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Ten Myths of Dust Zoning



Why is dust zoning important?



Imperial Sugar

- 14 fatalities
- 42 people injured



West Pharma

- 6 fatalities



“Over zoning is OK”



#1 – Over Zoning is OK



- ✓ Acceptance of poor dust control
- ✓ Increased severity of explosion consequences
- ✓ Challenges in controlling all ignition sources
- ✓ Inspection and maintenance issues (and costs)

Focus on minimising dust release through good engineering controls and housekeeping practices

Is This Acceptable?

“I can see some dust
therefore I must zone”

A red, rectangular stamp with a distressed, ink-like texture. The word "MYTH" is written in bold, red, uppercase letters across the center of the stamp. The stamp is tilted slightly and is positioned over a green arrow pointing to the right.

#2 – I can see some dust therefore I must zone



“I cannot see any dust
so do not need to zone”

A red, distressed stamp with a white border, containing the word "MYTH" in bold, red, uppercase letters. The stamp is tilted slightly and is positioned over a green arrow pointing to the right. The background features a network of green dots and lines.

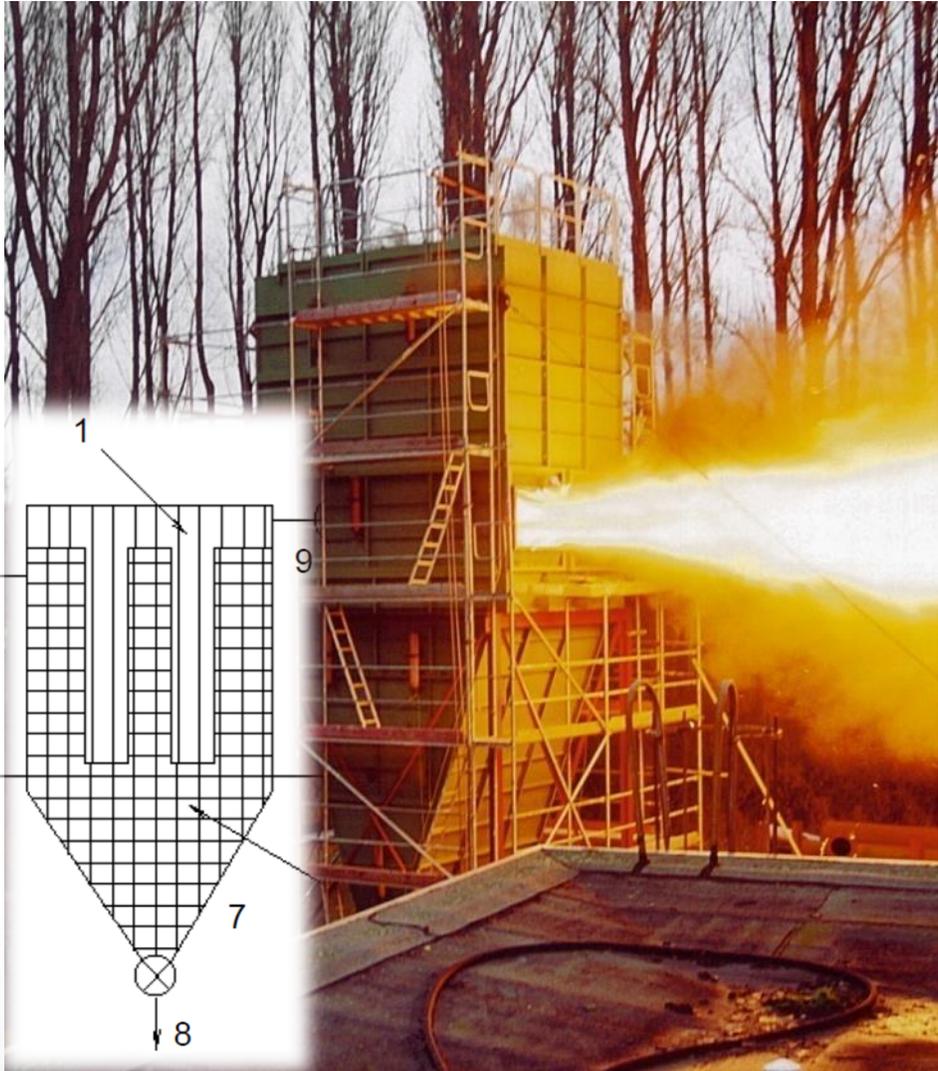
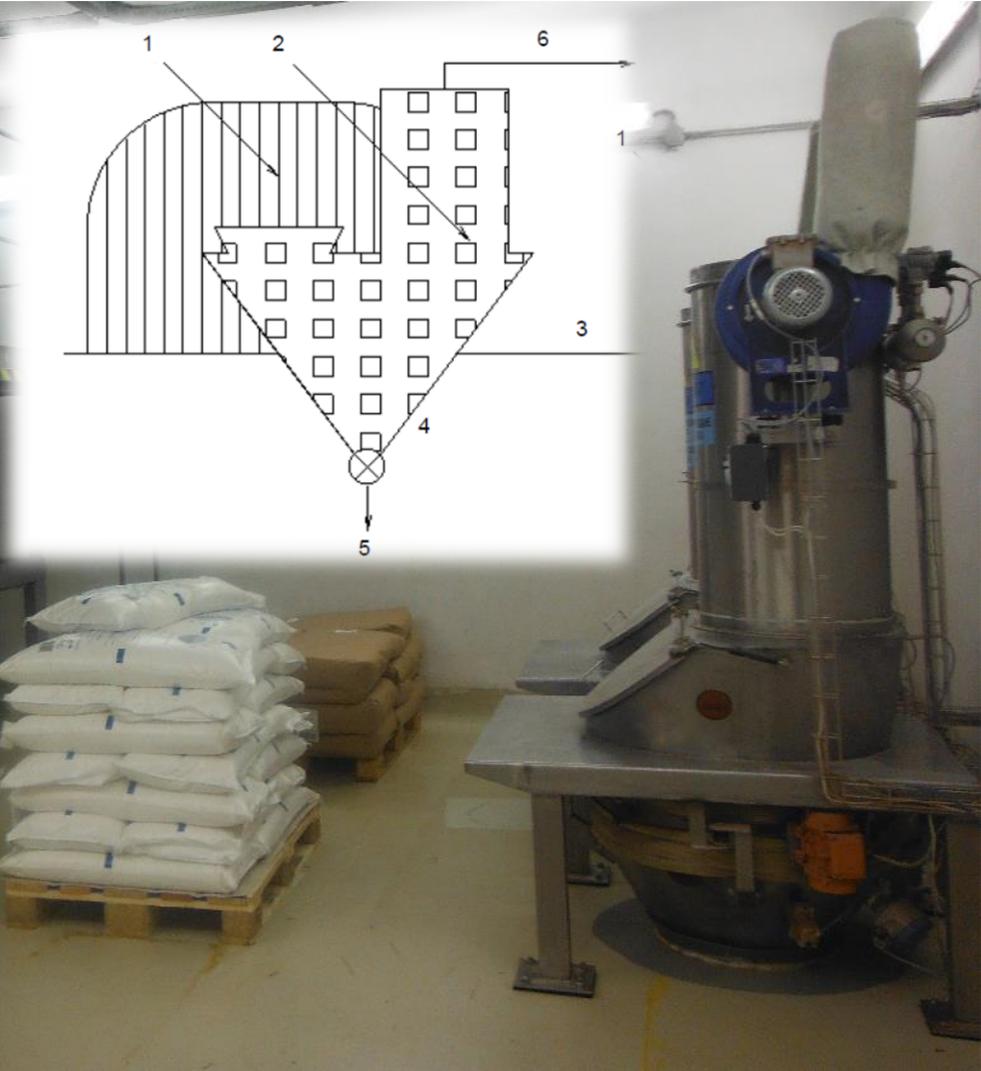
#3 – I cannot see any dust, so no zone



“I don't have to Zone inside equipment”



#4 - I don't have to Zone inside equipment



“Dust handling equipment should all be Zone 20 inside”



#5 - Dust handling equipment should all be Zone 20 inside



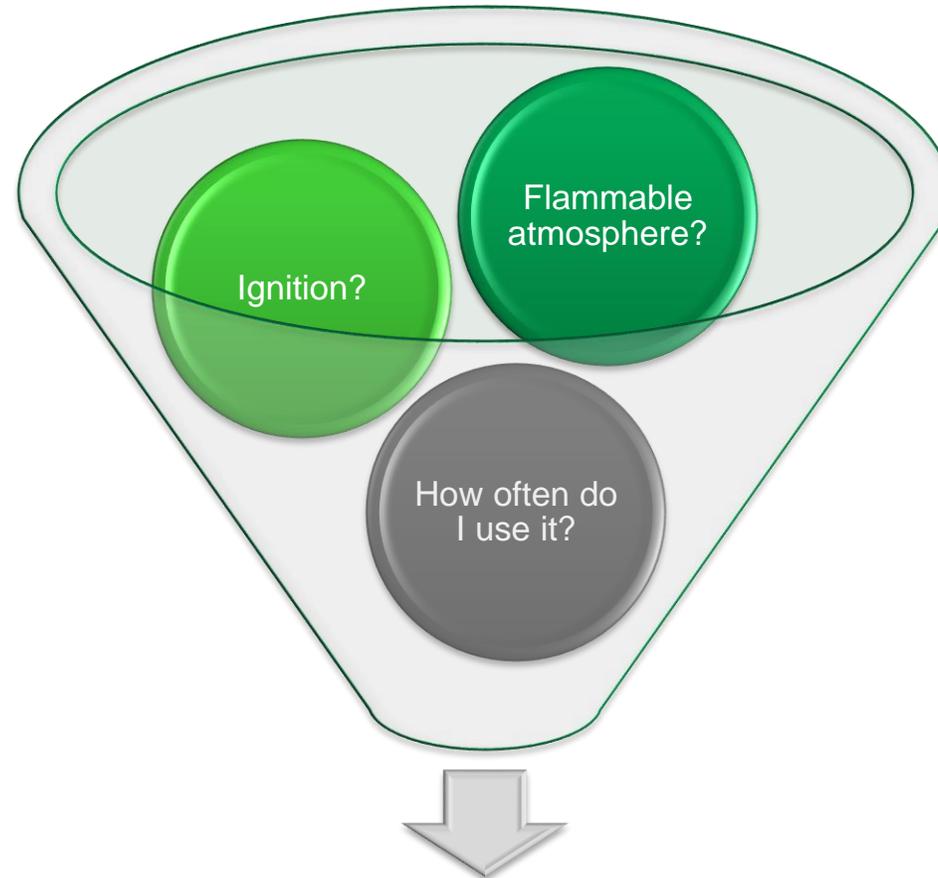
- Slow speed screw conveyors
- Drag link conveyors
- Mixers operating more than 70% full
- Mixers used for making water-wet products e.g. bakery mixers

“I only use the equipment for 5 hours a year so it’s Zone 22 inside”

A red, distressed stamp with a white border and a drop shadow, containing the word "MYTH" in bold, red, uppercase letters. The stamp is tilted slightly to the right and is positioned over a green arrow pointing from the text above towards the bottom right of the slide.

MYTH

#6 - Grades / Duration of Release vs. Zones



GOAL:

Avoid simultaneous presence of flammable atmosphere and ignition

“I can apply the same
Zoning as our sister plant”

A red, distressed stamp with a white border, containing the word "MYTH" in bold, red, uppercase letters. The stamp is tilted slightly and is positioned over a green arrow pointing to the right. The background features a network of green dots and lines.

#7 - 'Copycat' Zoning



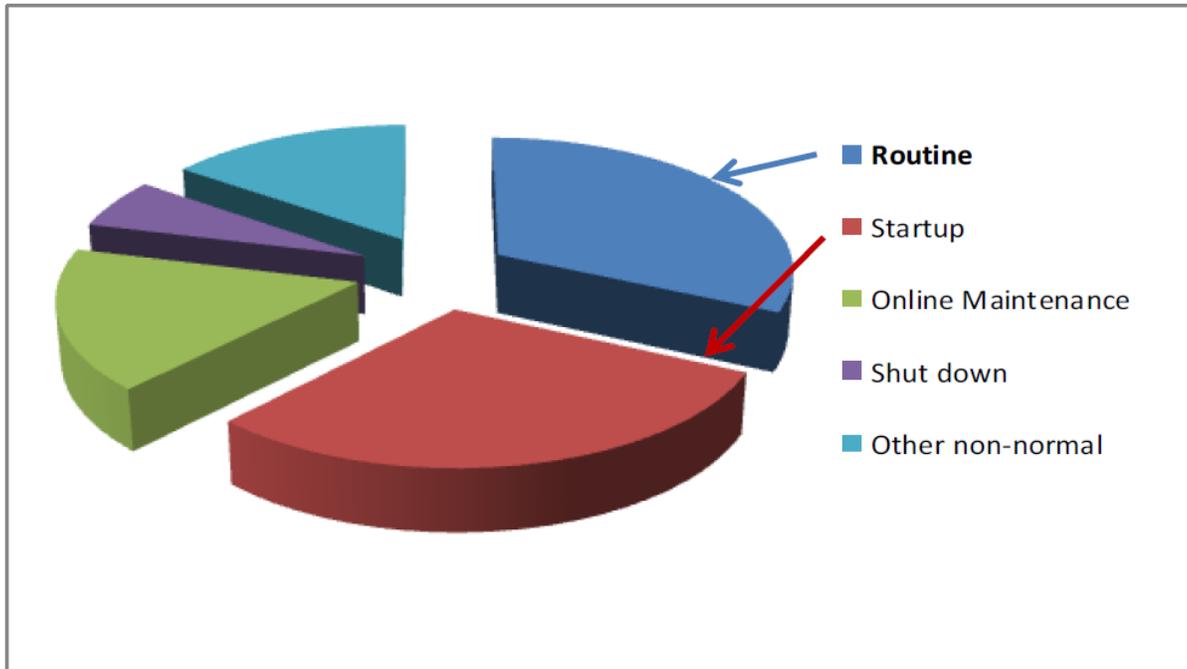
- ? Staff skill level, training and field experience
- ? Quality of fabricating materials
- ? Raw material properties and suppliers, as well as differences in product specification such as particle size
- ? Operating procedures, maintenance practices and housekeeping levels?
- ? Different local/national requirements and standards

“Zoning only needs to cover routine operations”



MYTH

#8 - Zoning only needs to cover routine operations



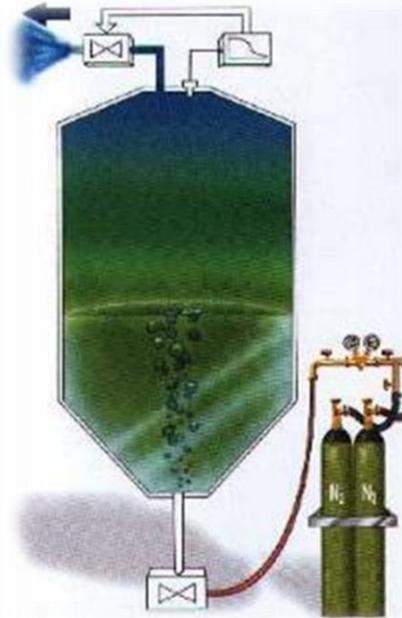
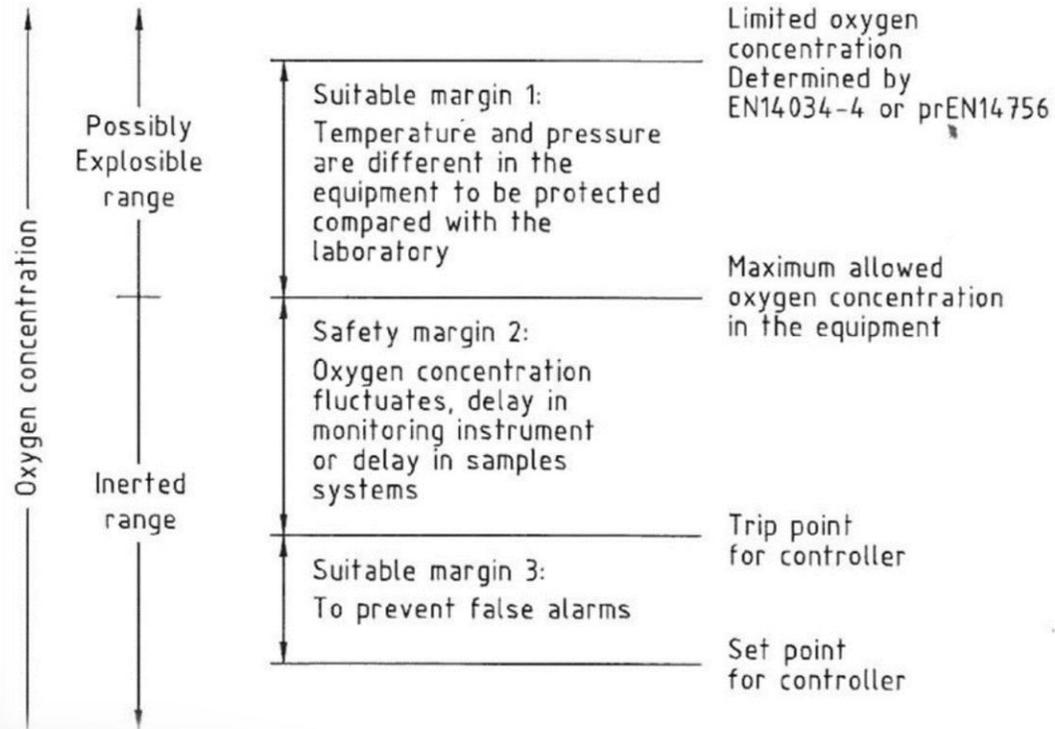
- ✓ Normal operation, start up and shut down
- ✓ Sampling
- ✓ Cleaning
- ✓ Maintenance
- ✓ Emergency repairs

Bridges, W. "Necessity of Performing Hazard Evaluation (PHA) of Non-Normal Modes of Operation (2016)"

“My plant is inerted so it is non-hazardous inside”

A red, rectangular stamp with a distressed, ink-like texture. The word "MYTH" is written in bold, white, uppercase letters across the center of the stamp. The stamp is tilted slightly and is positioned over a green arrow pointing to the right.

#9 – Inerting VS Zoning



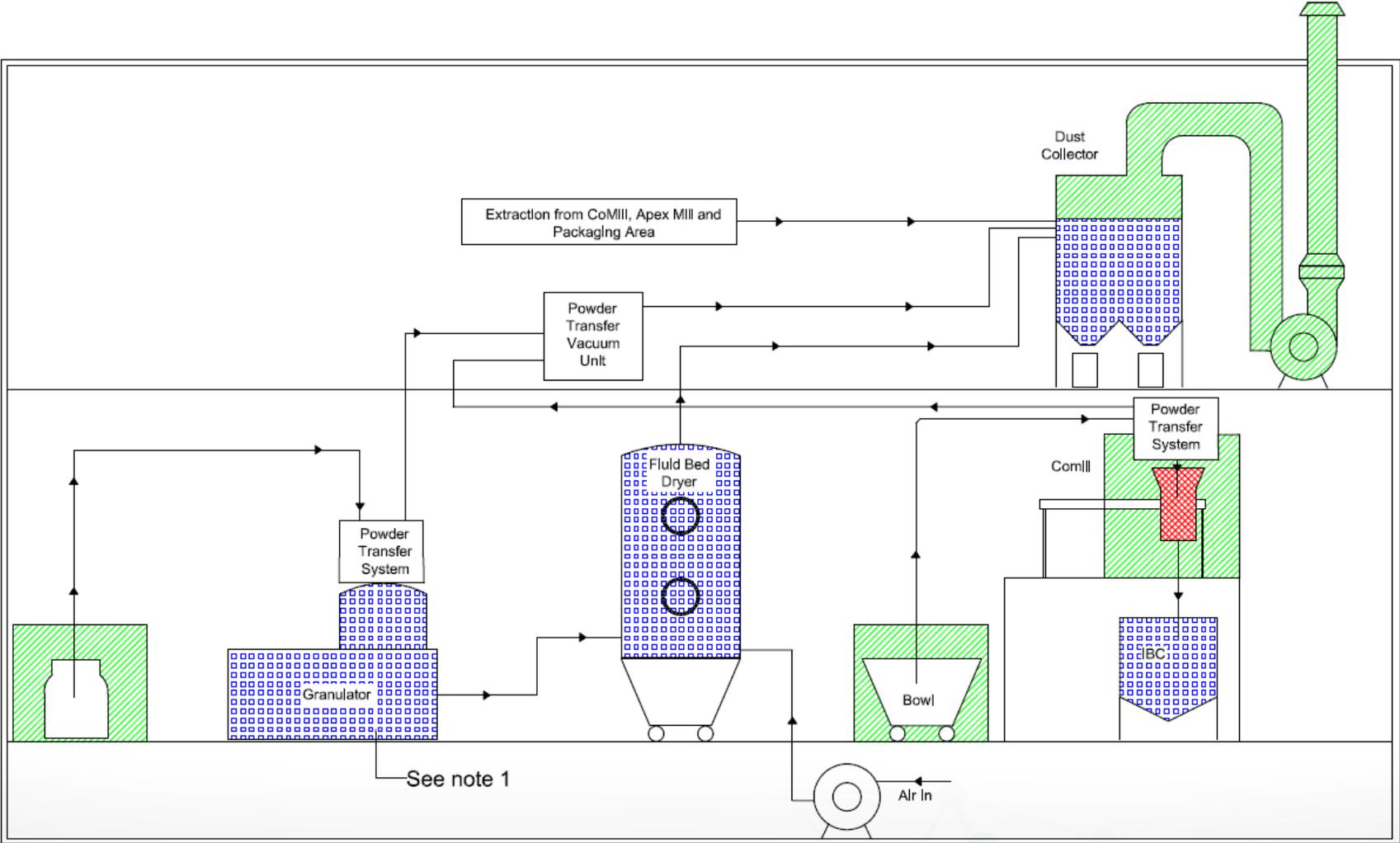
- Integrity Assessment ?
- Reliability of inerting system ?
- Equipment is often opened during operation for sampling and inspection.
- Powder handling equipment is rarely gas tight.

“Zoning layouts are enough”



MYTH

#10 - Zoning layouts are enough



Thank you for attending



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