Future Fire Suppression Challenges;
Battery Electric Vehicles and Environmentally Friendly Fire Suppressants

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Topics

- Why Fire Suppression?
- BEV:s making an entrance
- Today’s solutions
- New requirements for new products

Why Fire Suppression?

- Example: Mont Blanc tunnel fire (1999)

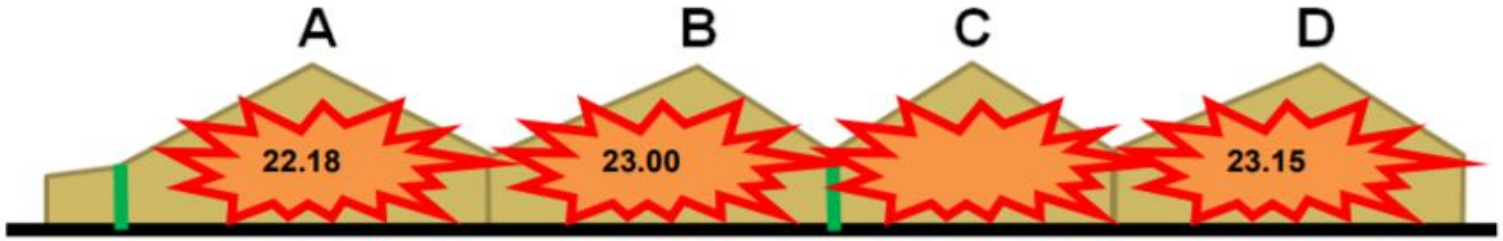
  - 39 Casualties
  - 36 Vehicles destroyed
  - Fire burned 53 hours
  - Temperatures reached 1000 C
  - Tunnel was closed for 3 years
  - Brand Loss for Volvo
  - Enormous Economic Consequences
  - Judicial aftermath 6 years

Temperatures reached 1,800 degrees Fahrenheit, and it took a week before the tunnel cooled enough for forensic investigators to reach the bodies. Associated Press

Why Fire Suppression?

- Example: Port of Halmstad fire (2012)

- FD estimates that fire starts around 21:40 in the evening Friday 2012-09-21
- At 23:15 FD decides to stand down and commence defensive operation due to the explosive nature of the fire
- FD had the fire put out on Monday morning 2021-09-24
- The winds were favorable and toxic gases blew out to sea – next time we might not be so lucky said one of the firemen



Why Fire Suppression?

- Example: Port of Halmstad fire (2012)

- Root cause of fire is unknown but suggestions are:
- Shredder (for plastic)
- Arson
- Cigarette in waste bin
- Conveyor belt
- Overhead lights
- Electrical malfunction
- BUT Prime suspect is seen below

BEV:s Making an Entrance

- Contrary to recent reports: BEV:s are NOT dead
- The Case For Electrified Container Handling
  It is estimated that the global fleet of 100,000-120,000 Container Handling Equipment (CHE) in ports is responsible for 10-15 million tonnes of carbon dioxide per annum (scope 1 and scope 2 emissions).
- To put that into perspective, emissions in 2020 were equivalent to the annual emissions of Slovenia.
- The industry/ies is still finding their way
- Manufacturers of ICE:s are finding themselves in a new competitive landscape
- The business models are changing pay per use/up-time solutions
- TCO more or less? Jury is still out
- BUT generally speaking it costs to go green

- **Additionally FSS is shifting over from PFAS to PFAS free**

Today’s solutions

The most common FSS in mobile equipment

- High pressure water based mist (contains PFAS)
- Low pressure water based foam (contains PFAS)
- DCP (lacks cooling effect)

New Products

- EV:s are becoming more commonplace
- A fire in Li-Io batteries is more or less impossible to extinguish/suppress
- Many fires DO NOT start in or reach the batteries (50-60%)
- WHEN the fire is in the battery all you can do is to buy time
- Time is bought with cooling and cooling achieved by long activation times and liquids
- Other technologies: sniffers, optical smoke recognition, IR detection
- BMS
- The industry needs collaboration with battery manufacturers – the only one who can influence this is the customer
- Currently the industry is searching for solutions on a broad front
- Going green means shifting liquids in FSS from PFAS to PFAS free

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