

An Introduction to EPSC



EPSC

THE PROCESS SAFETY NETWORK

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Operations Director EPSC

After Bhopal
“Protecting Society
Together”

Legitimate
Network

EPSC



Industrial Best
Practices

Topics

Pharma:
Dust &
Statics

CHEF /
RAST

SQRA

Unwanted
polymerization

Leadership

Human
Factor

Barrier
Health

Fluor Free
Foams

Energy
Transition

HAZOP
Efficiency

CHA

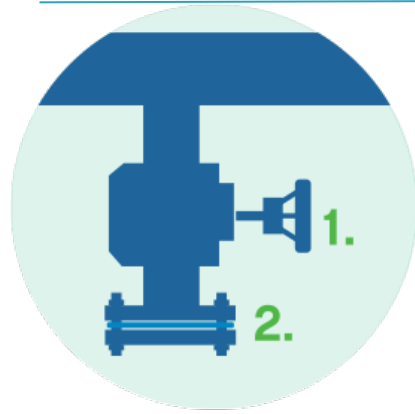
Early Gas
Detection

PS
Fundamentals

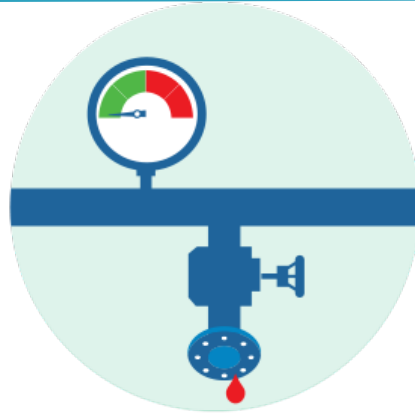
EPSC



EPSC PSF Pictograms



Double Isolation



First Line Break



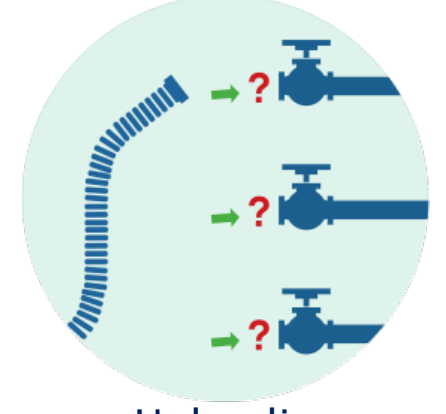
Flexible Hoses



Furnace Burners



Leak Tightness



Unloading



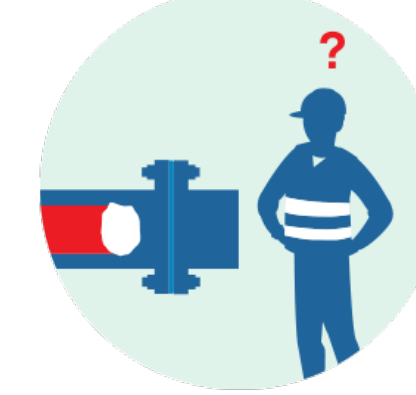
Open Drain



Operating Limits



Overrides



Plugged Equipment



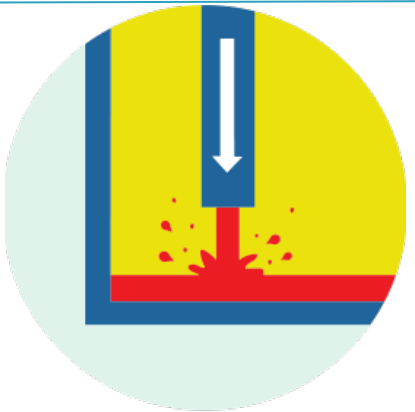
Critical Equipment



Reporting



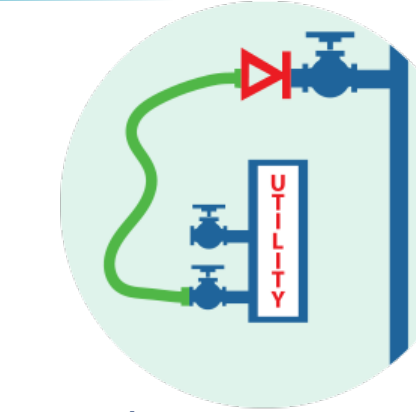
Run Away Reaction



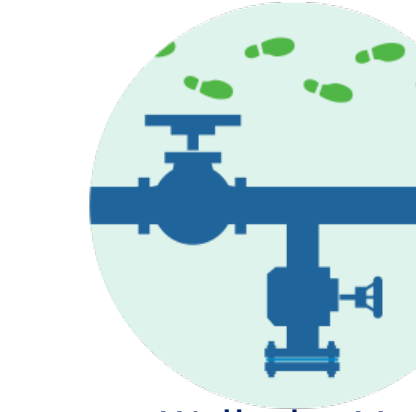
Splash Loading



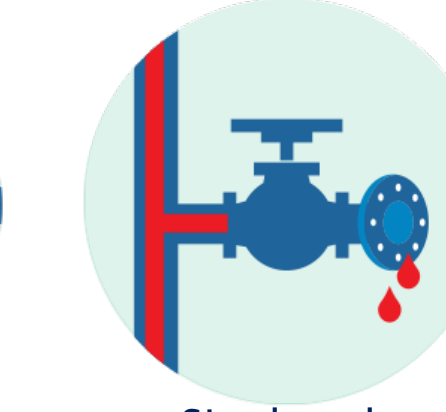
Line of Fire



Utility Connections



Walk the Line



Single valve

The Network

- ▶ Two day Technical meeting in spring and autumn
- ▶ Valuable information
- ▶ Working Groups
- ▶ Webinars
- ▶ Training material & Courses

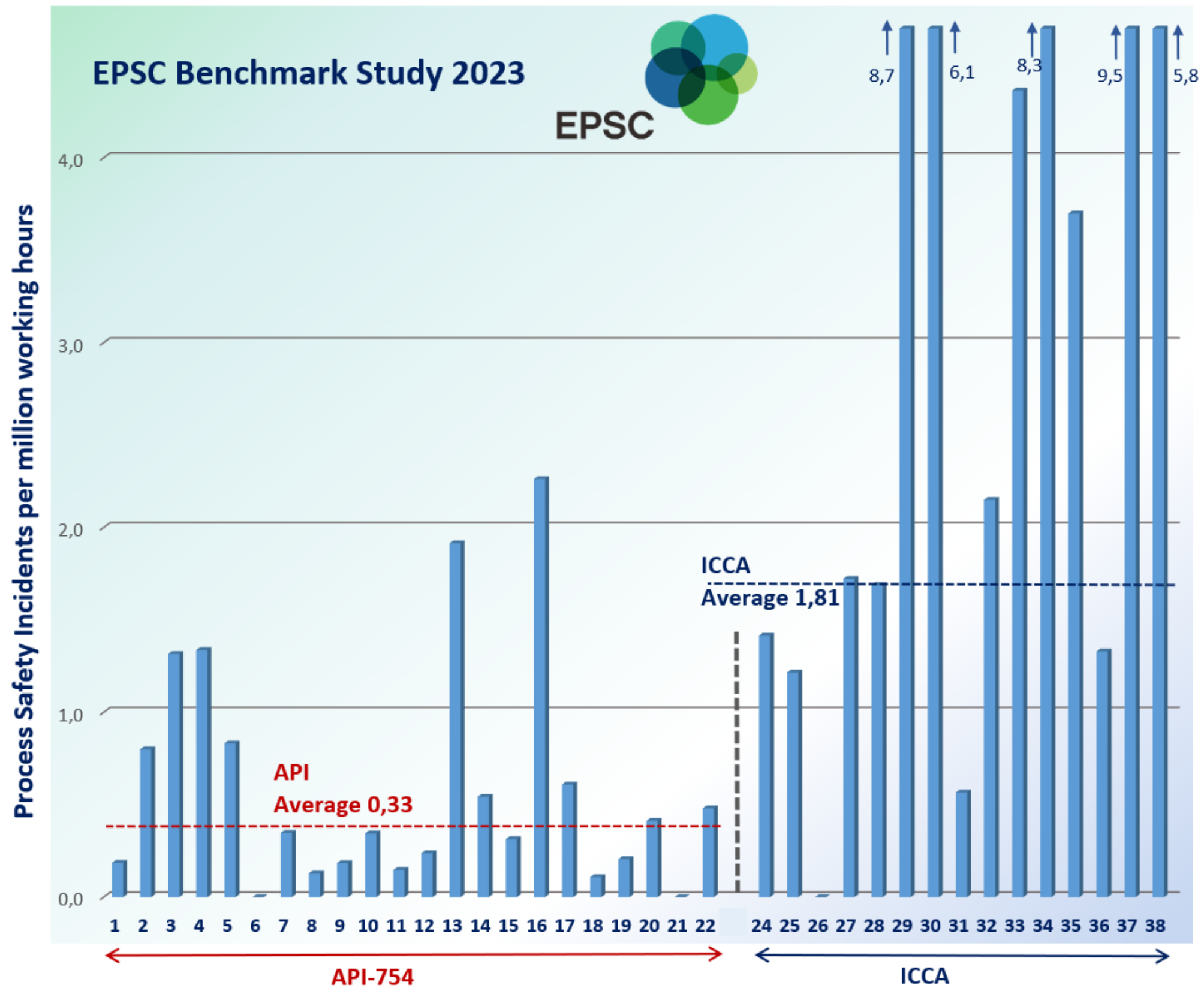
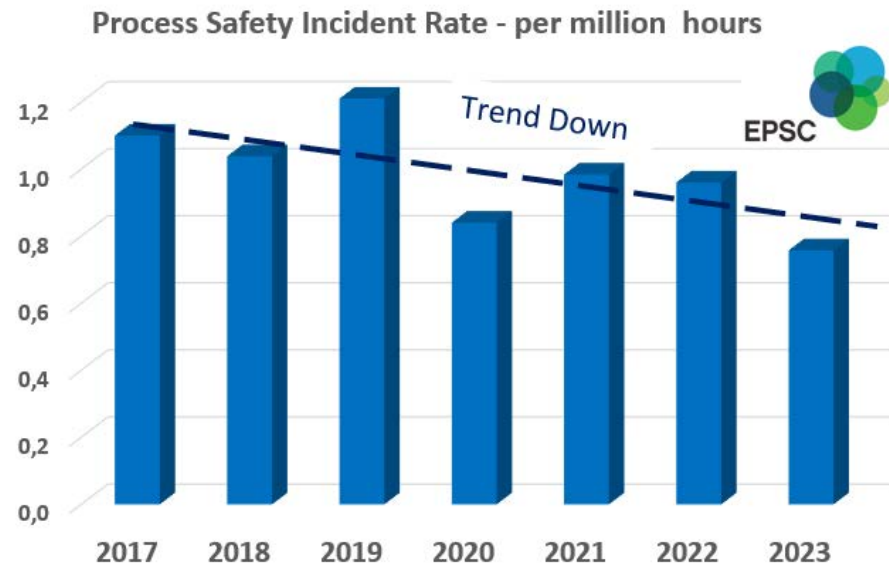
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Organisation

- ▶ Board: DSM, Covestro, TotalEnergies, LyondellBasell, Evonik, Bayer, Cargill, ExxonMobil, ENI, Syngenta
- ▶ Operation Manager & Secretary at Dechema
- ▶ Full members
- ▶ Associate members

2022 EPSC Benchmark



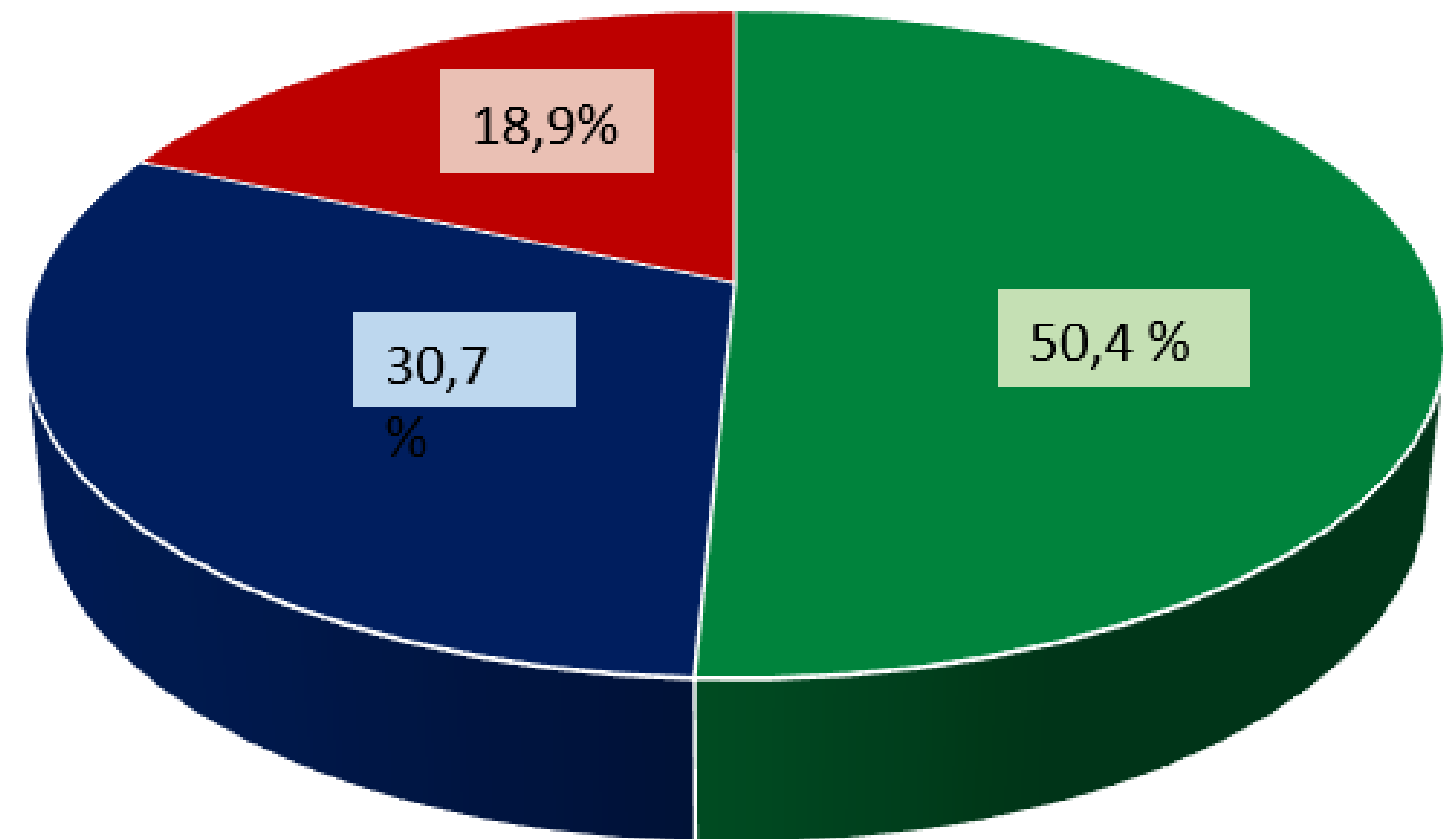
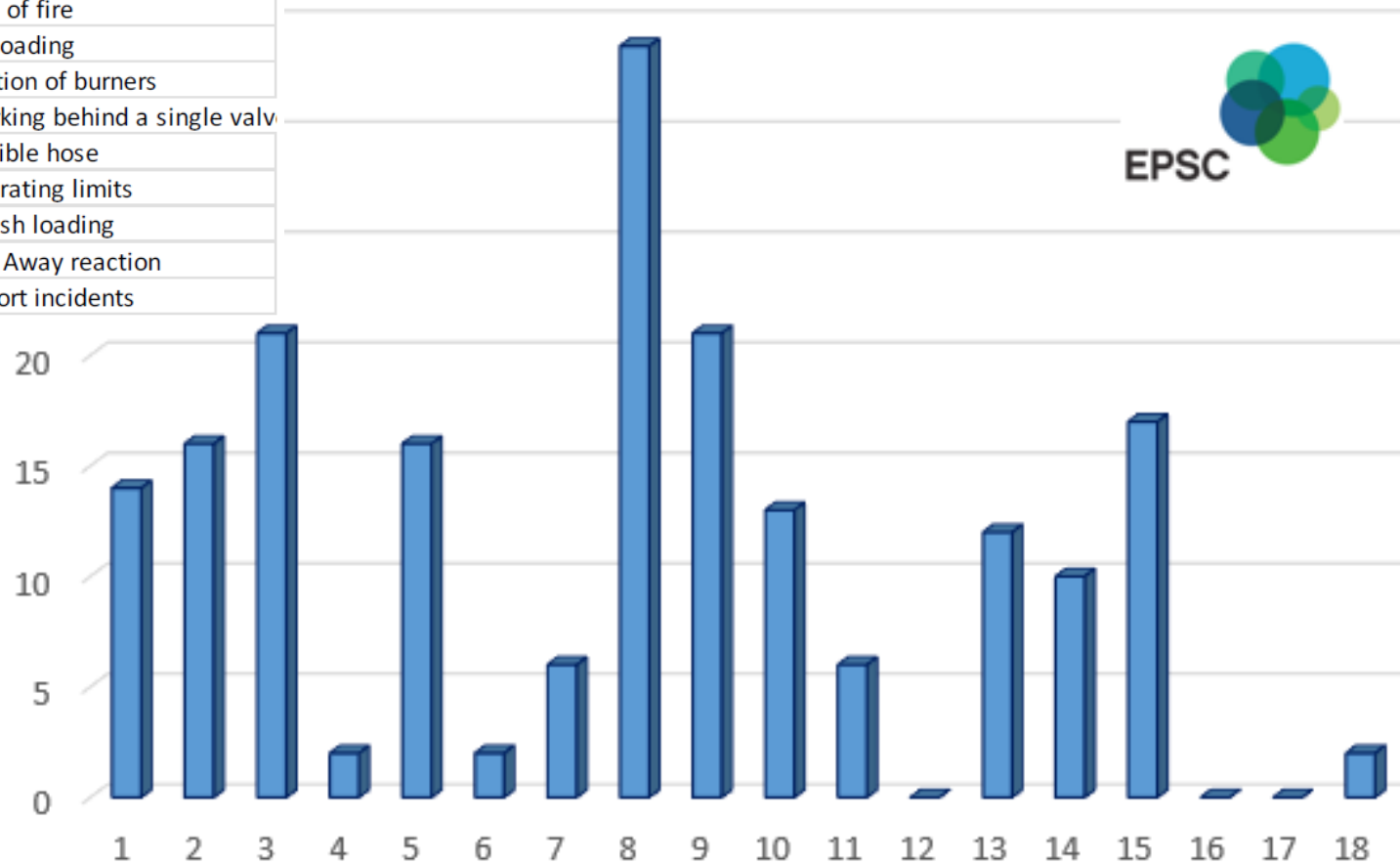
Split Main Causes



PSE main cause 2022 (1602 cases)

1. Double isolation
2. First Line Break
3. Open Drain
4. Utility
5. Critical Equipment
6. Unplugging
7. Overrides
8. Transfer (walk the line)
9. Leak tightness
10. Line of fire
11. Un-loading
12. Ignition of burners
13. Working behind a single valve
14. Flexible hose
15. Operating limits
16. Splash loading
17. Run Away reaction
18. Report incidents

Process Safety Fundamental as incident cause



■ Operation ■ Integrity ■ Design



Sharing practical learnings
Dec 16&17 Aachen

www.SafetyCongress.eu



Big Data & Digitalization benefits for Process Safety

10th Conference: Nov 11 & 12 2025 in Frankfurt



Learning Sheets



www.EPSC.be

- Subscribe
- Many Languages
- Discussion creates awareness

Imploded Storage Tank

EPSC Learning Sheet, June 2019



What Happened:

After cleaning with steam a tank was quenched with cold water to shorten the cooling time (not normal practice). The tank vent was not calculated for the vacuum resulting from this rapid quenching operation, resulting in a collapsed tank (without liquid release).



Imploded storage tank

A larger vent size was installed after the incident



Aspects:

- Atmospheric storage tanks are not designed to withstand external pressure on the tank wall. A pressure as low as 20 mbar below atmospheric pressure can cause tank damage
- The force on the wall can be high even at low pressure as the tank wall surface area is very large: $\text{Force} = \text{Area} \times \Delta P$
- Consider all scenarios resulting in pressures below atmospheric and make sure vent sizes are adequately designed for these, including abnormal operations
- Make sure vents and safety devices remain operable: fouling bird nests, plastic bags, have all caused tank implosions

Atmospheric tanks are usually not designed for under pressures and can be damaged easily

Learning Sheets



Process Safety
Fundamentals

Fire in a Pipeline Trench

EPSC Learning Sheet February 2021



What Happened:

To start-up a new isomerisation unit at a refinery, an existing pipeline was cleaned and drained. When Naphtha was pumped through that line, the drain plate was still open and over 1000 m³ spilled into a pipe trench. This started a fire with serious damages.



Relevant Process Safety Fundamentals



Walk the Line



Validate Leak
Tightness



Aspects:

- Good checklists “isolation plans” should indicate all flanges and valves to be involved in a special operation.
- After opening an installation, a leak proof test is required before putting hazardous chemicals in that system.
- Before starting a transfer-pump apply “walk the line” principles, to validate the line-up. Also check that changes in level and transfer-flow do match well.
- Pipeline trench design can reduce consequences of a spill: compartment of the trench, gas detection, fire resistance of critical pipelines and good access to fire hydrants.

Validate the line-up at a transfer

EPSC Members



Nouryon

EASTMAN



syngenta



HUNTSMAN



moeve



MERCK



Hovione

NESTE



ExxonMobil



aramco



galp



Johnson & Johnson

SITECH

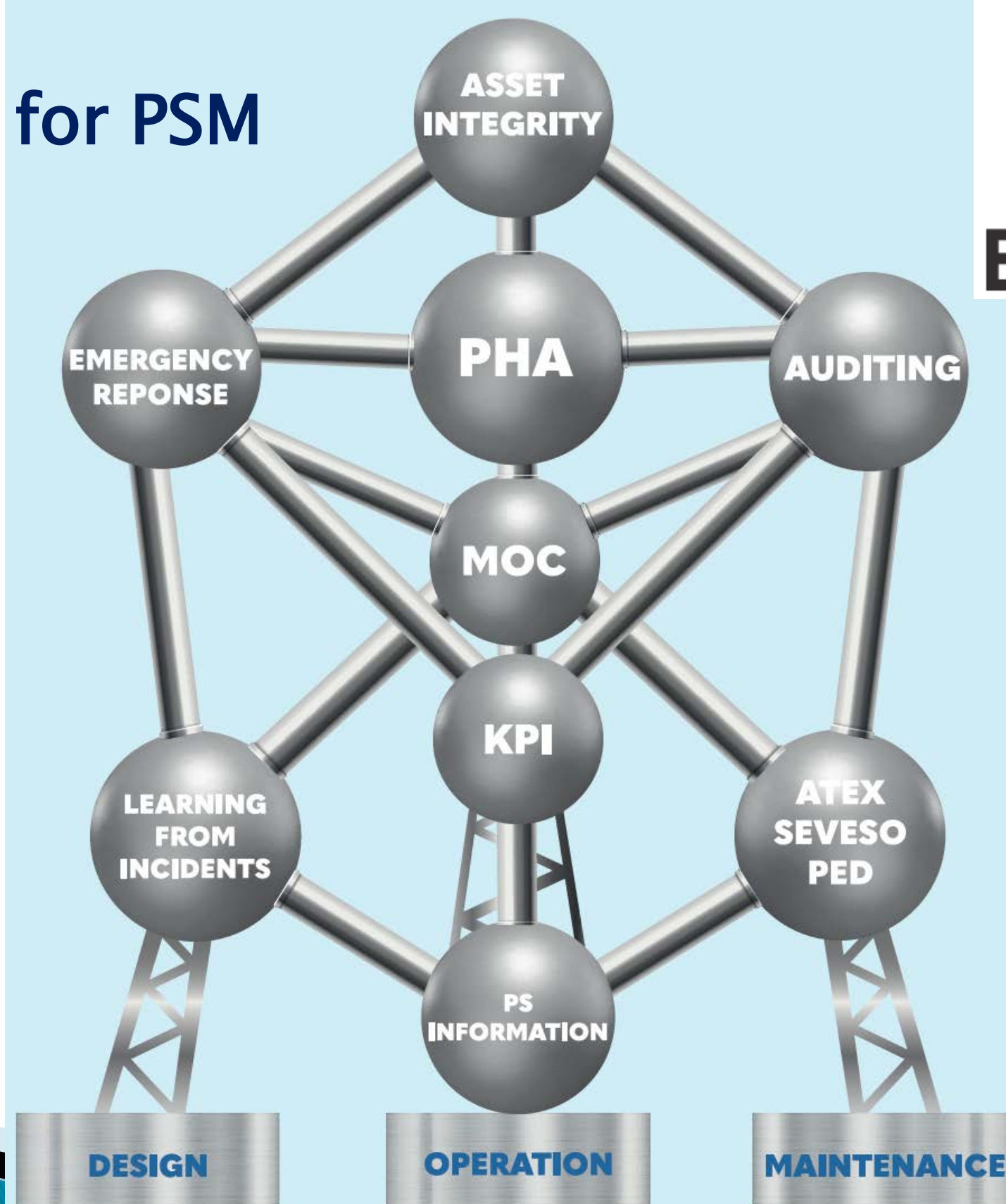
OCCI



our shared responsibility to protect society



European Practice for PSM



EPSC



EPSC video's

 EPSC Presentaties 16-05-2024 > EPSC Presentaties 16-05-2024 > IPSW
Shared by Summit Media



Flange 4 step Label

25:29

IPSW Hans Schwartz.mp4
○ No Status



Learning Sheets

28:31

IPSW Tijs Koerts 1.mp4
○ No Status



Characteristics

18:48

IPSW Dirk Roosendans.mp4
○ No Status



Risk Criteria defined in a Matrix

50:07

IPSW Tijs Koerts 2.mp4
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