float: right;"><i>(chem. eng.)</i></span>  <i>Acronym (engl.): PI</i></p> <p>Process intensification is an approach to build much smaller (i.e. intensified) chemical plants that are significantly cheaper and safer than existing ones.</p>
<b>process measuring and control technology</b>	<p>Mess-, Steuer- und Regeltechnik, die; MSR-Technik, die <span style="float: right;"><i>(chem. eng.)</i></span></p> <p>The process measuring and control technology department was reorganized.</p>

<b>process technology</b>	Verfahrenstechnologie, die The process technology was covered by 3 patents.	(chem. eng.)
<b>process water</b>	Brauchwasser, das The process water was more corrosive than expected.	(chem. eng.)
<b>process, to</b>	verarbeiten The plants processes waste oil.	(chem.)
<b>processing</b>	Verarbeitung, die The processing of concrete is performed at throughputs of 50 t/h and more.	(chem. eng.)
<b>procurement</b>	Einkauf, der The procurement of local equipment is generally less costly than to import it from offshore.	(econ.)
<b>prodrug</b>	Pro-Pharmakon, das A prodrug is a pharmacological substance which is administered in an inactive form. It is then metabolised in vivo into an active metabolite.	(pharm.)



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<b>produce</b>	darstellen, herstellen The chemist produced H <sub>2</sub> from water.	(chem.)
<b>product</b>	Produkt, das The new employee studied the product range of his company.	(chem. eng.)
<b>production site</b>	Produktionsstätte, die The company has production sites in three countries.	(chem. eng.)
<b>profit</b>	Gewinn, der The owners of a company are interested in its profit.	(econ.)
<b>profit and loss statement, income statement</b>	Gewinn- und Verlustrechnung, die  <i>Acronym (engl.): P&amp;L</i> <i>Acronym (dt.): GuV</i> A profit and loss statement (P&L) or income statement indicates how revenues (“top line”) were transformed into net income (“bottom line”) of a corporation to see how much money was made in the period of interest, typically 1 year. Thereby, the P&L differs from the balance sheet, which represents a single point in time.	(econ.)
<b>proforma invoice</b>	Pro-forma -Rechnung, die A proforma invoice can be sent upfront to a buyer if not all details are known. It is often used for customs clearance purposes.	(econ.)
<b>profuse</b>	übermäßig, reichlich Ingestion of large amounts of propylene glycol can result in rapid heartbeat and profuse sweating.	(general)
<b>programmable logic control(ler)</b>	PLC Steuerung, die; Speicher-Programmierbare Steuerung, die  <i>Acronym (dt.): SPS</i> A programmable logic controller (PLC) is used for the automation of industrial processes.	(eng.)

<b>prohormone</b>	<p>Prohormon, das (pharm.)</p> <p>Vitamin D is a group of fat -soluble prohormones, the two major forms of which are vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). Vitamin D3 is produced in skin exposed to sunlight.</p>
<b>Project Management Consultancy</b>	<p>Beratungsfirma für Projektmanagement, die; PMC-Firma, die (chem. eng.)</p> <p><i>Acronym (engl.): PMC</i></p> <p><i>Acronym (dt.): PMC</i></p> <p>The PMC suggested to speed up the project.</p>
<b>propagation</b>	<p>Ausbreitung, die (general)</p> <p>The propagation of the flue was faster than expected.</p>
<b>propellant</b>	<p>Treibgas, das; Treibmittel, das (chem.)</p> <p>A hypergolic propellant consists of fuel and oxidizer. It ignites spontaneously upon contact of the two media, e.g. hydrazine and nitrogen tetroxide.</p>
<b>properties</b>	<p>Eigenschaften, die (chem.)</p> <p>The professor wanted to know the properties of helium from the candidate.</p>
<b>proposed International Nonproprietary Name</b>	<p>(pharm.)</p> <p><i>Acronym (engl.): pINN</i></p> <p><i>Acronym/Abbreviation referral: see International Nonproprietary Name</i></p>
<b>protective clothing</b>	<p>Schutzkleidung, die; Schutzanzug, der; Schutzbekleidung, die (chem.)</p> <p>A chemsuit (hazmat suit) is a special type of protective clothing.</p>
<b>protein</b>	<p>Eiweiß, das; Protein, das (chem.)</p> <p>Proteins are polypeptide molecules. The distinction is that peptides are short and polypeptides/proteins are long. They are composed of amino acids.</p>
<b>prussic acid</b>	<p>Blausäure, die (chem.)</p> <p>Prussic acid is a solution of hydrogen cyanide (HCN) in water. HCN reacts with ketones and aldehydes to give cyanohydrins.</p>

<b>psi</b>	Pfund pro Quadrat Zoll, das <i>Acronym/Abbreviation referral: see pounds per square inch</i> 1 bar = 100,000 Pa = 14.5 psi.	(chem. eng.)
<b>psia</b>	Pfund pro Quadrat Zoll absolut <i>Acronym/Abbreviation referral: see pounds-force per square inch absolute</i> Psia is the gauge pressure plus local atmospheric pressure.	(chem. eng.)
<b>psig</b>	Pfund pro Quadrat Zoll (relativ, laut Manometer) <i>Acronym/Abbreviation referral: see pounds-force per square inch gauge</i> Psig is a unit of pressure relative to the surrounding atmosphere. By contrast, psia measures the pressure relative to vacuum.	(chem. eng.)
<b>pulley</b>	Rolle, die; Flaschenzug, der A pulley is a grooved wheel that can accommodate a rope or cable. It can be used to change the direction of an applied force.	(eng.)
<b>pulp</b>	Zellstoff, der Pulp is a fibrous material made from wood which can be converted into paper.	(chem.)

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<b>pump</b>	Pumpe, die The impeller of the pump was destroyed by solids.	(chem. eng.)
<b>pump head</b>	Pumpendruck, der The pump head was 3 bar.	(eng.)
<b>punch</b>	Prägestempel, der; Locheisen, das; Stanzer, der The punch was made from hardened metal.	(eng.)
<b>punch list</b>	Liste mit offenen Punkten, die A punch list is a “to do” list which contains items of a project that require rectification or completion before the entire work scope is completed.	(chem. eng.)
<b>pungent</b>	beißend, scharf, stechend Glutaraldehyde (pentane- 1,5-dial, pentanedial, glutural, C <sub>5</sub> H <sub>8</sub> O <sub>2</sub> ) is a liquid with a pungent odor. It is used to sterilize medical and dental equipment.	(chem.)
<b>purchase order</b>	Bestellung, die <i>Acronym (engl.): PO</i> A purchase order was issued.	(econ.)
<b>purchase, to</b>	kaufen Raw materials can be purchased from one supplier in order to claim volume discount.	(econ.)
<b>purge, to</b>	spülen The reactor was purged with nitrogen.	(chem.)
<b>purification</b>	Reinigung, die Reagents for delicate processes can be subjected to a purification step by recrystallization, i.e. dissolution in a very pure solvent, crystallisation and crystal recovery.	(chem.)
<b>purportedly</b>	angeblich, wie man sagt Most medications are potent and safe after the expiration date. A rare exception is a case of renal damage purportedly caused by expired tetracycline.	(general)

<b>putrefaction</b>	Fäulnis, die Putrefaction is the decomposition of animal proteins by putrefying bacteria. It usually yields amines such as putrescine ( $\text{NH}_2(\text{CH}_2)_4\text{NH}_2$ (1,4-diaminobutane, butanediamine) and cadaverine ( $\text{NH}_2(\text{CH}_2)_5\text{NH}_2$ , pentane-1,5-diamine).	( <i>pharm.</i> )
<b>pylon</b>	Hochspannungsmast, der; Pylon, der A pylon has the shape of a truncated pyramid.	( <i>eng.</i> )
<b>pyruvic acid</b>	Brenztraubensäure, die Pyruvic acid (2-oxopropanoic acid, $\text{CH}_3\text{COCOOH}$ ) is the simplest alpha-keto acid. The carboxylate anion ( $-\text{COO}^-$ ) of pyruvic acid is known as pyruvate, which plays an important role in biochemical processes.	( <i>chem.</i> )
<b>quantum well</b>	Quantentopf, der; Potentialtopf, der Quantum wells, which can be produced in semiconductors, are used in some lasers.	( <i>phys.</i> )
<b>quarry</b>	Steinbruch, der Because of dust formation, quarries are situated in remote areas.	( <i>eng.</i> )
<b>quarter-turn screw, flat leaf screw</b>	Blattschraube, die  The hose was connected to the tank by a flat leaf screw.	( <i>eng.</i> )
<b>quartz</b>	Quarz, der Quartz crystals exhibit the piezoelectric effect.	( <i>chem.</i> )
<b>quaternary ammonium compounds, quaternary ammonium salts, quaternary amines</b>	quaternäre Ammoniumverbindungen, die  <i>Acronym (engl.): quats</i> Quats are positively charged ions of the structure $\text{NR}^+$ with R being alkyl groups. Unlike the ammonium ion $\text{NH}_4^+$ , the primary, secondary, or tertiary ammonium cations, the quaternary ammonium cations are permanently charged, independent of the pH of their solution.	( <i>chem.</i> )
<b>quats</b>	<i>Acronym/Abbreviation referral: see quaternary ammonium compounds</i>	( <i>chem.</i> )

<b>quench, to</b>	abschrecken, quenchen The radicals were quenched on the vessel wall.	(eng.)
<b>quenching</b>	Löschen, das; Qenchen, das Flame quenching on metal surfaces results in the formation of pollutants such as CO and unburnt hydrocarbons.	(chem.)
<b>quick lime</b>	gebrannter Kalk, der <i>Acronym (engl.): CaO</i> <i>Acronym (dt.): CaO</i> Calcium oxide (CaO, burnt lime, quick lime) is obtained from the thermal decomposition of calcium carbonate (CaCO <sub>3</sub> , calcite) in a lime kiln above 825°C in a process called calcination or lime-burning.	(chem.)
<b>quicksilver, mercury</b>	Quecksilber, das <i>Acronym (engl.): Hg</i> <i>Acronym (dt.): Hg</i> Quicksilver is a synonym for mercury (hydrargyrum).	(chem.)

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<b>quiescent, stagnant</b>	ruhig, unbewegt The nearly quiescent flow was observed.	(general)
<b>quotation</b>	Kostenvoranschlag, der The quotation met the client's expectations.	(econ.)
<b>R&amp;D</b>	<i>Acronym/Abbreviation referral: see research and development</i>	(sci.)
<b>R. Ph.</b>	<i>Acronym/Abbreviation referral: see Registered Pharmacist</i>	(pharm.)
<b>rack</b>	Gestell, das Rack storage of pallets requires forklifts.	(eng.)
<b>radial engine</b>	Sternmotor, der Private planes are sometimes equipped with radial engines.	(eng.)
<b>radiation</b>	Strahlung, die Ionizing radiation can be divided into alpha, beta and gamma radiation.	(chem.)
<b>railcar</b>	Schienenfahrzeug, das In contrast to a railway car, a railcar is self-propelled.	(eng.)
<b>rancid</b>	ranzig Butyric acid, $\text{CH}_3\text{CH}_2\text{CH}_2\text{-COOH}$ , gives the characteristic, unpleasant smell to rancid butter.	(chem.)
<b>random sample</b>	Stichprobe, die A random sample of employees was picked to test the new software.	(pharm.)
<b>randomly</b>	zufällig The sample was randomly selected.	(general)
<b>range</b>	Bereich, der; reichen The measurements range from 4 to 65 mg/m <sup>3</sup> .	(sci.)
<b>rated capacity</b>	Nennkapazität, die The rated capacity of the extruder is 7.5 t/h.	(eng.)

<b>rated power</b>	Nennleistung, die The engine has a rated powder of 3.7 kW.	(eng.)
<b>ratholing</b>	Schachtbildung, die The vibrating bottom is supposed to prevent ratholing in silos.	(chem. eng.)
<b>rating</b>	Dimensionierung, die; Klassifizierung, die The level sensor has no rating for use in dust -explosive atmospheres.	(eng.)
<b>ratio</b>	Verhältnis, das The <sup>12</sup> C/ <sup>16</sup> C isotope ratio can be measured to estimate the age of a sample.	(general)
<b>raw material</b>	Rohstoff, der He was looking for two missing raw materials in the warehouse.	(chem.)
<b>RCRA</b>	<i>Acronym/Abbreviation referral: see Resource Conservation and Recovery Act</i>	(chem. eng.)
<b>REACH</b>	<i>Acronym/Abbreviation referral: see Registration, Evaluation and Authorisation of Chemicals</i>	(chem. eng.)
<b>reaction</b>	Reaktion, die According to the IUPAC definition, a chemical reaction is a process that results in the Interconversion of chemical species.	(chem.)
<b>readily soluble</b>	leichtlöslich The readily soluble heavy metals were extracted from the soil sample.	(pharm.)
<b>reading</b>	Anzeige auf einem Gerät, die The instrument reading was faulty.	(chem.)
<b>reagent</b>	Reagenz, das In contrast to solvents and catalysts, a reagent (or reactant) is a substance that is consumed during a chemical reaction.	(chem. eng.)
<b>real power</b>	Wirkleistung, die The ratio between real power and apparent power in an AC circuit is called power factor.	(eng.)

<b>real-estate agent</b>	Immobilienmakler, der; Makler, der The real-estate agent was very experienced in the area.	(general)
<b>rear axle</b>	Hinterachse, die The rear axle broke during the accident.	(eng.)
<b>rear drive</b>	Heckantrieb, der The truck is equipped with rear drive.	(eng.)
<b>rear view</b>	Rückansicht, die The rear view of some houses is more attractive than the front view.	(eng.)
<b>reassessment</b>	Neubewertung, die After the cost estimation, a reassessment of the project profitability was carried out.	(general)
<b>rebars</b>	<i>Acronym/Abbreviation referral: see reinforcing bars</i>	(eng.)

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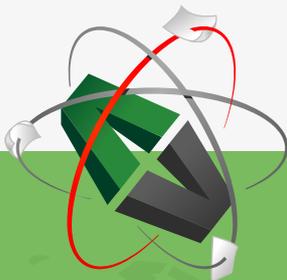
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<b>receipt</b>	Beleg, der Reimbursement of expenses can only be made against original receipts.	( <i>econ.</i> )
<b>receivables</b>	Forderungen, die; Kundenforderungen, die; Außenstände, die To improve the cash flow, the receivables were screened for overdue payments.	( <i>econ.</i> )
<b>receptacle</b>	Wandsteckdose, die; Auffanggefäß, das; Auffangbehälter, der Power plugs are inserted into power sockets (=power receptacles, power outlets).	( <i>eng.</i> )
<b>reclaimed rubber</b>	Altgummi, der Reclaimed rubber can be used to save natural resources.	( <i>chem.eng.</i> )
<b>recommendation</b>	Empfehlung, die The chemist made a recommendation about two suppliers.	( <i>general</i> )
<b>recommended exposure limit</b>	empfohlene Belastungsgrenze, die  The recommended exposure limit is the highest allowable airborne concentration of a substance that is not expected to give damage to a person at work.	( <i>chem.</i> )
<b>recommended International Nonproprietary Name</b>	<i>Acronym (engl.): rINN</i> <i>Acronym/Abbreviation referral: see International Nonproprietary Name</i>	( <i>pharm.</i> )
<b>recommissioning</b>	Wiederinbetriebnahme, die After a 6-month shutdown, the plant was in a condition for recommissioning.	( <i>chem. eng.</i> )
<b>recovered glass</b>	Altglas, das Recovered glass needs to be freed from metal parts prior to processing.	( <i>chem. eng.</i> )
<b>recovered paper</b>	Altpapier, das Recovered paper can be used to produce cardboard.	( <i>chem. eng.</i> )
<b>recovery</b>	Rückgewinnung, die Recovery of solvent is done to meet emission requirements.	( <i>chem. eng.</i> )

<b>rectangle</b>	Rechteck, das An sheet of paper in A4 format constitutes a rectangle.	( <i>sci.</i> )
<b>rectangular</b>	rehtwinkelig The surface area of a rectangular piece of land can be figured out easily.	( <i>sci.</i> )
<b>rectifier</b>	Gleichrichter, der A rectifier converts alternating current (AC) to direct current (DC). The opposite device is called an inverter.	( <i>eng.</i> )
<b>red line drawing</b>	Rotpause, die The engineer marked the changes in a red line drawing.	( <i>chem. eng.</i> )
<b>redox reaction</b>	Redoxreaktion, die Examples of a redox reaction are the oxidation of carbon by oxygen to carbon dioxide or the reduction of carbon by hydrogen to methane. The former reaction is associated with a loss of electrons (oxidation), the latter one with a gain of electrons (reduction) for the carbon.	( <i>chem.</i> )
<b>reducer</b>	Reduzierstück, das A reducer is a component in a pipeline that reduces the pipe size from one diameter to another.	( <i>chem.</i> )
<b>reducing agent</b>	Reduktionsmittel, das A reducing agent becomes oxidized in a redox reaction and is therefore the electron donor.	( <i>chem.</i> )
<b>reducing valve</b>	Überdruckventil, das; Druckminderventil, das The reducing valve on the gas bottle was frozen because of the Joule-Thomson effect. At room temperature, all gases except hydrogen, helium and neon cool down upon expansion.	( <i>chem. eng.</i> )
<b>reduction</b>	Reduktion, die An example of a reduction is the reaction of benzene to cyclohexane in the presence of a platinum catalyst according to $C_6H_6 + 3H_2 \rightarrow C_6H_{12}$ .	( <i>chem.</i> )
<b>redundancy</b>	Redundanz, die Critical process equipment can be built in redundancy.	( <i>general</i> )

<b>reel</b>	Rolle, die A reel is used to redirect a rope.	(eng.)
<b>refinery</b>	Raffinerie, die The world's largest refineries process over 500,000 barrels of crude oil per day. 1 barrel (bbl) is 42 US gallons or 159 l.	(chem. eng.)
<b>reflux</b>	Rückfluss, der By boiling the sample under reflux for 8 h, 80% of the total mass could be dissolved.	(chem. eng.)
<b>refraction</b>	Brechung, die Refraction, as described by Snell's law, is the change in direction of a wave due to a change in its speed, e.g. at an interface between 2 media.	(eng.)
<b>refractive index</b>	Brechungsindex, der The refractive index (n) of glass is around 1.5. Therefore, the speed of light in glass (v) is $1/1.5 = 0.67$ times the speed of light in vacuum (c) according to $n = c/v$ . n is dependent on the wavelength.	(eng.)

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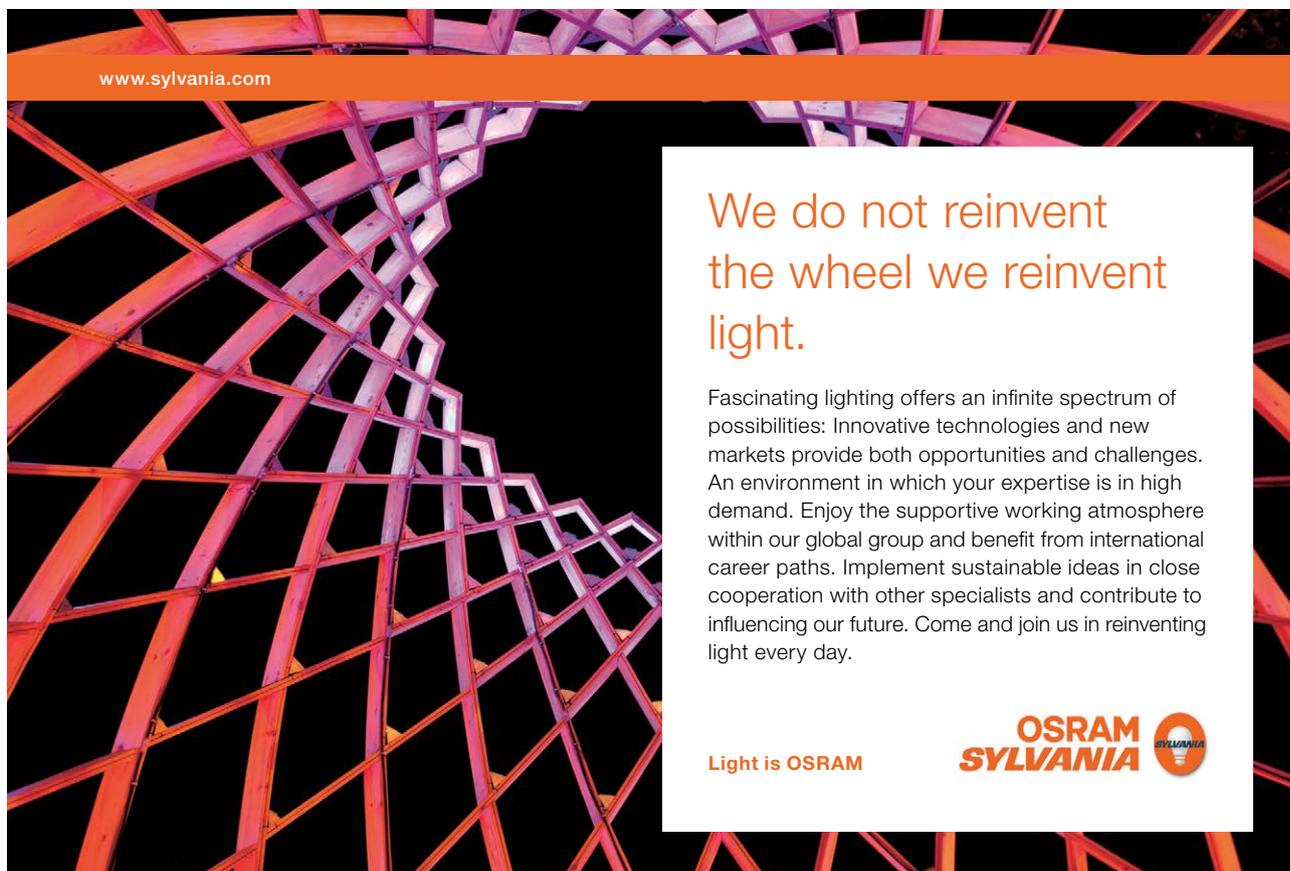
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<b>refractory</b>	feuerfest, feuerbeständig Refractories are non-metallic materials that are used above 1000°F (538°C).	(chem.)
<b>refractory</b>	feuerfestes Erzeugnis, das The oxides of aluminium (alumina, Al <sub>2</sub> O <sub>3</sub> ), silicon (silica, SiO <sub>2</sub> ) and magnesium (magnesia, MgO) can be used to produce refractories.	(chem. eng.)
<b>refractory material</b>	feuerfestes Material, das A furnace is typically lined with refractory material.	(chem. eng.)
<b>regenerative thermal oxidiser</b>	thermische Nachverbrennungsanlage mit regenerativer Abluftvorwärmung, die; regenerative thermische Oxidationstechnik, die; RTO-Anlage, die <i>regenerative thermal oxidizer (AE)</i> <i>Acronym (engl.): RTO</i> An RTO unit can cope with sulfur-containing gases, which would poison the catalyst in a CCU.	(chem. eng.)
<b>register ton</b>	Registertonne, die; Bruttoregistertonne, die 1 register ton, a unit of volume used for the cargo capacity of a ship, is defined as 100 cubic feet (2.83 m <sup>3</sup> ).	(general)
<b>Registered Pharmacist</b>	zugelassener Apotheker, der <i>Acronym (engl.): R. Ph.</i> He worked as a Registered Pharmacist in the United States.	(pharm.)
<b>Registration, Evaluation and Authorisation of Chemicals</b>	 <i>Acronym (engl.): REACH</i> REACH is a new European Chemicals Policy that came into effect in 2007. REACH applies to all chemicals with a production or import volume exceeding 1 tonne/year.	(chem. eng.)
<b>registry of toxic effects of chemical substances</b>	RTECS (Datenbank toxikologischer Informationen, die) <i>Acronym (engl.): RTECS</i> Published by NIOSH, RTECS presents basic toxicity data of numerous substances.	(chem. eng.)

<b>reinforced</b>	verstärkt The cover is made from fibre-reinforced plastics.	(eng.)
<b>reinforced concrete</b>	Stahlbeton, der Reinforced concrete is used in most skyscrapers.	(eng.)
<b>reinforcing bars</b>	Betonrippenstahl A rebar, or reinforcing bar, is a carbon steel bar that is commonly used in reinforced concrete and reinforced masonry structures. It has ridges for better mechanical anchoring into the concrete.	(eng.)
<b>release</b>	Freisetzung, die; Freigabe, die In that accident, 2 tons of chlorine were released.	(pharm.)
<b>remainder</b>	Rest, der When dividing 27 by 4, 6 is the quotient and 3 is the remainder, because $27=6\times 4+3$ .	(chem.)
<b>remains</b>	Rückstand, der There were some metallic remains in the ash.	(chem.)
<b>remedy</b>	Abhilfe, die; Lösung, die; Medikament, das In homeopathy, concordant remedies are remedies of similar action but of dissimilar origin.	(pharm.)
<b>remittance</b>	Geldüberweisung, die; Geldsendung, die; Remission, die A remittance, or “money sent home”, is a transfer of money by a foreign worker to his home country.	(econ.)
<b>remitter, buyer, client, principal</b>	Auftraggeber, der Extra costs are to be borne by the principal.	(econ.)
<b>remuneration</b>	Bezahlung, die; Entgelt, das; Vergütung, die The employee’s remuneration included stock options.	(econ.)
<b>repatriation</b>	Wiedereinbürgerung, die; Rückführung, die After 12 years abroad, repatriation of the employee was a challenging task.	(general)

<b>reportable quantity</b>	meldepflichtige Menge, die <i>Acronym (engl.): RQ</i> RQ is the amount of a substance that, when spilled, must be reported to authorities under CERCLA.	(chem. eng.)
<b>research</b>	Forschung, die Research and development are vital to the growth of any chemical company.	(sci.)
<b>research and development</b>	Forschung und Entwicklung, die <i>Acronym (engl.): R&amp;D</i> <i>Acronym (dt.): F&amp;E</i> In Finland, R&D spendings amount to 3.4% of the GNP.	(sci.)
<b>researcher</b>	Forscher(in), der (die) The researcher was hired from competition.	(sci.)
<b>residence time</b>	Verweilzeit, die A narrow residence time distribution is often advantageous.	(chem. eng.)



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<b>residue</b>	Rückstand, der Ash and soot are combustion residues.	(eng.)
<b>resilient</b>	rückstellfähig, rückfedernd A resilient material can store energy elastically.	(eng.)
<b>resin</b>	Harz, das Since two weeks, the resin has been more sticky than usually.	(chem.)
<b>Resource Conservation and Recovery Act</b>	<i>Acronym (engl.): RCRA</i> RCRA (pronounced as “rick-rah” or “Wreck-rah”) is an US law governing the disposal of solid and hazardous waste.	(chem.)
<b>respirator</b>	Atemgerät, das; Gasmasken, die; Beatmungsgerät, das A respirator is a device designed to protect the wearer from inhaling harmful dusts, fumes, vapors, and/or gases. There are cost-effective, disposable masks and reusable models with replaceable filter cartridges.	(general)
<b>respiratory system</b>	Atemwege, die Ammonia can cause irritation to the respiratory system, the eyes and the skin.	(pharm.)
<b>responsibility</b>	Verantwortung, die It is a responsibility of engineers to check and verify their assumptions.	(general)
<b>retail customer</b>	Kleinabnehmer, der; Einzelhandelskunde, der Retail customers are entitled to extensive warranties.	(econ.)
<b>retention</b>	Zurückhaltung, die The adsorption column did not show any retention for H <sub>2</sub> S.	(eng.)
<b>retention time</b>	Retentionszeit, die Retention time is an important parameter in gas chromatography.	(chem. eng.)
<b>reticule, reticle, crosshair</b>	Fadenkreuz, das In old instruments, the reticule was made from a thread of the brown recluse spider, an animal with 3 pairs of eyes.	(eng.)

<b>retractable</b>	einziehbar Planes usually have a retractable landing gear.	(eng.)
<b>retrofit, to</b>	nachträglich hinzufügen, nachrüsten, nachrüstbar, Nachrüstung, die A larger column was retrofitted into the HPLC instrument.	(eng.)
<b>return line</b>	Rücklauf, der The return line showed strong fouling.	(chem.)
<b>revamp</b>	Überholung, die; Modernisierung, die A revamp is a major modification to an industrial plant in operation.	(chem. eng.)
<b>reverse osmosis</b>	Umkehrosmose, die The desalination of seawater to freshwater is based on reverse osmosis.	(chem. eng.)
<b>revolutions per minute</b>	Umdrehungen pro Minute, die <i>Acronym (engl.): rpm</i> <i>Acronym (dt.): U/min, UPM</i> A dental drill runs with up to 800,000 rpm.	(eng.)
<b>reward</b>	Belohnung, die A working machine is an inventor's greatest reward.	(general)
<b>rhomb, rhombus</b>	Rhombus, der; Raute, die The area of a rhombus is the product of the lengths of its diagonals divided by two.	(sci.)
<b>ribbon</b>	Band, das The man attached the wooden stick to the scaffold using a rubber ribbon.	(eng.)
<b>right angle</b>	rechter Winkel, der When placing tiles on the floor, right angles in the corners come in handy for the do-it-yourselfer.	(sci.)
<b>right-hand(ed) thread</b>	Rechtsgewinde, das Most threads are right-handed. This means that a bolt or nut, seen from the top, is tightened by turning it in clockwise direction.	(eng.)

<b>rigid</b>	steif By using H-type steel bars, he could build a rigid structure.	(eng.)
<b>rim</b>	Rand, der; Felge, die The rim was too rough for the next processing step.	(eng.)
<b>rinse, to</b>	ausspülen, abspülen, spülen After cutting the meat, the cook rinsed the knife with water.	(eng.)
<b>rivet</b>	Niete, die The rivets are made from stainless steel.	(eng.)
<b>rock salt</b>	Steinsalz, das; Kochsalz, das The solubility of rock salt (NaCl) in water is 359 g/l at 25°C.	(chem.)
<b>rod</b>	Stange, die The mechanic used a rod to bridge the gap.	(eng.)



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<b>rodent</b>	Nagetier, das Rodent poisons fall into 2 categories: anticoagulant agents and hypercalcemic agents. Anticoagulants (most common type) block the production of vitamin K so that the rodent will bleed to death. Hypercalcemic agents contain vitamin D. These poisons work by raising the calcium content in the rodent's blood stream to toxic levels.	<i>(pharm.)</i>
<b>roller mill</b>	Walzwerk, das A roller mill can be found in a steel factory.	<i>(eng.)</i>
<b>rolling friction</b>	Rollreibung, die Rolling friction is smaller than static friction.	<i>(eng.)</i>
<b>Roots blower</b>	Roots-Gebläse, das The Roots blower is a positive displacement pump. This type of blower is frequently used as supercharger in cars.	<i>(chem. eng.)</i>
<b>rope ladder</b>	Strickleiter, die A rope ladder was supplied for emergencies.	<i>(eng.)</i>
<b>rotary cement kiln</b>	Zementdrehrohrofen, der The heat losses of the rotary cement kiln were analysed.	<i>(chem. eng.)</i>
<b>rotary evaporator</b>	Rotavapor, der A rotary evaporator is used to gently remove solvents from a sample by evaporation under reduced pressure.	<i>(chem.)</i>
<b>rotary feeder, rotary valve</b>	Drehschieber, der; Drehventil, das; Zellenradschleuse, die; Zellenrad, das A rotary valve can be used to transfer solids between 2 pressure levels.	<i>(chem. eng.)</i>
<b>rotary kiln</b>	Drehrohrofen, der The rotary kiln was plugged by molten ash.	<i>(chem. eng.)</i>
<b>rotary pump, rotary vane pump</b>	Drehkolbenpumpe, die; Kreiselpumpe, die A rotary vane pump uses vanes mounted to a rotor that operates in a cavity.	<i>(chem. eng.)</i>

<b>rotating current, three -phase current</b>	Drehstrom, der  Three phase current is used on engines. There are hardly any engines > 10 kW that use single phase electricity (design, vibration, efficiency advantages). In industry, such engines are used to drive pumps, fans, blowers and compressors.	(eng.)
<b>rough calculation</b>	Überschlagsrechnung, die  A rough calculation revealed that the pump had been designed too small.	(eng.)
<b>round off, to</b>	abrunden  3.74 can be rounded off to 3.7.	(eng.)
<b>round robin test</b>	Ringversuch, der  The lab participated in a round robin test.	(eng.)
<b>round up, to</b>	aufrunden  3.76 can be rounded up to 3.8.	(eng.)
<b>royalty</b>	Tantieme, die; Autorenhonorar, das; Kreiselpumpe, die Lizenzgebühr, die; Lizenz, die; Nutzungsgebühr, die The author received 2% royalties on the sales of his book.	(econ.)
<b>RQ</b>	<i>Acronym/Abbreviation referral: see reportable quantity</i>	(chem. eng.)
<b>RTECS</b>	<i>Acronym/Abbreviation referral: see registry of toxic effects of chemical substances</i>	(chem. eng.)
<b>RTO</b>	<i>Acronym/Abbreviation referral: see regenerative thermal oxidizer</i>	(chem. eng.)
<b>rubber</b>	Gummi, der  Rubber is a soft material.	(eng.)
<b>rubber hose</b>	Gummischlauch, der  A rubber hose can be connected to a silo truck to unload it.	(eng.)
<b>rubber tube</b>	Gummischlauch, der  The rubber tube burst from the high pressure.	(eng.)

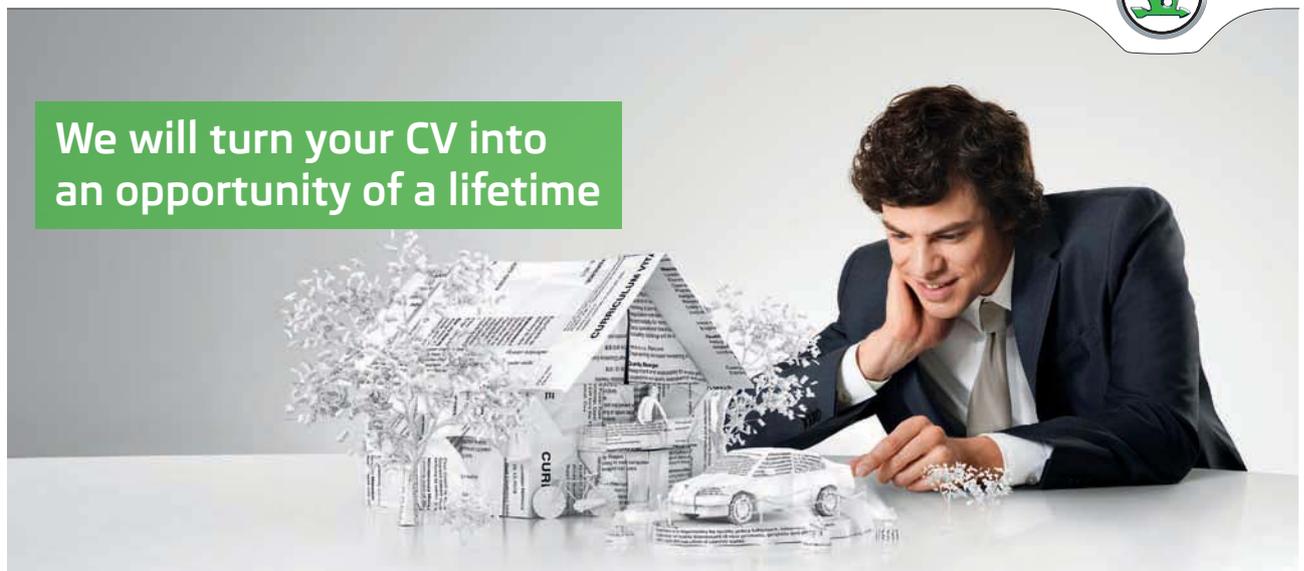
<b>rubbing alcohol</b>	Reinigungsalkohol, der; Franzbranntwein, der Isopropanol is used as rubbing alcohol.	(chem.)
<b>rule of thumb</b>	Faustregel, die As a rule of thumb, the lifetime of electronic equipment can be assumed to be 5 years.	(eng.)
<b>running water</b>	Fließwasser, das A water ring pump consumes a high amount of running water.	(eng.)
<b>rust</b>	Rost, der Stainless steel does not develop rust.	(eng.)
<b>Rx-only drugs (AE)</b>	<i>Acronym/Abbreviation referral: see POM</i>	(pharm.)
<b>sacrificial anode</b>	Opferanode, die The pipeline was protected by equally spaced sacrificial anodes.	(eng.)

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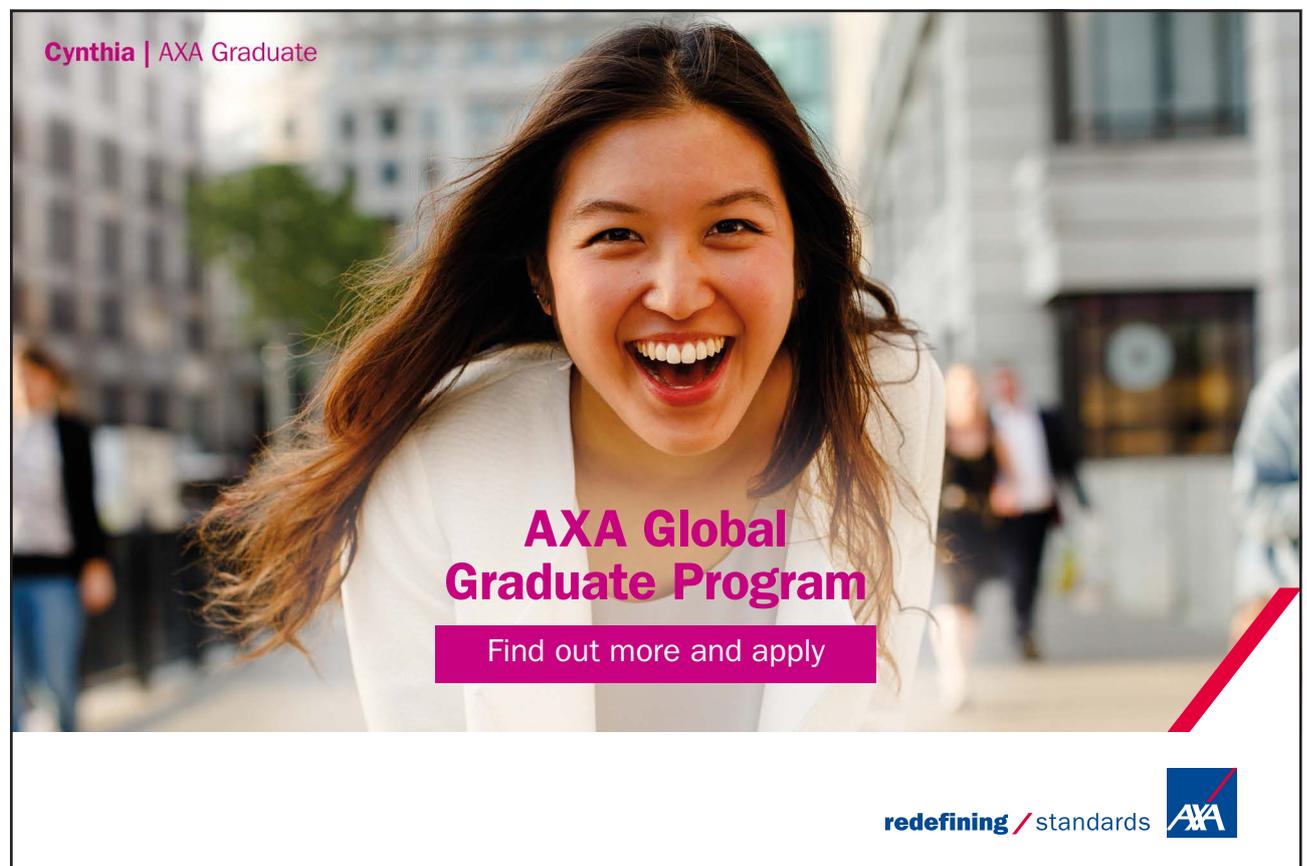


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<b>SADT</b>		(chem.)
	<i>Acronym/Abbreviation referral: see self accelerating decomposition temperature</i>	
<b>safety</b>	Sicherheit, die	(general)
	Safety has to be a key concern in the design, operation and decommissioning of a chemical plant.	
<b>safety data sheet</b>		(chem. eng.)
	<i>Acronym/Abbreviation referral: see SDS</i>	
<b>safety instrumented function</b>	SIF	(chem. eng.)
	<i>Acronym (engl.): SIF</i>	
	A Safety Instrumented Function (SIF) is defined as a function implemented by an SIS, which is intended to achieve or maintain a safe condition of the plant at all times.	
<b>Safety Instrumented System</b>	SIS	(chem. eng.)
	<i>Acronym (engl.): SIS</i>	
	A Safety Instrumented System (SIS) is a common form of process control for industrial processes.	
<b>Safety Integrity Level</b>	SIL, Sicherheitsintegritätslevel	(chem. eng.)
	<i>Acronym (engl.): SIL</i>	
	Safety Integrity Level SIL is a measure of risk reduction provided by a SIF based on four levels. Each level represents an order of magnitude of risk reduction. Every SIF has a SIL assigned to it. The SIS and equipment does not have a SIL assigned to it.	
<b>safety relief valve</b>	Sicherheitsventil, das	(eng.)
	A safety relief valve has to be designed for the maximum flow rate.	
<b>safety wire, lockwire</b>	Sicherheitsdraht, der	(eng.)
	Safety wires (lockwires) are common in the aircraft and racing industries as additional precaution to keep vital fasteners from unintentionally loosening due to vibration.	

<b>sales force</b>	Verkaufsmannschaft, die; Außendienst, der The hit rate of the competitor's sales force was 17%.	( <i>pharm.</i> )
<b>sales margin</b>	Verkaufsspanne, die <i>Acronym (engl.): SM</i> The sales margin of the chemical was 50 €/ton below expectations.	( <i>econ.</i> )
<b>saliva</b>	Speichel, der Human saliva consists to 98% of water.	( <i>pharm.</i> )
<b>salve, ointment</b>	Salbe, die Salves can be based on hydrocarbons (e.g. hard paraffin, soft paraffin), fat and water soluble substances (e.g. polyethyleneglycol (PEG)).	( <i>pharm.</i> )
<b>sampler</b>	Probennehmer, der The sampler was installed in the wrong location.	( <i>chem. eng.</i> )
<b>sandstone</b>	Sandstein, der Sandstone can be easily processed.	( <i>eng.</i> )
<b>sanitiser</b>	Desinfektionsmittel, das <i>sanitizer (AE)</i> The nurse used a sanitizer for her hands before touching the tools.	( <i>pharm.</i> )
<b>saponification</b>	Verseifung, die Soap, which consists of sodium or potassium salts of fatty acids, is obtained by the saponification of fat with lye. Thereby, the fats are hydrolyzed to alkali salts of fatty acids and glycerol.	( <i>chem.</i> )
<b>saponification value</b>	Verseifungszahl, die The saponification value is a measure of the average molecular weight (chain length) of fatty acids, which are carboxylic acids with long unbranched aliphatic tails (chains). These can be either saturated or unsaturated.	( <i>chem.</i> )
<b>sarcoma</b>	Sarkom, das A sarcoma is a cancer of the connective tissue (bone, cartilage, fat) resulting in mesoderm proliferation.	( <i>med.</i> )

<b>saturated</b>	gesättigt Hexane is a saturated hydrocarbon.	(chem.)
<b>saturated steam</b>	Sattdampf, der The temperature of dry saturated steam at 10 bar (absolute) is 180°C.	(chem.)
<b>saturation vapor pressure</b>	Sättigungsdampfdruck, der  At saturation vapor pressure, a substance in the gas phase is in equilibrium with the liquid phase of that substance beneath.	(chem.)
<b>scaffold</b>	Baugerüst, das A scaffold is no permanent installation.	(eng.)
<b>scale</b>	Maßstab, der The scale on the layout diagram is 1:75.	(eng.)
<b>scale-up</b>	Scale-up, das; Übertragung auf die Großanlage, die Scale-up often relies on the use of dimensionless numbers.	(chem. eng.)



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## Chemical Engineering Vocabulary

<b>scaly</b>	schuppig Muskovite is a scaly mineral with a pearlescent shine.	( <i>pharm.</i> )
<b>scanty</b>	knapp, spärlich, notdürftig The information provided by the MSDS is scanty.	( <i>general</i> )
<b>scattering</b>	Streuung, die Scattering of sunlight on air molecules makes the sky appear blue.	( <i>chem.</i> )
<b>schedule</b>	Plan, der; operativer Ablauf, der; Terminplan, der; Fahrplan, der; Ablaufplan, der The project schedule was endangered by the results of the soil investigation.	( <i>econ.</i> )
<b>scholar</b>	Gelehrter, der A good scholar is able to explain a complicated situation in simple words.	( <i>sci.</i> )
<b>science</b>	Wissenschaft, die Calculating the Peclet number is not rocket science.	( <i>sci.</i> )
<b>scientist</b>	Wissenschaftler(in), der (die) On international conferences, scientists can exchange thoughts with their peers.	( <i>sci.</i> )
<b>scope</b>	Geltungsbereich, der; Rahmen, der; Spielraum, der; (Projekt)Umfang, der The project scope was not clearly defined.	( <i>general</i> )
<b>SCR</b>	<i>Acronym/Abbreviation referral: see selective catalytic reduction</i>	( <i>chem. eng.</i> )
<b>scrap</b>	Schrott, der; Abfall, der There is a scrapyard close to the plant.	( <i>eng.</i> )
<b>scrap copper</b>	Altkupfer, das Scrap copper is collected and processed by specialized companies.	( <i>eng.</i> )
<b>scraper</b>	Schaber, der Kitchen scrapers can be made from metal, plastics, wood or rubber.	( <i>eng.</i> )

## Chemical Engineering Vocabulary

<b>screen</b>	Bildschirm, der; Filter, der; Sieb, das The process engineer studied the temperature drop on his screen.	(eng.)
<b>screen cloth</b>	Siebgewebe, das The industrial screen cloth has 10 mesh, i.e. 1651 µm wide openings.	(eng.)
<b>screen pack</b>	Siebplatte, die; Siebpaket, das The screen pack was blocked by metallic parts.	(eng.)
<b>screw</b>	Schraube, die The bar was secured by two screws.	(eng.)
<b>screw cap</b>	Schraubdeckel, der; Verschlusskappe, die A screw cap is a closure on a container, i.e. a mechanical device which is screwed on and off (reclosable).	(eng.)
<b>screw conveyor</b>	Schneckenförderer, der A screw conveyor can be used to transport solids or sludges.	(eng.)
<b>screw driver</b>	Schraubenzieher, der His screw driver was too small to loosen the connection.	(eng.)
<b>screw gauge</b>	Gewindelehre, die The workshop was not equipped with a screw gauge.	(eng.)
<b>screw joint</b>	Schraubverbindung, die The screw joint failed due to too high forces.	(eng.)
<b>scrubber</b>	Wäscher, der; Gaswäscher, der The scrubber was designed for a maximum SO <sub>2</sub> capturing capacity of 500 g/h.	(chem. eng.)
<b>SD</b>	<i>Acronym/Abbreviation referral: see shutdown</i>	(chem.)
<b>SDS</b>	<i>Acronym/Abbreviation referral: see material safety data sheet</i>	(chem. eng.)
<b>seal</b>	Dichtung, die; Abdichtung, die In contradiction to the vendor's statement, the seal was not completely gas tight.	(eng.)

<b>sealing compound</b>	Dichtungsmasse, die The application limit of the sealing compound was overlooked.	(eng.)
<b>seam</b>	Naht, die The seam between the steel plates was ground.	(eng.)
<b>seaport</b>	Seehafen, der; Hafenstadt, die Dover in the UK is one of the busiest seaports for passengers.	(eng.)
<b>seaworthy</b>	seetüchtig After the storm, the ship was not seaworthy any more.	(eng.)
<b>second order reaction</b>	Reaktion zweiter Ordnung, die In a second order reaction, the reaction rate is determined by the concentration of two chemical species.	(chem.)
<b>secondary air</b>	Sekundärluft, die; Zusatzluft, die By using secondary air, the CO emissions could be reduced by 85%.	(chem. eng.)

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<b>seed crystal</b>	Impfkristall, der Impurities on the vessel wall can act as seed crystals.	(chem.)
<b>segregation</b>	Seigerung, die; Trennung, die The day supervisor proposed to wet the powder in an attempt to limit segregation.	(eng.)
<b>seizure</b>	Krampf, der Ingestion of the herbicide by humans can lead to seizures.	(med.)
<b>selective catalytic reduction</b>	SCR-Verfahren, das; selektive katalytische Reduktion, die  <i>Acronym (engl.): SCR</i> <i>Acronym (engl.): SCR</i> SCR catalysts are manufactured from various ceramic materials used as carriers, e.g. titanium dioxide. As active catalytic components, oxides of base metals (e.g. vanadium and tungsten), zeolites, and various precious metals are used.	(chem. eng.)
<b>selective non-catalytic reduction</b>	SNCR-Verfahren, das; selektive nicht-katalytische Reduktion, die  <i>Acronym (engl.): SNCR</i> <i>Acronym (engl.): SNCR</i> SNCR is a method to reduce NO <sub>x</sub> emissions in power plants that burn biomass, waste and coal. The process involves injecting either ammonia or urea into the combustion chamber to react with the nitrogen oxides. The reduction can be described as $4 \text{NO} + 4 \text{NH}_3 + \text{O}_2 \rightarrow 4 \text{N}_2 + 6 \text{H}_2\text{O}$ .	(chem. eng.)
<b>self accelerating decomposition temperature</b>	selbstbeschleunigende Zersetzungstemperatur, die; SADT, die  <i>Acronym (engl.): SADT</i> <i>Acronym (engl.): SADT</i> The SADT of an organic peroxide needs to be looked up in its MSDS to determine a safe storage temperature.	(chem.)
<b>self acting</b>	selbsttätig Self acting filling machines can operate over the weekend.	(eng.)
<b>self cleaning</b>	selbstreinigend The lotus effect explains self cleaning surfaces.	(eng.)

<b>self supporting</b>	selbsttragend The self supporting roof was designed to withstand wind speeds of 130 m/s.	<i>(eng.)</i>
<b>self-aspirated</b>	selbstansaugend The flare has a self-aspirated igniter.	<i>(eng.)</i>
<b>self-contained breathing apparatus</b>	umluftunabhängiges Atemschutzgerät, das; schwerer Atemschutz, der In order to enter the vessel, the worker put on a self-contained breathing apparatus.	<i>(chem. eng.)</i>
<b>semi finished product</b>	Halbzeug, das Over the last month, the company had built up a too high stock level of semi finished products.	<i>(eng.)</i>
<b>semi metal</b>	Halbmetall, das A semimetal is a material with a small overlap in the energy of the conduction band and valence band. Metalloids are a group of chemical elements that are neither metal nor nonmetal. Semimetals, in contrast to metalloids, can be elements (arsenic, antimony, bismuth) or compounds (HgTe). Tin and graphite are semimetals, but no metalloids.	<i>(chem.)</i>
<b>semi-batch</b>	Teilfließbetrieb, der In a semi-batch operation, one reactand is already present, while the second one is continuously fed to the process. It is also possible to withdraw one product continuously. A typical advantage of a semi-batch operation is a controlled reaction with higher yields. Examples of this reaction type are esterifications.	<i>(chem. eng.)</i>
<b>semiconductor</b>	Halbleiter, der By doping, silicon can be made a p-type or an n-type semiconductor. The most common dopants are acceptors from group III ( $\rightarrow$ p-type) or donors from group V elements ( $\rightarrow$ n-type).	<i>(chem.)</i>
<b>semilog graph, semi-log plot, semi-log</b>	halblogarithmische Darstellung, die A semilog graph is a convenient way to visualize data that are changing with an exponential relationship.	<i>(sci.)</i>

<b>senior advisor</b>	Chefberater, der; leitender Berater, der ( <i>econ.</i> ) The senior legal advisor left the company to found his own business.	
<b>senior management</b>	gehobenes Management, das The investment proposal was not approved by senior management.	( <i>econ.</i> )
<b>sensitiser</b>	Sensibilisator, der <i>sensitizer (AE)</i> Tetracene (C <sub>18</sub> H <sub>12</sub> , naphthacene) is a common sensitiser. It is used in organic light-emitting diodes (OLEDs).	( <i>chem.</i> )
<b>sensitising</b>	allergisierend, Sensibilisierung, die <i>sensitizing (AE)</i> The risk of allergic sensitization and the development of allergies varies with age.	( <i>pharm.</i> )
<b>sensitive to heat</b>	wärmeempfindlich The researcher was not aware that his construction was sensitive to heat.	( <i>eng.</i> )

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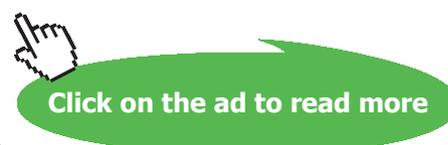
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<b>separating funnel</b>	Scheidetrichter, der A separating funnel is used for liquid-liquid extractions to separate the components of a mixture between two immiscible solvent phases of different densities, which are typically water and an organic solvent.	(chem.)
<b>separation process</b>	Trennverfahren, das Common separation processes in chemical engineering are adsorption, centrifugation, chromatography, crystallisation, drying, extraction, filtration and sieving.	(chem. eng.)
<b>set screw</b>	Stellschraube, die The apprentice did not know which set screw he should engage.	(eng.)
<b>setting time</b>	Abbindezeit, die The man disregarded the setting time of the formulation.	(eng.)
<b>settle, to</b>	sich absetzen The flocculated material was allowed to settle for 10 min prior to filtration.	(eng.)
<b>settling tank</b>	Absetzbecken, das The level sensors in the settling tanks of the waste water treatment plant did not work.	(eng.)
<b>sewage</b>	Abwasser, das Untreated sewage water from the mill was sent to the river.	(eng.)
<b>sewer</b>	Abflusskanal, der A leak in the sewer system was discovered by accident.	(eng.)
<b>sewing machine</b>	Nähmaschine, die The knowledge how to operate a sewing machine is not so widespread among men.	(eng.)
<b>shackle</b>	Lastöse, die; Haltebügel, der; Zuglasche, die Shackles are common construction elements.	(eng.)
<b>shaft</b>	Welle, die; Schacht, der The shaft has a specific torque density of 10 Nm/mm <sup>3</sup> .	(eng.)

<b>share</b>	Anteil, der Everybody had contributed his share to the success of the project.	(econ.)
<b>shavings</b>	Hobelspäne, die (Hobelspan, der) Shavings can be converted into wood pellets.	(eng.)
<b>shear</b>	Scherung, die Shear is the deformation of materials when parallel internal surfaces slide past each another.	(eng.)
<b>shear modulus</b>	Schubmodul, der The shear modulus (modulus of rigidity, G) of diamond is 480 GPa, whereas it is only 80 GPa for steel and 0.1 GPa for polyethlyene (room temperature). G is defined as the ratio of shear stress to shear strain.	(eng.)
<b>shear strength</b>	Scherfestigkeit, die Shear strength is an important parameter in material science. Ductile materials generally fail in shear (e.g. aluminum), whereas brittle materials (e.g. cast iron) fail in tension.	(eng.)
<b>sheath</b>	Hülle, die; Schutzhülle, die; Mantel, der The sheath is the outer layer of a cable.	(eng.)
<b>sheathing</b>	Verkleidung, die; Betonschalung, die By sheathing, he applied a weatherproof cladding to his house.	(eng.)
<b>sheet metal</b>	Blech, das Sheet metal is used for the production of cars.	(eng.)
<b>shelf life</b>	Lagerbeständigkeit, die; Lagerfähigkeit, die The shelf life of a product is influenced by its exposure to light and heat.	(pharm.)
<b>shielding gas</b>	Schutzgas, das Nitrogen, carbon dioxide or argon can be used as shielding gas.	(chem. eng.)
<b>shift</b>	Schicht, die (Arbeitsteam, das) At shift handover, valuable information was lost.	(econ.)

**shift supervisor,  
shift leader** Schichtführer, der; Schichtmeister, der (chem. eng.)

The shift supervisor was responsible for a team of 6.

**ship yard** Schiffswerft, die (eng.)

The boat was taken to the ship yard for maintenance.

**shock absorber** Stoßdämpfer, der (eng.)

Screens for the removal of over-and undersized particles are equipped with shock absorbers so that they do not disturb the equipment close by.

**shock wave** Stoßwelle, die (eng.)

An object moving at supersonic speed creates a shock wave.

**shop floor** Fabrikshalle, die; Werkstatt, die; Produktionsstätte, die (chem. eng.)

In contrast to white collar workers, blue collar workers in the process industries generally perform their tasks on the shopfloor.

**short circuit** Kurzschluss, der (eng.)

The short circuit was caused by a broken glass inside a heating hood.



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<b>Short Term Exposure Limit</b>	<p>STEL, Durchschnittswert der letzten 15 Minuten, der</p> <p><i>Acronym (engl.): STEL</i></p> <p>STEL is the highest concentration permitted for short periods of time, generally 15–30 minutes.</p>	(chem.)
<b>short-pass filter</b>	<p>für kurzwelliges Licht durchlässiger Filter, der</p> <p>A short-pass filter transmits wavelengths below a specific wavelength.</p>	(eng.)
<b>short-term exposure value</b>	<p><i>Acronym/Abbreviation referral: see STEV</i></p>	(chem.)
<b>shotcrete</b>	<p>Spritzbeton, der</p> <p>Shotcrete can be applied on vertical and overhead surfaces.</p>	(eng.)
<b>shovel</b>	<p>Schaufel, die</p> <p>With the larger shovel, he could easily dig a hole into the ground.</p>	(eng.)
<b>shunt</b>	<p>Nebenwiderstand, der; Nebenschlusswiderstand, der; Messwiderstand, der; Shunt, der</p> <p>In electronics, a shunt is a device which allows electric current to pass around another point in the circuit.</p>	(eng.)
<b>shutdown, shut down</b>	<p>abfahren; Stillstand, der</p> <p><i>Acronym (engl.): SD</i></p> <p>The plant was shut down in a controlled way.</p>	(chem.)
<b>shutoff device, isolation valve, shutoff valve</b>	<p>Absperrarmatur, die</p> <p>The shutoff valve was stuck.</p>	(chem.eng.)
<b>SI unit</b>	<p>SI- Einheit, die</p> <p>The SI system (International System of Units, SI from French “Système International d’Unités”) has seven base units:</p> <ol style="list-style-type: none"> <li>1) metre (m) for length,</li> <li>2) kilogram (kg) for mass,</li> <li>3) second (s) for time,</li> </ol>	(eng.)

- 4) ampere (A ) for electric current,
- 5) Kelvin (K) for thermodynamic temperature,
- 6) candela (cd) for luminous intensity, and
- 7) mole (mol) for the amount of substance.

Three nations have not officially adopted the SI system as their primary and sole measurement system: Liberia, Myanmar and the United States.

<b>sickle</b>	Sichel, die Some country flags show a sickle.	(eng.)
<b>side effect</b>	Nebenwirkung, die Dolasetron (C <sub>19</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub> ) is a well-tolerated drug with few side effects, e.g. headache, dizziness, and constipations.	(pharm.)
<b>side valve</b>	Seitenventil, das The engine was equipped with side valves.	(chem.)
<b>sieve</b>	Sieb, das This sieve has 500 mesh.	(chem.)
<b>SIF</b>	<i>Acronym/Abbreviation referral: see safety instrumented function</i>	(chem. eng.)
<b>sign a contract, to</b>	einen Vertrag unterschreiben The general manager refused to sign the contract.	(econ.)
<b>SIL</b>	<i>Acronym/Abbreviation referral: see Safety Integrity Level</i>	(chem. eng.)
<b>silencer</b>	Schalldämpfer, der Blowers that are installed inside a production building should be equipped with silencers.	(eng.)
<b>silica, silicon dioxide</b>	Siliziumdioxid, das <i>Acronym (engl.): SiO<sub>2</sub></i> <i>Acronym (dt.): SiO<sub>2</sub></i> Fibers for data transmission via light are produced from silica.	(chem.)

- silicic acid** Kieselsäure, die (chem.)  
 Silicic acid is a general name for compounds with the formula  $[\text{SiO}_x(\text{OH})_{4-2x}]_n$ . In dilute aqueous solutions, metasilicic acid ( $\text{H}_2\text{SiO}_3$ ), orthosilicic acid ( $\text{H}_4\text{SiO}_4$ ), disilicic acid ( $\text{H}_2\text{Si}_2\text{O}_5$ ) and pyrosilicic acid ( $\text{H}_6\text{Si}_2\text{O}_7$ ) can be found. In the solid state, they condense to polymeric silicic acids.
- silicon** Silizium, das (chem.)  
 The Czochralski process is used to produce single crystals of semiconductors (e.g. silicon), metals and salts. Typical ingot diameters are 200 mm and 300 mm. The thickness of standard silicon wafers is 0.2 to 0.75 mm.
- silicone, polysiloxane** Silikon, das (chem.)  
 Silicone (not to be confused with silicon) consists of polymerized siloxanes (polysiloxanes). Silicones are mixed inorganic-organic polymers with the formula  $[\text{R}_2\text{SiO}]_n$ , where R stands for organic groups such as methyl, ethyl or phenyl, that are attached as side groups to an inorganic silicon-oxygen backbone (...-Si-O-Si-O-Si-O-...).
- silk** Seide, die (chem.)  
 Silk is a natural protein fiber, i.e. a chain of amino acids.

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<b>single crystal, monocrystal</b>	Einkristall, der  Wafers are made from silicon single crystals. These can be obtained in the Czochralski process.	(chem.)
<b>sink</b>	Ausguss, der The sink must not be misused for solvents.	(chem.)
<b>SIS</b>	<i>Acronym/Abbreviation referral: see Safety Instrumented System</i>	(chem. eng.)
<b>sketch</b>	Skizze, die He captured his idea in a sketch inside his laboratory notebook.	(eng.)
<b>skill</b>	Fähigkeit, die Each employee should be deployed according to his individual skills to achieve optimum results.	(general)
<b>skimmer</b>	Abstreifer, der; Abschäumer, der; Siphon, der; Skimmer, der Skimmers are frequently used to remove oil floating on water.	(chem. eng.)
<b>skylight</b>	Dachfenster, das; Luke, die; Oberlicht, das The skylight was properly dimensioned.	(eng.)
<b>slide, to (slid, slid)</b>	gleiten The mercury droplets were sliding on the laboratory bench.	(eng.)
<b>sliding friction</b>	Gleitreibung, die The new tire causes lower sliding friction than the previous model.	(eng.)
<b>slit</b>	Spalt, der At the slit, the waves were diffracted.	(eng.)
<b>slope</b>	Neigung, die; Böschung, die The slope of the ramp was 10°.	(eng.)
<b>slot</b>	Schlitz, der The student tried to model nitrogen conversion in a slot burner.	(eng.)

<b>slotted</b>	gekerbt, geschlitzt, genutet A slotted spoon can be compared to a sieve.	(eng.)
<b>slotted hole, slot hole</b>	Langloch, das The slotted hole showed sharp edges.	(eng.)
<b>sludge</b>	Schlamm, der Sewage sludge cannot be readily used as a fertilizer.	(chem. eng.)
<b>sluice valve</b>	Keilschieber, der; Hauptschieber, der; Absperrschieber, der Sluice valves normally have flanged ends.	(chem. eng.)
<b>slurry</b>	Slurry, der; Schlamm, der; Aufschlammung, die Slurry pipelines are used to transport coal, copper, iron, bauxite and oil sands, but also trailings for disposal.	(chem. eng.)
<b>SM</b>	<i>Acronym/Abbreviation referral: see sales margin</i>	(econ.)
<b>smear</b>	Ausstrich, der; Abstrich, der She performed a smear test.	(pharm.)
<b>smear, to</b>	ausstreichen, schmieren He smeared the paint onto the wall.	(pharm.)
<b>smell</b>	riechen; Geruch, der The smell of natural gas comes from butanethiol (C <sub>4</sub> H <sub>9</sub> SH), which has a “skunk” odor.	(chem.)
<b>smelter</b>	Metallhütte, die; Hüttenwerk, das In a smelter, metal is obtained by reduction from its ore.	(eng.)
<b>smoke</b>	Rauch, der (fest in gas) Cigarette smoke contains more than 600 substances.	(chem.)
<b>smooth</b>	sanft A coupling is used for smooth engine power transmission.	(eng.)

- snake venom** Schlangengift, das (chem.)  
Snake venom is a mixture of toxins and different enzymes used for other purposes like increasing the prey's uptake of toxins.
- snap ring, retainer, circlip** Sprengring, der (eng.)  
A circlip is a fastener that permits rotation, but prevents lateral movement.
- SNCR** (chem. eng.)  
*Acronym/ Abbreviation referral: see selective non-catalytic reduction*
- soap bubble** Seifenblase, die (eng.)  
A good recipe for soap bubbles consists of dishwashing detergent, glycerin and water in the ratio of 5:1:100.
- soap stone** Speckstein, der (chem.)  
Soap stone is largely composed of talc, which is a hydrated magnesium silicate with the chemical formula  $\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$ .



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<b>soda ash, soda</b>	<p>Soda, das (chem.)</p> <p>Acronym (engl.): <math>\text{Na}_2\text{CO}_3</math></p> <p>Acronym (dt.): <math>\text{Na}_2\text{CO}_3</math></p> <p>Soda ash, which is industrially produced in the Solvay process according to <math>2\text{NaCl} + \text{CaCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{CaCl}_2</math>, can be found in the ash of many plants.</p>
<b>sodium</b>	<p>Natrium, das (chem.)</p> <p>Acronym (engl.): <i>Na</i></p> <p>Acronym (dt.): <i>Na</i></p> <p>Sodium has a cubic body centered crystal structure and melts at 98°C.</p>
<b>sodium dodecyl sulphate</b>	<p>Natriumlaurylsulfat, das; (chem.)</p> <p>Natriumdodecylsulfat, das</p> <p>Acronym (engl.): <i>SDS, NaDs</i></p> <p>Acronym (dt.): <i>SDS</i></p> <p><math>\text{NaC}_{12}\text{H}_{25}\text{SO}_4</math>; SDS is an anionic surfactant used in many cleaning agents.</p>
<b>sodium hydroxide</b>	<p>Natriumhydroxid, das (chem.)</p> <p>Acronym (engl.): <i>NaOH</i></p> <p>Acronym (dt.): <i>NaOH</i></p> <p>Sodium hydroxide, which can be bought as pellets, is deliquescent if exposed to air moisture. Also, it will absorb <math>\text{CO}_2</math> and therefore has to be sealed for storage.</p>
<b>sodium hydroxide</b>	<p>Natronlauge, die (chem.)</p> <p>Acronym (engl.): <i>NaOH</i></p> <p>Acronym (dt.): <i>NaOH</i></p> <p>Unlike NaOH, the hydroxides of most metals are insoluble in water, so sodium hydroxide can be used to precipitate metal hydroxides.</p>
<b>sodium silicate, soluble glass, water glass</b>	<p>Wasserglas, das (chem.)</p> <p>An aqueous solution of sodium metasilicate, <math>\text{Na}_2\text{SiO}_3</math>, is used in the “chemical garden”.</p>
<b>SOF</b>	<p>(eng.)</p> <p>Acronym/Abbreviation referral: see solar occultation flux</p>

<b>soften, to</b>	erweichen Glass can be made from pure silica ( $\text{SiO}_2$ ), but fused silica has a high glass transition point of approx. $1200^\circ\text{C}$ . The softening temperature of glass can be lowered, however, by adding lime ( $\text{CaCO}_3$ ) and soda ( $\text{Na}_2\text{CO}_3$ ) before melting, to incorporate calcium and sodium oxide into the glass.	(chem.)
<b>softener</b>	Weichmacher, der Fabric softeners work by coating the surface of the cloth fibers with a thin layer of chemicals which act as lubricant and are electrically conductive, thus making the fibers feel smoother and preventing the buildup of static electricity. Typical softeners are based on quaternary ammonium salts with one or two long alkyl chains.	(chem.)
<b>soil</b>	Boden, der To determine the required length of the ground pillars, a soil investigation was performed.	(eng.)
<b>solar occultation flux</b>	Verdeckung des solaren Strahlungsflusses, die <i>Acronym (engl.): SOF</i> SOF is a method to quantify emissions from point sources such as volcanoes or industrial production plants.	(eng.)
<b>soldering</b>	Weichlöten, das For soldering, it is advantageous to use an eutectic alloy (e.g. 63% tin and 37% lead), because it is easier to obtain reliable joints.	(eng.)
<b>solenoid</b>	Magnet-; Magnet, der The solenoid valve broke down.	(chem.)
<b>solicitor</b>	Rechtsanwalt, der <i>attorney, attorney-at-law (AE)</i> An attorney is knowledgeable about the jurisdiction in his country.	(jur.)
<b>solid</b>	fest; Feststoff, der Aerogels are the lightest known solids. Their density can be below $2 \text{ kg/m}^3$ .	(chem.)
<b>solid solution</b>	Mischkristall, der In a solid solution, some atoms or molecules in a crystalline structure are partly substituted without a change in the structure.	(chem.)

<b>solid state physics</b>	Festkörperphysik, die Electrical and thermal properties of condensed matter are described by solid state physics.	(chem.)
<b>solid state reaction</b>	Festkörperreaktion, die A solid-state reaction is a chemical reaction system in the absence of a solvent. Advantages can be easy purification, a high reaction rate and cost savings.	(chem.)
<b>solid wood</b>	Vollholz – Furniture from solid wood is regarded as superior quality.	(eng.)
<b>solidification</b>	Erstarrung, die Solidification usually starts at the surface, which is the coldest area.	(chem.)
<b>solidify, to</b>	erstarren When a material starts to solidify, multiple crystals begin to grow in the liquid to yield a polycrystalline solid.	(chem.)

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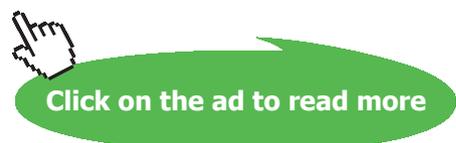
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<b>solubility</b>	Löslichkeit, die When added to water, ethanol can act as solubility enhancer for trichloroethylene, a substance which was widely used as a degreasing agent and that can now be found in contaminated soil.	( <i>chem.</i> )
<b>solute</b>	gelöster Stoff, der Glucose (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> ) is a solute in blood. The concentration of blood sugar is between 4 and 6 mM (mmol/l).	( <i>chem.</i> )
<b>solvent</b>	Lösungsmittel, das Acetone (CH <sub>3</sub> COCH <sub>3</sub> ), the simplest ketone, is a polar, aprotic solvent (i.e. does not release acidic hydrogen H <sup>+</sup> ). It dissolves most plastics.	( <i>chem.</i> )
<b>soot</b>	Ruß, der Soot is a byproduct of fuel-rich combustion processes.	( <i>chem.</i> )
<b>sophisticated</b>	ausgeklügelt He has developed a sophisticated formula to predict the yield of his reaction.	( <i>general</i> )
<b>soundproofing</b>	Schalldämmung, die; Lärmschutz, der Soundproofing can be achieved by noise reduction and noise absorption.	( <i>eng.</i> )
<b>source</b>	Quelle, die She forgot to quote the source of her information.	( <i>general</i> )
<b>space group</b>	Raumgruppe, die There are 230 space groups to describe all possible crystal symmetries.	( <i>chem.</i> )
<b>spacer</b>	Distanzstück, das; Abstandshalter, der The patent is about a molecular spacer that is covalently bonded to the substrate.	( <i>chem.</i> )
<b>spacing</b>	Abstand, der In hexa-tert-butyldisilane, the spacing between the 2 Si atoms is longer than in any other silane.	( <i>chem.</i> )
<b>spare part</b>	Ersatzteil, der For each critical process equipment, spare parts need to be kept on stock.	( <i>eng.</i> )

<b>spark</b>	Funke, der A spark caused by static electricity can ignite several gases.	(chem.)
<b>spark plug</b>	Zündkerze, die A spark plug is used in internal combustion engines working on the Otto principle.	(eng.)
<b>SPC</b>	<i>Acronym/Abbreviation referral: see statistical process control</i>	(chem. eng.)
<b>speciality gas</b>	Spezialgas, das <i>specialty gases (AE)</i> The company sells over 30 speciality gases.	(chem. eng.)
<b>species</b>	Spezies, die CO, H <sub>2</sub> O and OH are species present in flames.	(chem.)
<b>specific density, relative density</b>	spezifische Dichte, die; relative Dichte, die  The specific density (relative density) of a substance is the ratio of its density to that of a given reference material, for instance air or water.	(eng.)
<b>specific gravity, relative gravity</b>	spezifisches Gewicht, das; relatives Gewicht, das  Aluminium has a specific gravity of 2.7, so it is 2.7 times as dense as water. Lead has a specific gravity of 11.35, so it is 11.35 times as dense as water.	(eng.)
<b>specifications</b>	Spezifikationen, die The technical specifications of the plant were derived from laboratory experiments.	(econ.)
<b>specifications, product requirement specifications</b>	Pflichtenheft, das  The supplier handed over the draft of his product requirement specifications to the client for review.	(econ.)

<b>specifications, specification sheet, functional specification, customer requirement specifications</b>	Lastenheft, das  The specifications were based on the input of 2 engineers.	(econ.)
<b>specimen</b>	Probe, die; Testkörper, der The specimen was characterized by its emission spectrum.	(chem.)
<b>specs.</b>	<i>Acronym/Abbreviation referral: see specifications (short form for ~)</i>	(econ.)
<b>spectrometry</b>	Spektrometrie, die Mass spectrometry is a sensitive technology to determine the mass/charge ratio of sample (fragments).	(chem.)

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<b>spectroscopy</b>	Spektroskopie, die In spectroscopy, the interaction of light with matter is measured as emission, absorption or scattering in order to gain information on the sample.	(chem.)
<b>speed</b>	Geschwindigkeit, die; Drehzahl, die The speed of ships is commonly stated in knots.	(eng.)
<b>speed of sound</b>	Schallgeschwindigkeit, die The speed of sound in water and in steel is approx. 1,500 and 4,500 m/s, respectively.	(eng.)
<b>sphere</b>	Kugel, die A sphere has a minimum surface/volume ratio.	(sci.)
<b>splash proof</b>	spritzwassersicher Splash proof equipment is classified as IP54. The IP Code (International Protection Rating, Ingress Protection Rating) is an international standard that describes the degree of protection provided against the intrusion of solid objects, dust and water into electrical enclosures.	(eng.)
<b>splash water</b>	Spritzwasser, das When manual cleaning is performed in a plant, all electrical equipment must be protected against splash water.	(eng.)
<b>splash, to</b>	spritzen Protective goggles avoid harm to the eyes from aggressive liquid splashes.	(eng.)
<b>splice, to</b>	verbinden, spleißen, zusammenfügen The technician spliced the two cables.	(eng.)
<b>spoke</b>	Speiche, die Spokes can be made of different materials, depending on whether they have to withstand tension (e.g. bicycle wheel) or compression (horse carriage wheel).	(eng.)
<b>spool</b>	Spule, die; Rolle, die The solenoid spool was malfunctioning.	(eng.)
<b>spoonful</b>	einen Löffel voll She added a spoonful of pigment to the mixture.	(chem.)

<b>spotting test</b>	Tüpfelprobe, die The spotting test for Mo (Molybdenum) in CrNi steel can tell the materials 1.4401 and 1.4571 apart.	(chem.)
<b>spray, to</b>	sprühen, spritzen A protective coating was sprayed onto the conveyor belt.	(eng.)
<b>spreadsheet</b>	Tabellenblatt, das The assistant prepared a spreadsheet with all costs.	(eng.)
<b>spring</b>	Feder, die A spring is described by Hook's law.	(eng.)
<b>sprinkle, to</b>	bespritzen, bestreuen, berieseln He sprinkled the surface with powder.	(chem.)
<b>spruce</b>	Fichte, die Spruce, an evergreen tree, is amongst the most important woods for paper manufacture.	(general)
<b>square with</b>	rechtwinkelig zu The warehouse is sited square with the main road.	(eng.)
<b>staff</b>	Belegschaft, die The staff was invited to visit the customer.	(econ.)
<b>staggered</b>	gestaffelt The student drew the alkane in staggered conformation in Newman projection.	(eng.)
<b>stagnant</b>	stillstehend, unbewegt The nearly stagnant flow was observed.	(general)
<b>stainless</b>	rostfrei Stainless steel is used in all equipment that is directly exposed to the product.	(chem.)
<b>stand pipe, standpipe</b>	Steigrohr, das A standpipe was installed to wash the silos.	(eng.)

- standard deviation** Standardabweichung, die (sci.)  
Acronym (engl.):  $\sigma$   
Acronym (dt.):  $\sigma$   
In case of a Gaussian distribution, 66% of all values fall within the mean +/- 1 standard deviation.
- standard temperature and pressure** Normalbedingungen, die (chem. eng.)  
Acronym (engl.): STP Acronym (dt.): NTP  
The current version of IUPAC's definition of STP is a temperature of 0°C (273.15 K, 32 °F) and an absolute pressure of 100 kPa (14.504 psi).
- stannous** zinnhaltig, Zinn, das (chem.)  
Acronym (engl.): Sn  
Acronym (dt.): Sn  
Stannous fluoride (tin(II) fluoride) is a common ingredient in toothpaste, because it converts apatite into fluoroapatite in the enamel.



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<b>starboard</b>	Steuerbord Starboard is the right side of a ship (green navigation light). The left side is referred to as port (red navigation light).	<i>(eng.)</i>
<b>starch</b>	Stärke, die The carbohydrate starch ( $C_6H_{10}O_5)_n$ ) is a polysaccharide. It is a polymer of glucose monosaccharide joined together by glycosidic bonds. Starch has 2 components: amylose (linear polymer of glucose) and amylopectin (highly branched polymer of glucose).	<i>(chem.)</i>
<b>start up, to start-up</b>	anfahren; Anfahren, das Starting up a cracker can take several days.	<i>(chem. eng.)</i>
<b>starting torque</b>	Anlaufmoment, das The extruder was heated to 240°C to lower the starting torque.	<i>(eng.)</i>
<b>state of matter</b>	Aggregatzustand, der Plasma is the fourth state of matter.	<i>(chem.)</i>
<b>state of the art, state-of-the -art</b>	Stand der Technik, der In patent law, the state of the art or “prior art” is the starting point to assess the novelty of an invention.	<i>(eng.)</i>
<b>state variable</b>	Zustandsvariable, die State variables (state parameters, thermodynamic variables) describe the momentary condition of a thermodynamic system. Examples are pressure, temperature, mass, density, entropy and enthalpy.	<i>(chem. eng.)</i>
<b>state friction</b>	Haftreibung, die The coefficient of static friction between steel and steel was determined as 0.8 in case of dry surfaces and as 0.3 in the presence of a thick oxide layer.	<i>(eng.)</i>
<b>statistical process control</b>	statistische Prozesskontrolle, die  <i>Acronym (engl.): SPC</i> Using SPC tools, the product quality could be improved significantly.	<i>(chem. eng.)</i>

<b>steam</b>	Wasserdampf, der; Dampf, der Plants that have oversized boilers and steam distribution systems should investigate a steam pressure reduction in order to save energy.	(chem.)
<b>steam boiler</b>	Dampfkessel, der Steam boilers fall under the pressure vessel directive and therefore have to meet certain minimum requirements.	(chem. eng.)
<b>steam engine</b>	Dampfmaschine, die A steam engine can convert heat from almost any source into mechanical work. Without steam condensation, the efficiency is on the order of 1–10% (historic steam locomotives) compared to 85–90% for power plants that use steam in cogeneration.	(eng.)
<b>steam reforming</b>	Dampfreformieren, das In steam reforming, the following endothermic reaction takes places: $C_n H_{2n+2} + nH_2O \rightarrow nCO + (2n+1)H_2$ .	(chem. en g.)
<b>steel</b>	Stahl, der Steel is an alloy consisting mostly of iron, where the carbon content lies between 0.2% and 2% by weight. In 2004, the global steel production surpassed 1 billion tonnes/year.	(chem.)
<b>steel refining</b>	Stahlfrischen, das During steel refining, vacuum can be applied to remove unwanted gaseous components such as hydrogen before further processing.	(chem. eng.)
<b>steel wool</b>	Stahlwolle, die Because of its high surface area, steel wool can be ignited with a lighter.	(eng.)
<b>steelmaking</b>	Stahlproduktion, die Some people say that steelmaking is more an art than a science.	(eng.)
<b>steelmaking plant</b>	Stahlwerk, das The profitability of a steelmaking plant is driven by its production costs.	(eng.)
<b>STEL</b>	zulässige Kurzzeitbelastung, die <i>Acronym/Abbreviation referral: see Short Term Exposure Limit</i>	(chem.)

<b>stencil</b>	Schablone, die The labelling of the silos was done with a stencil.	(eng.)
<b>sterilise, sterilize, to</b>	keimfrei machen, sterilisieren <i>sterilize, to (AE)</i> Ultraviolet light was used to sterilize (i.e. to completely eliminate all microorganisms) the tools.	(pharm.)
<b>STEV</b>	zulässige Kurzzeitbelastung, die <i>Acronym/Abbreviation referral: see STEL</i>	(chem.)
<b>sticky</b>	klebrig The first adhesives were natural sticky substances such as plant resins or saps.	(chem.)
<b>stimulant</b>	analeptisch, stimulierend, Stimulant Caffeine (C <sub>8</sub> H <sub>10</sub> N <sub>4</sub> O <sub>2</sub> ) and nicotine (C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> ) are two common stimulants.	(pharm.)



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<b>stirrer tank, stirrer vessel, stirred tank, stirred vessel</b>	Rührkessel, der	<i>(chem. eng.)</i>
	The key process variables of the stirrer tank (residence time, volume, temperature, pressure, species concentrations and heat transfer coefficients) were specified in the kick-off meeting.	
<b>stock solution</b>	Stammlösung, die	<i>(chem.)</i>
	A stock solution is generally a concentrated solution which will be diluted for actual use. Their use helps to save preparation time and storage space. Also, they can improve the accuracy of an analysis.	
<b>stock(s)</b>	Aktie(n), die	<i>(econ.)</i>
	At company A, employees are entitled to free stock.	
<b>stockpile</b>	Halde, die; stapeln	<i>(chem.)</i>
	The sulphur stockpile was ready for transportation.	
<b>stoichiometric</b>	stöchiometrisch	<i>(chem.)</i>
	The air/fuel equivalence ratio $\lambda$ is 1 for a stoichiometric mixture.	
<b>stop valve</b>	Absperrhahn, der; Absperrventil, das; Absperrarmatur, die	<i>(chem. eng.)</i>
	The stop valve was designed for a pressure of 100 bar.	
<b>stopcock</b>	Absperrhahn, der	<i>(chem. eng.)</i>
	The stopcock made from glass did not move any more, because the sodium hydroxide had reacted with the glass to form sodium silicate.	
<b>stopper</b>	Stopfen, der	<i>(pharm.)</i>
	He used a ground glass stopper to temporarily seal the flask.	
<b>stopper plug</b>	Stöpsel, der	<i>(chem.)</i>
	The stopper plug in the drain was not tight any more due to corrosion.	
<b>stopping device</b>	Arretiervorrichtung, die	<i>(chem.)</i>
	He placed a stopping device in front of the door to prevent it from closing.	

<b>storage</b>	Lagerung, die The storage of combustible material has to meet certain regulations.	(general)
<b>stove</b>	Ofen, der; Zimmerofen, der In order to store the heat, the stove was surrounded by soapstone.	(chem.)
<b>STP</b>	<i>Acronym/Abbreviation referral: see standard temperature and pressure</i>	(chem.)
<b>strainer</b>	Abscheider, der; Schmutzfänger, der The strainer was blocked with rust particles.	(eng.)
<b>streak</b>	Schliere, die She carefully tried to remove the streaks from the lens.	(general)
<b>strength</b>	Stärke, die The strength of the connection was overestimated.	(eng.)
<b>stress</b>	mechanische Beanspruchung, die In material science, stress can be defined as the average amount of force exerted per unit area (SI unit: Pa).	(eng.)
<b>stress cycle</b>	Lastwechselfolge, die She investigated the effect of stress cycle frequency upon fatigue and corrosion of the alloy.	(eng.)
<b>stress strain curve</b>	Spannungs -Dehnungskurve, die; Kraft-Dehnungskurve, die The stress strain curve of a material shows the relationship between stress (based on the applied force), and strain (derived from the deformation of the sample such as elongation, compression or distortion). Ductile and brittle materials behave differently.	(eng.)
<b>stress whitening</b>	Weißbruch, der The formation of white areas in a deformation process of a polymer article, created by microvoids in the material, is called stress whitening. It is especially critical for polypropylene.	(chem. eng.)
<b>stretch, to</b>	dehnen, recken The rubber ribbon was stretched until it tore.	(eng.)

<b>strip chart</b>	Meßstreifen, der The housewife used a stripchart to determine the hardness of her water.	(chem.)
<b>strip, to</b>	abreichern By steam stripping, polycyclic aromatic hydrocarbons (PAH) can be removed from harbor soils.	(chem.)
<b>stroke</b>	Takt, der The car has got a 4 stroke engine.	(eng.)
<b>structural change</b>	Gefügeänderung, die The metastable phase underwent a structural change when it was heated.	(chem.)
<b>stud</b>	Bolzen, der; Gewindebolzen, der; Dübel, der The mechanic was looking for a suitable stud.	(eng.)
<b>study</b>	Studie, die A feasibility study typically ends up at a cost estimation of +/- 40%.	(general)

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<b>stuff</b>	Dinge, die (ugs.) Foodstuff production has to follow several strict regulations.	( <i>general</i> )
<b>stupor</b>	Stupor, der; Benommenheit, die Vitamin D deficiency can cause stupor.	( <i>med.</i> )
<b>subcontractor</b>	Unterauftragnehmer, der The work of subcontractors is difficult to assess.	( <i>econ.</i> )
<b>submarine</b>	U-Boot, das On submarines, CO <sub>2</sub> has to be filtered out of the air.	( <i>eng.</i> )
<b>submerged</b>	unter Wasser After the heavy rainfalls, parts of the cellar were submerged in water.	( <i>eng.</i> )
<b>submersible pump</b>	Tauchpumpe, die A submersible pump is a pump which has a hermetically sealed motor.	( <i>chem. eng.</i> )
<b>subsidiary</b>	Tochterunternehmen, das Foreign subsidiaries are often controlled by the headquarters.	( <i>econ.</i> )
<b>subsidy</b>	Subvention, die; Zuschuss, der; Beihilfe, die Extensive subsidies were granted for companies who decided to move to the region.	( <i>econ.</i> )
<b>substance</b>	Stoff, der To the over 81 million organic and inorganic chemical substances that have a CAS Registry Number (CASRN), approx. 4,000 new substances are added every day.	( <i>chem.</i> )
<b>substation</b>	Schaltanlage, die; Umspannwerk, das The substation was placed next to the production hall.	( <i>eng.</i> )
<b>succinic acid</b>	Bernsteinsäure, die Succinic acid, a dicarboxylic acid, has the formula C <sub>4</sub> H <sub>6</sub> O <sub>4</sub> .	( <i>chem.</i> )

<b>succussion</b>	Erschütterung, die “Dynamisation” or “potentisation” is a process used by homeopaths whereby a remedy is diluted with alcohol or water and then vigorously shaken by ten hard strikes against an elastic body, which is called “succussion”.	(pharm.)
<b>suck off, to</b>	absaugen In welding processes, fumes have to be sucked off.	(eng.)
<b>suction filter, Büchner funnel, Buechner funnel</b>	Nutsche, die; Büchnertrichter, der  A Büchner funnel is used for suction filtration with a piece of filter paper as filter medium.	(chem.)
<b>suction pressure</b>	Saugdruck, der The pump can provide a suction pressure of 200 mbar.	(eng.)
<b>sulfuric acid</b>	Schwefelsäure, die The largest fraction of the more than 150 million tonnes/year of sulfuric acid that are produced worldwide is used for ore processing and fertilizer manufacturing.	(chem.)
<b>sulphur</b>	Schwefel, der <i>sulfur</i> (AE) Acronym (engl.): S Acronym (dt.): S Thioethers (R-S-R') are the sulfur equivalents of ethers (R-O-R'). While ethers are relatively stable, thioethers are easily oxidized to the sulfoxides (R-S(=O)-R'), which can be further oxidized to sulfones (R-S(=O) <sub>2</sub> -R').	(chem.)
<b>sundry costs</b>	diverse Kosten, die; sonstige Kosten, die The cost estimation did not consider sundry costs.	(econ.)
<b>superconductor</b>	Supraleiter, der Transformers, power storage devices, magnetic levitation devices and motors are promising future applications of superconductors.	(sci.)
<b>supercooled</b>	unterkühlt Water can be supercooled to -42°C.	(chem.)

<b>supercritical</b>	überkritisch CO <sub>2</sub> behaves as a supercritical fluid above its critical temperature of 31.1°C and its critical pressure of 72.9 bar. When used as a solvent, supercritical CO <sub>2</sub> does not denature most substances due to the low temperatures involved.	( <i>chem.</i> )
<b>superficial</b>	oberflächlich He took a superficial look at the article.	( <i>general</i> )
<b>superfund (AE)</b>	US-Gesetz zur Beseitigung von Umweltschäden, das Superfund is the common name for CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act).	( <i>chem. eng.</i> )
<b>superheated</b>	überhitzt Superheated water is liquid, pressurized water at temperatures between the boiling point (100°C) and the critical temperature (374°C).	( <i>chem.</i> )
<b>superheated steam</b>	überhitzter Dampf, der Superheated steam and liquid water cannot coexist under thermodynamic equilibrium.	( <i>chem.</i> )

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<b>superheater</b>	Überhitzer, der A superheater in a boiler increases the capacity of the plant and reduces the steam consumption of the steam turbine.	<i>(eng.)</i>
<b>supernatant</b>	obenstehend; Überstand, der Traces of mineral oil were discovered in the supernatant.	<i>(chem. eng.)</i>
<b>supersaturate, to</b>	übersättigen Both liquids and gases can become supersaturated. An example are scuba divers' tissues that become supersaturated with N <sub>2</sub> . If the divers ascend too fast, the N <sub>2</sub> forms bubbles, resulting in decompression sickness.	<i>(chem.)</i>
<b>supersonic</b>	überschall- The Concorde was a commercial supersonic jet.	<i>(eng.)</i>
<b>supplier</b>	Lieferant, der Suppliers, customers, shareholders and employees are some of the relevant stakeholder groups of a corporation.	<i>(econ.)</i>
<b>supply line, supply pipe, feed, forerun</b>	Vorlauf, der The supply line was manufactured from stainless steel.	<i>(chem. eng.)</i>
<b>suppository</b>	Zäpfchen, das Suppositories can be based on a greasy substance such as cocoa butter, in which the active ingredient and other excipients are dissolved. They can also be made from a water soluble base such as polyethylene glycol (PEG). Suppositories are used for rectal administration.	<i>(pharm.)</i>
<b>surface</b>	Oberfläche, die SERS (surface enhanced Raman spectroscopy) is a technique to gain information about the surface of a sample.	<i>(chem.)</i>
<b>surface mining</b>	Tagebau, der In contrast to underground mining, all overburden (overlying rock and soil) has to be removed in surface mining. Surface mining is necessary for materials that do not allow tunneling such as sand or gravel.	<i>(eng.)</i>

<b>surface tension</b>	Oberflächenspannung, die It is surface tension and not buoyancy that prevents a water strider from sinking.	( <i>eng.</i> )
<b>survey</b>	Untersuchung, die; Umfrage, die; Befragung, die She did not participate in the survey because she felt that she would not stay anonymous.	( <i>general</i> )
<b>susceptible</b>	anfällig Steel under water is susceptible to corrosion.	( <i>general</i> )
<b>suspension point</b>	Aufhängepunkt, der The suspension point was chosen to balance the load.	( <i>eng.</i> )
<b>sustainable</b>	nachhaltig The engineer did not consider the work instruction for operators a sustainable solution to prevent the incident from reoccurring.	( <i>general</i> )
<b>sweetener</b>	Süßstoff, der Aspartame (Aspartyl-phenylalanine-1-methylester) is an artificial sweetener. The compound is a methyl ester of the dipeptide of aspartic acid and phenylalanine, 2 amino acids. Phenylalanine is an $\alpha$ -amino acid with the formula $\text{HO}_2\text{CCH}(\text{NH}_2)\text{CH}_2\text{C}_6\text{H}_5$ .	( <i>pharm.</i> )
<b>switch</b>	Schalter, der The woman activated the switch.	( <i>eng.</i> )
<b>swivel arm</b>	Schwenkarm, der The swivel arm proved to be a major improvement.	( <i>eng.</i> )
<b>synthesis</b>	Synthese, die The dream of many organic chemists is the synthesis of a new blockbuster drug.	( <i>chem.</i> )
<b>synthon</b>	Synthon, das; Synthesebaustein, der Carbon dioxide, carbon monoxide and cyanide are C1 synthons. Acetylene and acetaldehyde are C2 synthons.	( <i>chem.</i> )
<b>syringe</b>	Spritze, die A glass syringe can be used to inject small samples (1-10 $\mu\text{l}$ ) into a gas chromatograph or mass spectrometer.	( <i>pharm.</i> )

<b>T&amp;C</b>	<i>Acronym/Abbreviation referral: see general terms and conditions</i>	(econ.)
<b>T&amp;G</b>	<i>Acronym/Abbreviation referral: see tongue and groove</i>	(eng.)
<b>TA</b>	<i>Acronym/Abbreviation referral: see turnaround</i>	(chem.)
<b>tablet</b>	Tablette, die A tablet is a mixture of active substances and excipients (e.g. binders, flavours, pigments) compressed to a small solid.	(pharm.)
<b>tabular</b>	tafelförmig Talc is composed of tabular particles.	(eng.)
<b>tag</b>	Aufkleber, der; Etikett, das; Bezeichnungsschild, das; Tag, der In a chemical plant, a tag is a unique code defining the location and function of a physical component in an installation.	(chem. eng.)

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<b>tagging</b>	Kennzeichnung, die; Identifizierung, die The project team started tagging of the plant.	(chem. eng.)
<b>tail fin</b>	Schwanzflosse, die; Heckflosse, die Airlines have their logos painted on the tailfins of their aircraft.	(eng.)
<b>tailrace</b>	Unterwasser, das; Unterwasserkanal, der The race bringing water to the water wheel is called headrace. The one carrying water away from the wheel is the tailrace.	(eng.)
<b>talc</b>	Talk, der; Talkum, das In plastics compounds, talc influences the shrinkage behaviour of the product.	(chem.)
<b>tamper proof seal</b>	Entnahmesicherung, die A tamper proof seal on a tablet packaging prevents unnoticed opening.	(pharm.)
<b>tamper-resistant</b>	manipulationssicher, fälschungssicher Packages which cannot be resealed are considered tamper-resistant.	(pharm.)
<b>tantalum</b>	Tantal, das <i>Acronym (engl.): Ta</i> <i>Acronym (dt.): Ta</i> Unlike gold, tantalum is not dissolved by aqua regia.	(chem.)
<b>tap</b>	Hahn, der The water tap was dripping for months before it was repaired.	(eng.)
<b>tapped coil</b>	Abzweigspule, die; Anzapfspule, die The transformer has 2 tapped coils made of copper.	(eng.)
<b>tapped hole</b>	Gewindeloch, das The tapped hole was suitable for M6 bolts.	(eng.)
<b>tar</b>	Teer, der Tar is obtained by destructive distillation of organic matter such as coal, petroleum or wood, often as a byproduct. Destructive distillation is the process of pyrolysis carried out in a distillation apparatus where the volatile products are collected and the tar remains in the bottom.	(chem.)

<b>tar pitch</b>	Pech, das Pitch that is made from petroleum is called bitumen.	(chem.)
<b>tare</b>	Tara, die The tare is the weight of an empty container, vessel or vehicle. Gross weight minus tare = net weight (weight of the goods loaded).	(eng.)
<b>tartaric acid</b>	Weinsäure, die Tartaric acid, which is one of the main acids in wine, is added to some foods as an antioxidant. $C_4H_6O_6$ is chiral, meaning that it has molecules which cannot be superimposed on their mirror-images.	(chem.)
<b>task force</b>	Arbeitsgruppe, die The task force did not have a clear mandate.	(econ.)
<b>tax</b>	Steuer, die Value added tax is between 10 and 30% in most countries.	(econ.)
<b>TBR</b>	<i>Acronym/Abbreviation referral: see trickle bed reactor</i>	(chem. eng.)
<b>TCO</b>	<i>Acronym/Abbreviation referral: see total costs of ownership</i>	(econ.)
<b>technical</b>	technisch For technical reasons, the throughput was reduced.	(eng.)
<b>technical guideline concentration</b>	technische Richtkonzentration, die <i>Acronym (dt.): TRK- Wert, der; TRK, die</i> The technical guidance concentration for butadiene is 5 ppm.	(chem.)
<b>technician</b>	Techniker(in), der (die) The technician could fix the problem with the transducer easily.	(eng.)
<b>technique</b>	Technik, die Filtration is a widespread sample purification technique.	(eng.)

<b>technology</b>	Technologie, die Wireless communication is an emerging technology.	(eng.)
<b>tee</b>	T-Stück, das A legal golf tee must not be longer than 4 inches ( ~102 mm), and it must not indicate the line of play or influence the movement of the ball.	(general)
<b>telemetry</b>	Fernmessen, das; Telemetrie, die Telemetry is used in industrial production plants.	(eng.)
<b>temper, to</b>	tempern Like annealing, tempering is a heat treatment technique for metals and alloys. Steel can be tempered to render it more tough by transforming brittle martensite into bainite or a combination of ferrite and cementite.	(eng.)
<b>template</b>	Vorlage, die Using a template can save a considerable amount of time.	(general)
<b>temporary</b>	befristet, temporär, kurzzeitig The temporary work permit was already expired.	(general)



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<b>tender</b>	Gebot, das; Angebot, das (nach einer Ausschreibung) After the invitation to bid, 5 tenders were received.	( <i>econ.</i> )
<b>tendering, call for bids</b>	Ausschreibung, die The tendering (call for bids) process took 3 months.	( <i>econ.</i> )
<b>tensile</b>	dehnbar, zugbeanspruchbar The instrument measures tensile deformation.	( <i>eng.</i> )
<b>tension</b>	Spannung, die Tension, the pulling force exerted by a cable or chain, is measured in Newton, the SI unit of force [kgm/s <sup>2</sup> ]. It always acts parallel to the string by which it is applied.	( <i>eng.</i> )
<b>teratogenic</b>	teratogen, reproduktionstoxisch, reprotoxisch, fortpflanzungsgefährdend, fruchtschädigend The following chemicals are known or suspected teratogenic substances: 1,3-butadiene, cadmium oxide, ethyl benzene, ethylene glycol, and styrene.	( <i>med.</i> )
<b>terpolymer</b>	Terpolymer, das; Terpolymerisat, das ( <i>chem.</i> ) A terpolymer consists of polymer chains composed of three distinct monomers such as vinyl chloride (CH <sub>2</sub> =CHCl), vinyl acetate (CH <sub>3</sub> COOCH=CH <sub>2</sub> ) and maleic acid (COOH -CH=CH-COOH).	
<b>test piece</b>	Prüfkörper, der Test pieces that were produced under varying conditions will distort the results.	( <i>eng.</i> )
<b>test tube</b>	Reagenzglas, das Test tubes can be found in most laboratories.	( <i>chem.</i> )
<b>tetrahedron</b>	Tetraeder, das A tetrahedron is a triangular pyramid with a dihedral angle of 70.53°. It is composed of 4 triangles.	( <i>chem.</i> )
<b>tetravalent</b>	vierwertig Carbon is a tetravalent atom.	( <i>chem.</i> )

<b>thaw, to</b>	auftauen If the Russian permafrost soil started to thaw, methane would be liberated. Permafrost is defined as soil at or below the freezing point of water (0°C, 32°F) for at least two years.	<i>(chem.)</i>
<b>theoretical plate</b>	theoretischer Boden, der In order to improve the separation, the number of theoretical plates in the column should be increased.	<i>(chem. eng.)</i>
<b>theory</b>	Theorie, die A good theory describes a model which is derived from experimental data.	<i>(sci.)</i>
<b>thermocouple</b>	Thermoelement, das The thinner a thermocouple is constructed, the faster its response time can be.	<i>(eng.)</i>
<b>thermoplastics</b>	Thermoplaste, die Thermoplastics are polymeric materials without crosslinking. They can be brought into a defined shape in the liquid state (melt) by e.g. injection moulding or extrusion.	<i>(chem.)</i>
<b>thermoset</b>	Duromer, das Thermosets are crosslinkable or crosslinked polymeric materials that, unlike thermoplastics, cannot be formed in the molten state.	<i>(chem.)</i>
<b>thermowell</b>	Schutzrohr, das; Wärmesonde, die A temperature sensor sitting in a thermowell generally has a slower response than an in-situ temperature sensing device.	<i>(eng.)</i>
<b>thesis</b>	Dissertation, die He wrote a cumulative thesis composed of 8 journal articles.	<i>(sci.)</i>
<b>thickening</b>	Eindicken, das In cooking, starch is a common thickening agent. Starch, a carbohydrate with the formula $(C_6H_{10}O_5)_n$ , is a polysaccharide.	<i>(chem.)</i>
<b>thin fluid, low viscosity</b>	dünnflüssig The viscosity of water at 20°C is $1 \times 10^{-3}$ Pa·s. Compared to glycerol (viscosity of 1.5 Pa·s), water is a low viscosity liquid. The study of viscosity is known as rheology.	<i>(chem.)</i>

<b>thread</b>	Gewinde, das; Faden, der The droplet was suspended on a thin thread.	(eng.)
<b>thread gauge</b>	Gewindelehre, die The thread gauge did not fit, because it belongs to a different standard.	(eng.)
<b>three way stopcock</b>	Dreiwegehahn, der He could not find a supplier for a three way stopcock made from Teflon™.	(chem.)
<b>three way valve</b>	Dreiwegeventil, das; Dreiwegehahn, der Three-way valves have three ports.	(chem. eng.)
<b>threshold</b>	Schwelle, die Below the threshold current, a laser does not emit light.	(eng.)

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**threshold limit value, maximum allowable concentration** zulässige Höchstbelastung, die; TLV-Wert, der (chem.)

*Acronym (engl.): TLV*

TLV is the airborne concentration of a substance below which no adverse effect in people is observed. One can distinguish between

- TLV-C (ceiling limit, concentration that should not be exceeded even instantaneously).
- TLV-STEL (short term exposure limit, maximum concentration for a continuous 15-minute exposure period).
- TLV-TWA (time-weighted average, concentration for a normal 8-hour work day or 40-hour work week).

**threshold value** Schwellenwert, der (eng.)  
The threshold value that the oxygen sensor can detect is 0.5%.

**throat lozenge** Hustenbonbon, das (pharm.)  
A throat lozenge is a small, medicated candy to soothe irritated tissues of the throat, e.g. from an influenza.

**throttle, to** drosseln (eng.)  
In order to slow down the polymerization reaction, the feed of the catalyst was throttled.

**through-hole** Durchgangsbohrung, die (eng.)  
In contrast to a blind hole, a through-hole goes all the way through the substrate.

**throughput** Durchsatz, der; Ausstoß, der (chem. eng.)  
The throughput of the plant was limited by the raw material conveying.

**thrust** Schub, der (eng.)  
The thrust of the engine is 135 kN.

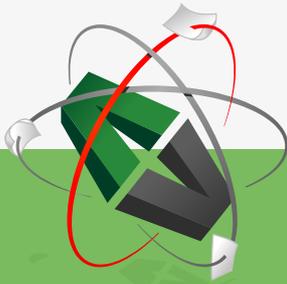
**tie rod** Zugstange, die; Verbindungsstrebe, die (eng.)  
The spokes of bicycle wheels are tie rods.

**tie-in point** Einbindepunkt, der (chem. eng.)  
The tie-in points for cooling water and instrument air were not shown on the layout diagram.

<b>tighten, to</b>	festziehen, abdichten Screws on vibrating machinery have to be tightened from time to time.	(eng.)
<b>tile</b>	Fliese, die Tiles break easily when there is a cavity below them.	(eng.)
<b>tilted</b>	geneigt The water ran down the tilted board.	(eng.)
<b>Time Weighted Average</b>	Durchschnittswert, der <i>Acronym (engl.): TWA</i> TWA is the average amount of an agent's concentration over a specified period of time, usually 8 hours.	(chem.)
<b>tin</b>	Zinn, das <i>Acronym (engl.): Sn</i> <i>Acronym (dt.): Sn</i> Tin (atomic number 50) is the element with the greatest number of stable isotopes (ten). There are 28 additional unstable isotopes.	(chem.)
<b>tin can, tinned can</b>	Weißblechdose, die A tin can combines the physical strength and relatively low price of steel with the corrosion resistance of tin. Similar properties can be reached by aluminium, though.	(eng.)
<b>tin pest</b>	Zinnpest, die Below 13.2 °C, pure tin transforms from the allotrope of white tin ( $\beta$ -modification, ductile) to grey tin ( $\alpha$ -modification, brittle). Eventually, it decomposes to powder, which is known as tin pest.	(chem.)
<b>tissue</b>	Gewebe, das Tissue paper is a special thin, translucent paper that is used for wrapping various items.	(eng.)
<b>titer</b>	Titer, der; Normalfaktor, der The titer deviated by 12% and had to be discarded.	(chem.)
<b>titrimetric standard</b>	Urtiter, der Benzoic acid ( $C_6H_5COOH$ ) was used as titrimetric standard.	(chem.)

<b>TLV</b>		(chem.)
	<i>Acronym/Abbreviation referral: see threshold limit value</i>	
<b>toe</b>		(eng.)
	<i>Acronym/Abbreviation referral: see tonne of oil equivalent</i>	
<b>ton</b>	Tonne, die The chemicals were transported in a plastic ton.	(eng.)
<b>tongue and groove, key and slot</b>	Nut und Feder, die  <i>Acronym (engl.): T&amp;G</i> Tongue and groove joints are common for fitting together boards of wood, e.g. for a parquet floor.	(eng.)
<b>tonnage</b>	Raumgehalt, der; Tonnage, die; Frachtraum, der Harbour dues are generally based on tonnage.	(general)

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<b>tonne of oil equivalent</b>	<p>Rohöleinheit, die <span style="float: right;">(eng.)</span></p> <p><i>Acronym (engl.): toe</i>  <i>Acronym (dt.): RÖE</i></p> <p>The tonne of oil equivalent (toe) is a unit of energy: It corresponds to 41.87 GJ or 11.63 MWh.</p>
<b>tonne, metric tonne</b>	<p>Tonne, die (1000 kg) <span style="float: right;">(eng.)</span></p> <p><i>Acronym (engl.): t, MT</i>  <i>Acronym (dt.): t</i></p> <p>The tonne of trinitrotoluene (TNT, C<sub>6</sub>H<sub>2</sub>(NO<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, 2,4,6-Trinitrotoluene) is used as a proxy for energy.</p>
<b>tool</b>	<p>Werkzeug, das <span style="float: right;">(eng.)</span></p> <p>The workers had brought along their own tools.</p>
<b>toothed wheel</b>	<p>Zahnrad, das <span style="float: right;">(eng.)</span></p> <p>The toothed wheel could withstand a torque of 500 Nm.</p>
<b>torque</b>	<p>Drehmoment, das <span style="float: right;">(eng.)</span></p> <p>The engine has a torque of 50 Nm at 2,000 rpm.</p>
<b>total costs of ownership</b>	<p>Gesamtkosten während des Lebenszyklus, die <span style="float: right;">(econ.)</span></p> <p><i>Acronym (engl.): TCO</i></p> <p>In an investment project, it is advisable to judge different vendors based on the total costs of ownership of their equipment.</p>
<b>toxic</b>	<p>giftig <span style="float: right;">(chem.)</span></p> <p>Botulinum toxin, a protein which is produced by the bacterium clostridium botulinum, is one of the most toxic naturally occurring substances.</p>
<b>trace analysis</b>	<p>Spurenanalyse, die <span style="float: right;">(chem.)</span></p> <p>In trace analysis, detection limits below 1 µg/kg (1 ppb) can sometimes be achieved.</p>
<b>trace constituent</b>	<p>Spurenbestandteil, der <span style="float: right;">(chem.)</span></p> <p>Ozone (O<sub>3</sub>) is a trace constituent of the atmosphere.</p>

<b>trade fair</b>	Messe, die A trade fair is a good opportunity to get an overview about competitors.	(eng.)
<b>trademark</b>	Handelsmarke, die; Schutzmarke, die Trademark infringements can lead to serious legal action.	(econ.)
<b>trailer</b>	Anhänger, der A trailer is generally an unpowered vehicle pulled by a powered vehicle.	(econ.)
<b>transducer</b>	Messumwandler, der; Messumformer, der; Signalumwandler, der A transducer is an electric or electronic device that transforms energy from one manifestation into another, e.g. pressure into a current signal.	(eng.)
<b>transesterification</b>	Umesterung, die Transesterification is the process of exchanging the alcohol group of an ester by a different one according to: $R'OH + R''COOR \rightarrow R''OH + R'COOR$ . The process is used in the synthesis of polyesters, in which diesters undergo transesterification with diols to form macromolecules. For example, dimethyl terephthalate and ethylene glycol react to form polyethylene terephthalate (PET) and methanol ( $CH_3OH$ ).	(chem.)
<b>transient</b>	kurzlebig Radicals are transient species.	(chem.)
<b>transition metal</b>	Übergangsmetall, das Many interesting properties of the transition metals are the result of their partly filled d subshells.	(chem.)
<b>translucent</b>	durchscheinend Thin metal films are translucent.	(eng.)
<b>transmission</b>	Übertragung, die Power transmission at high voltage is associated with lower losses than at medium voltage.	(eng.)
<b>transmission gear</b>	Übersetzungsgetriebe, das The transmission gear accounts for 25% of the total weight of his car.	(eng.)

<b>transmitter</b>	Fühler, der; Geber, der; Messwertgeber, der The pressure transmitter seemed to be defect.	(eng.)
<b>transshipment, transshipment</b>	Umladung, die Negotiations about a new transshipment center in China failed.	(econ.)
<b>trial</b>	Versuch, der The trials did not prove his theory.	(eng.)
<b>triangular file</b>	Dreikantfeile, die To finish the corners, she used a triangular file.	(eng.)
<b>trickle bed reactor</b>	Rieselbettreaktor, der <i>Acronym (engl.): TBR</i> A TBR is a three-phase reactor that consists of flow of liquid and gas with a fixed bed of catalyst. It is often used in the petroleum industry for hydroprocessing of oils.	(chem. eng.)



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<b>tripod</b>	Dreibein, das The photographer was looking for his tripod.	(eng.)
<b>tripotic</b>	dreiprotonig Citric acid (2-hydroxypropane-1,2,3-tricarboxylic acid, C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> ) is a weak organic acid. It is triprotic.	(chem.)
<b>trituration</b>	Zerreibung, die Trituration, a process in homeopathy, is the grinding of powders in a mortar with a pestle.	(pharm.)
<b>trityl</b>	Trityl, das In organic chemistry, a trityl group is a triphenylmethyl group Ph <sub>3</sub> C (example: triphenylmethyl chloride = trityl chloride).	(chem.)
<b>troy ounce</b>	Feinunze, die <i>Acronym (engl.): ozt, oz (tr)</i> One troy ounce (ozt) weighs 31.10g, which is approx. 10% more than the avoirdupois ounce (oz), which is 28.35 g.	(eng.)
<b>truncated cone</b>	Kegelstumpf, der The foundation of the building looks like a truncated cone.	(sci.)
<b>tubular heat exchanger</b>	Rohrbündelwärmeaustauscher, der The tubular heat exchanger could be cleaned faster than the previously installed plate heat exchanger.	(chem. eng.)
<b>tungsten</b>	Wolfram, das <i>Acronym (engl.): W</i> <i>Acronym (dt.): W</i> Of all pure metals, tungsten has the highest melting point with 3422°C.	(chem.)
<b>turbid</b>	trüb The solution is passed through a filter to remove the turbid appearance.	(eng.)
<b>turbulence</b>	Wirbel, der; Turbulenz, die The Reynolds number describes the transition from a laminar to a turbulent flow.	(eng.)

<b>turn key, turnkey</b>	<p>schlüsselfertig <span style="float: right;">(chem. eng.)</span></p> <p>A turn key installation of a (chemical) plant is a lump sum contract under which the contractor engineers, delivers and installs the facility until it is ready for operation.</p>
<b>turnaround</b>	<p>Turnaround, der; Abschaltung, die; Shutdown, der; Revision, die (chem. eng.)</p> <p><i>Acronym (engl.): TA</i></p> <p>A turnaround is a scheduled stop of a plant for maintenance purposes. The plant is brought to a safe status, including making it gas -free to allow work in relevant areas.</p>
<b>turnbuckle</b>	<p>Spannschraube, die; Kettenspanner, der; Spannvorrichtung, die (eng.)</p> <p>A turnbuckle is a device for adjusting the tension or length of ropes and cables.</p>
<b>turnover</b>	<p>Umsatz, der <span style="float: right;">(econ.)</span></p> <p>The company's turnover quadrupled within 2 years.</p>
<b>turnover rate</b>	<p>Lagerumschlagszeit, die <span style="float: right;">(econ.)</span></p> <p>The turnover rate could be accelerated from 40 to 25 days.</p>
<b>turnstile</b>	<p>Drehkreuz, das <span style="float: right;">(general)</span></p> <p>A turnstile cannot be used as an emergency exit.</p>
<b>tuyère</b>	<p>Windform, die; Blasdüse, die <span style="float: right;">(chem. eng.)</span></p> <p>Blast furnaces have several tuyères through which the hot blast is injected into the furnace. Tuyères are usually made from copper (melting point 1084°C) and cooled by a water jacket.</p>
<b>TWA</b>	<p><span style="float: right;">(chem.)</span></p> <p><i>Acronym/Abbreviation referral: see Time Weighted Average</i></p>
<b>tweezers</b>	<p>Pinzette, die <span style="float: right;">(sci.)</span></p> <p>The scientist carefully picked up the sample with his tweezers.</p>

**twenty-foot container, 20 Fuss Container, der** (eng.)  
**20-ft container**

The capacity of a container ship is measured in Twenty-foot Equivalent Unit (TEU), which is the number of standard 20-foot containers that it can carry. One 20-ft container measures  $20 \times 8.0 \times 8.5$  feet ( $6.1 \times 2.4 \times 2.6$  m<sup>3</sup>). Most containers used today measure 40 feet (12 metres) in length.

**twist** Drall, der (eng.)  
An inlet valve is designed to give some twist to the gas entering the combustion chamber.

**UEL** (chem.)  
*Acronym/Abbreviation referral: see upper explosive limit*

**UL** (chem. eng.)  
*Acronym/Abbreviation referral: see Underwriters Laboratories*

**unambiguous** eindeutig (general)  
Asbestos was unambiguously proven to be a cancerogen.



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<b>unbreakable</b>	bruchsicher Laboratory glassware made out of virtually unbreakable glass would be very handy.	(eng.)
<b>undergraduate</b>	Grundstudium- The lecture was easy to understand for undergraduate students.	(sci.)
<b>underground mining</b>	Bergbau untertage, der Underground mining is carried out in depths exceeding 3,700 meters, for instance in the Savuka gold mine in South Africa.	(eng.)
<b>underpressure</b>	Unterdruck, der Silos are normally designed to withstand an underpressure of 10 mbar.	(eng.)
<b>Underwriters Laboratories</b>	Underwriters Laboratories  <i>Acronym (engl.): UL</i> UL is an American product safety testing and certification organization. It evaluates products and materials for compliance to specific requirements, and permits acceptable products to carry a UL certification mark, as long as they remain compliant with the standards. Such products are said to be “UL Listed”. UL in the US can be compared to the TÜV in Germany.	(general)
<b>undiluted</b>	unverdünnt The student poured undiluted glycerine into the flask.	(chem.)
<b>uniform</b>	einheitlich The company follows an engineering policy so that all plants have uniform safety systems.	(general)
<b>uninterrupted power supply, uninterruptible power supply</b>	unterbrechungsfreie Stromversorgung, die  <i>Acronym (engl.): UPS</i> <i>Acronym (dt.): USV</i> The UPS was designed to supply power for 15 minutes.	(eng.)
<b>union</b>	Gewerkschaft, die Unions in Scandinavia are very powerful.	(econ.)

<b>unit</b>	Einheit, die The SI unit of length is meter (m).	(chem.)
<b>unit operation</b>	Verfahrensschritt, der; Unit Operation Mixing, crystallisation, adsorption and drying are unit operations.	(chem.eng.)
<b>United States Adopted Name</b>	United States Adopted Name  <i>Acronym (engl.): USAN</i> <i>Acronm (dt.): USAN</i> United States Adopted Names are unique nonproprietary names assigned to pharmaceuticals marketed in the United States. An example is paracetamol (INN), which is called acetaminophen (USAN) in the US.	(pharm.)
<b>unload, to</b>	entladen, löschen (Ladung) The cargo was unloaded from the ship.	(eng.)
<b>unskilled worker</b>	Hilfsarbeiter, der By following training courses, the unskilled worker qualified himself for a better job.	(general)
<b>untight</b>	undicht Untight pipelines can contaminate the environment.	(eng.)
<b>upmanning</b>	Personalaufstockung, die The additional orders of the last months necessitated upmanning of the plant by 10%.	(econ.)
<b>upper explosion limit</b>	<i>Acronym/Abbreviation referral: see upper explosive limit</i>	(chem.)
<b>upper explosive limit</b>	obere Explosionsgrenze, die <i>Acronym (engl.): UEL</i> <i>Acronym (dt.): OEG</i> The UEL of hydrogen is ~77%.	(chem.)
<b>upright</b>	senkrecht The steel structure was brought into an upright position.	(eng.)

<b>UPS</b>	<i>Acronym/Abbreviation referral: see uninterrupted power supply</i>	(eng.)
<b>upstream</b>	vorgelagert, vorgeschaltet, flussaufwärts Fractionated distillation occurs upstream of fuel blending.	(chem. eng.)
<b>urea</b>	Harnstoff, der Urea, $\text{NH}_2\text{CONH}_2$ , is used as a raw material for the production of melamine.	(chem.)
<b>uric acid</b>	Harnsäure, die Uric acid, $\text{C}_5\text{H}_4\text{N}_4\text{O}_3$ , is a heterocyclic compound.	(chem.)
<b>USAN</b>	<i>Acronym/Abbreviation referral: see United States Adopted Name</i>	(pharm.)
<b>USCSB</b>	<i>Acronym/Abbreviation referral: see CSB</i>	(chem.)

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<b>used paper</b>	Altpapier, das In many countries, used paper from households is collected and recycled.	(general)
<b>utilities</b>	Betriebsmittel, die Typical utilities in a plant are water, compressed air, nitrogen, electricity and steam.	(chem. eng.)
<b>utility boiler</b>	Dampfkessel der Energieerzeuger, der; Dampfkessel, der Utility boilers are used to produce steam.	(chem. eng.)
<b>value</b>	Wert, der The value reported by the lab confirmed the first analysis.	(general)
<b>value creation</b>	Wertschöpfung, die In order to offer attractive products, the value creation of a company's customers has to be understood.	(econ.)
<b>value engineering</b>	Value Engineering, das; Wertanalyse, die By value engineering, the process could be simplified and the investment costs reduced by 5%.	(chem. eng.)
<b>valve</b>	Ventil, das After the acquisition of the valve manufacturer, the quality of his parts improved.	(chem. eng.)
<b>valve seat</b>	Ventilsitz, der The valve seat is the surface against which the intake and exhaust valves of an internal combustion engine rest.	(eng.)
<b>valve, instrument</b>	Armatuur, die The instruments were labelled.	(chem.)
<b>vanilla pod</b>	Vanilleschote, die <i>vanilla bean</i> (AE) Vanillin (4-hydroxy -3-methoxybenzaldehyde, C <sub>8</sub> H <sub>8</sub> O <sub>3</sub> ) is contained in vanilla pods.	(chem.)
<b>vaporize, to vaporise, to</b>	verdampfen  <i>vaporize, to</i> (AE) To vaporize a substance, the heat of vaporization (latent heat) has to be supplied.	(chem.)

<b>vapour</b>	Dampf, der <i>vapor (AE)</i> Unrefined oil has a high vapour pressure due to the presence of substances like propane.	(chem.)
<b>vapour lock</b>	Dampfblasensperre, die; Dampfsack, der <i>vapor lock (AE)</i> If normal diesel fuel is used in some aircraft engines instead of kerosene, dangerous vapour locks in the fuel lines can occur.	(eng.)
<b>vapour pressure</b>	Dampfdruck, der <i>vapor pressure (AE)</i> According to Raoult's law, the vapor pressure of an ideal solution can be derived from the vapor pressure of each chemical component and the mole fraction of the components present in the solution.	(chem.)
<b>variable costs</b>	variable Kosten, die The target for this quarter was to cut the variable costs by 5%.	(eng.)
<b>varnish</b>	Lack, der A varnish is a transparent, hard, and protective film applied to wood as a protection from environmental effects.	(chem.)
<b>vendor package</b>	Einheit des Lieferanten, die The air supply system should be bought as a complete vendor package.	(econ.)
<b>venom</b>	Gift, das; Schlangengift, das The dose of a bee sting is approximately 0.1 mg of venom per "shot".	(chem.)
<b>vent, to</b>	belüften, entlüften The exhaust gases are vented outside the production hall.	(chem. eng.)
<b>ventilation</b>	Entlüftung, die; Belüftung, die In production halls, natural ventilation is generally not sufficient.	(eng.)
<b>venting</b>	Entlüftung, die Venting of explosion panels has to be directed towards unconfined space.	(chem. eng.)

<b>vertigo</b>	Schwindel, der; Schwindelgefühl, das Formaldehyde can cause coughing, dyspnea, headache and vertigo.	( <i>med.</i> )
<b>vessel</b>	Gefäß, das The vessel was coated with enamel.	( <i>eng.</i> )
<b>vial</b>	Gefäß, das; Fläschchen, das The vial was filled with 100 ml of hydrochloric acid.	( <i>pharm.</i> )
<b>vice</b>	Schraubstock, der When it fell onto the floor, the vice left behind a big hole.	( <i>eng.</i> )
<b>visbreak, to</b>	cracken, aufspalten Peroxides can be used for the visbreaking of polymers.	( <i>chem. eng.</i> )
<b>visbreaking</b>	Cracken, das; Aufspalten der langkettigen Kohlenwasserstoffe bei der Rohölraffinierung, das Visbreaking is an important process to obtain olefins.	( <i>chem. eng.</i> )

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<b>viscous</b>	dickflüssig The reaction product was so viscous that it could hardly be removed from the flask.	(eng.)
<b>visible</b>	sichtbar Visible light ranges from approx. 400 nm (red) to 800 nm (blue).	(chem.)
<b>visualisation</b>	Visualisierung, die; Anzeige, die <i>visualization (AE)</i> The visualisation in the control room was overloaded with information.	(eng.)
<b>vitiate, to</b>	verunreinigen The river was vitiated by various effluents.	(eng.)
<b>vitiated air pipe</b>	Abluftrohr, das The vitiated air pipe was 15 m long.	(eng.)
<b>VOC</b>	<i>Acronym/Abbreviation referral: see volatile organic compounds</i>	(chem.)
<b>volatile</b>	flüchtig Hexane is more volatile than octane.	(chem.)
<b>volatile organic compounds</b>	flüchtige organische Verbindungen  <i>Acronym (engl.): VOC</i> Trees are an important biological source of VOC; it is known that they emit large amounts of VOC, especially isoprene (2-methyl-1,3-butadiene, C <sub>5</sub> H <sub>8</sub> ) and terpenes ((C <sub>5</sub> H <sub>8</sub> ) <sub>n</sub> ).	(chem.)
<b>volumetric standard</b>	Urtiter, der A volumetric standard has to be stored in a way that its concentration remains constant.	(pharm.)
<b>vortex</b>	Wirbel, der; Strudel, der Directly downstream of the hydropower plant, strong vortices could be spotted in the water.	(eng.)

<b>WACC</b>		(econ.)
	<i>Acronym/Abbreviation referral: see weighted average cost of capital</i>	
<b>wage garnishment</b>	Lohnpfändung, die He tried to avoid wage garnishment by selling his car.	(econ.)
<b>warehouse</b>	Lager, das; Lagerhaus, das The insurance company insisted on an upgrade of the fire protection system in the warehouse.	(econ.)
<b>warpage</b>	Verzug, der; Wölbung, die Warepage is an undesired shape change of an injection-moulded article due to anisotropic shrinkage during cooling down.	(eng.)
<b>warranty</b>	Gewährleistung, die For new products, consumers get a warranty for 2 years.	(econ.)
<b>wash bottle</b>	Waschflasche, die The wash bottle was used to remove liberated HCl from the reaction.	(chem.)
<b>washer</b>	Dichtungsring, der; Beilagscheibe, die (eng.) Washers are commonly used as spacers. Also, they distribute load more evenly.	
<b>waste heat</b>	Abwärme, die Waste heat can be minimized by using cogeneration.	(chem. eng.)
<b>waste incineration</b>	Müllverbrennung, die In a modern waste incineration plant, the flue gas treatment systems are more complex than the plant as such.	(chem. eng.)
<b>waste water</b>	Abwasser, das Wastewater is a collective term for any water which has been contaminated by anthropogenic influence.	(chem. eng.)
<b>water gas</b>	Wassergas, das Water gas is a synthesis gas that contains carbon monoxide and hydrogen. It can be produced by passing steam over red-hot coke.	(chem.)

<b>water jet</b>	Wasserstrahl, der For water jet cutting, plain water jets and abrasive water jets that contain abrasive particles can be used.	(chem.)
<b>water level, spirit level</b>	Wasserwaage, die The bricklayer used a water level.	(eng.)
<b>water repellent</b>	wasserabweisend The wall was rendered water- repellent by a PVC coating.	(pharm.)
<b>water softening</b>	Wasserenthärtung, die Citric acid ( $C_6H_8O_7$ ) is used in soaps for water softening.	(pharm.)
<b>waterproof, watertight</b>	wasserdicht Standard concrete is not waterproof.	(chem.)
<b>waterproofing</b>	Imprägnierung, die; Imprägnieren, das; Wasserabdichtung, die Waterproofing of the basement was achieved by applying an HDPE membrane to the walls.	(eng.)

<b>wave</b>	<p>Welle, die <span style="float: right;">(chem.)</span></p> <p>Waves of electromagnetic radiation can travel through vacuum. They propagate at the speed of light (299,792,458 m/s).</p>
<b>wave number</b>	<p>Wellenzahl, die <span style="float: right;">(chem.)</span></p> <p>In contrast to the wavelength, the wave number is directly proportional to the energy of a photon. A wavelength of 10 <math>\mu\text{m}</math> corresponds to a wave number of 1000 <math>\text{cm}^{-1}</math>.</p>
<b>wavelength</b>	<p>Wellenlänge, die <span style="float: right;">(chem.)</span></p> <p><i>Acronym (engl.):</i> <i>Acronym (dt.):</i></p> <p>An acoustic wave in air of 500 Hz has a wavelength of 0.68 m, travelling at 343 m/s (20°C).</p>
<b>wear and tear</b>	<p>Verschleiß, der <span style="float: right;">(eng.)</span></p> <p>Wear and tear are excluded from vendor warranties.</p>
<b>weathering</b>	<p>Verwittern, das <span style="float: right;">(eng.)</span></p> <p>Weathering has turned the wood surface to a greyish color.</p>
<b>wedge</b>	<p>Keil, der <span style="float: right;">(eng.)</span></p> <p>The door was arrested with a wedge.</p>
<b>weighted average cost of capital</b>	<p>gewichtete durchschnittliche Kapitalkosten, die <span style="float: right;">(econ.)</span></p> <p><i>Acronym (engl.): WACC</i></p> <p>The WACC is the minimum rate that a company needs to earn on its capital employed (which has different sources: debt and equity). It is the minimum return that a company must earn in order to satisfy its creditors (debt) and owners (equity).</p>
<b>welding</b>	<p>Schweißen, das <span style="float: right;">(eng.)</span></p> <p>To ensure a lasting connection, the steel pipes were welded together.</p>
<b>well</b>	<p>Brunnen, der <span style="float: right;">(eng.)</span></p> <p>The landlord had the nitrate content in the water from his well measured.</p>

## Chemical Engineering Vocabulary

<b>wet steam</b>	Nassdampf, der Wet steam reduces the thermal efficiency of a steam engine.	( <i>chem.</i> )
<b>wet, to</b>	benetzen A hydrophobic surface is non-wettable for water.	( <i>chem.</i> )
<b>white collar worker</b>	Angestellter, der; Büroangestellter, der The fraction of white collar workers in his company is 35%.	( <i>econ.</i> )
<b>wholesale customer</b>	Großhandelskunde, der Wholesale customers typically benefit from different payment terms than retail customers.	( <i>econ.</i> )
<b>winch</b>	Winde, die Winches are used on cranes.	( <i>eng.</i> )
<b>window of opportunity</b>	Chance, die; Marktchance, die A window of opportunity for a certain product only exists for a limited period of time.	( <i>econ.</i> )
<b>wine cellars</b>	Kellerei, die CO <sub>2</sub> accumulation is a risk in wine cellars.	( <i>general</i> )
<b>wing</b>	Flügel, der Wings provide lift to an aircraft.	( <i>eng.</i> )
<b>wire gauze</b>	Drahtnetz, das The wire gauze was placed over the Bunsen burner.	( <i>eng.</i> )
<b>wire mesh</b>	Drahtgeflecht, das A fine metal and nylon wire mesh can be used as a water filter.	( <i>eng.</i> )
<b>wiring diagram, wiring scheme</b>	Schaltplan, der The wiring diagram was printed on A3.	( <i>eng.</i> )
<b>withstand, to</b>	standhalten Polypropylene (PP) can withstand higher temperatures than polyethylene (PE).	( <i>eng.</i> )

## Chemical Engineering Vocabulary

<b>wood drill</b>	Holzbohrer, der A wood drill is not suitable for concrete.	(eng.)
<b>work in the field, to</b>	im Außendienst tätig sein People working in the field need to have a driving licence.	(econ.)
<b>workers' representative</b>	Betriebsrat, der Last year, the company elected a workers' representative.	(econ.)
<b>workforce</b>	Belegschaft, die Our workforce is 50 men strong.	(econ.)
<b>working experience, work experience</b>	Arbeitserfahrung, die He has gained most of his working experience abroad.	(general)
<b>write off, to</b>	abschreiben After the fire, the total inventory had to be written off.	(econ.)
<b>year to date</b>	seit Jahresbeginn <i>Acronym (engl.): YTD</i> After the fire, the total inventory had to be written off.	(econ.)
<b>yield stress</b>	Streckgrenze, die After surpassing the yield stress, a given material will begin to deform plastically. Some of this deformation is permanent.	(eng.)
<b>YTD</b>	<i>Acronym/Abbreviation referral: see year to date</i>	(econ.)
<b>zinc</b>	Zink, das <i>Acronym (engl.): Zn</i> <i>Acronym (dt.): Zn</i> Zinc oxide is a commonly used white pigment.	(chem.)