

Risk Assessment on Hydrogen Use

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Round table:

Daily use of hydrogen: safety, codes and regulations

MANAGING RISK



Risk Assessment on Hydrogen Use

- **Why Risk Assessment?**
- Systematic approach to identification and assessment of potential hazards / risk factors.
 - => Thereby measures to control / minimise risk can be focused on the most important risk factors
 - => Cost savings & lower risk for accidents and damage.
- **Why?**
 - Hydrogen is not necessarily “**dangerous**”, - it is “**different**”.
 - If not dealt with in a systematic, safety conscious manner hydrogen will be “dangerous”!

Hydrogen Safety Challenges

- **Hydrogen gas releases - a potential serious hazard when linked to e.g.**
 - High pressures (large release rates)
 - Confined areas, - explosion risk
- **The development towards a “Hydrogen Society” implies:**
 - Large scale and volume hydrogen applications in the public domain
 - Hydrogen applications must be robust for usage of “untrained” personnel
 - “Old” substance – “new” setting

Hydrogen Risk Management - How

- **Hydrogen risk management approaches need further development and harmonisation!**
- **Systematic life cycle approach!**
 - **Planning, construction, operation...**
 - **Maintenance and inspection programmes!**
- **Risk Management Measures – examples:**
 - **Efficient leak / fire detection, isolation and shutdown systems**
 - **Efficient natural ventilation**
 - **Safety valves & ventilation to safe locations**
 - **Grounding**
 - **Safety distances – Fire walls/protection**
 - **Etc.**

How to assure safe daily use of H₂?

- 1. Utilise risk assessment for "new" H₂ applications / settings**
- 2. Apply risk based / performance based methods in H₂ standardisation**

Why?

- Standardisation takes time – changing standards takes time
- By applying risk based / performance based methods, barriers against development of new, innovative hydrogen applications / solutions can be avoided!

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Summary & Recommendations:

- Continuing development and harmonisation of hydrogen risk management approaches required!
- Use risk assessment actively in all Hydrogen related rule development!
- Implement risk assessment as a standard option in rules to promote innovation and new solutions without un-necessary time delays!