

Incident Learning: What happened?

- A 9 kg ABC dry powder (dry chemical) fire extinguisher head ruptured, and this failure resulted in a part of the head cap coming apart with sufficient force to cause the cabinet door to fall off and other damage.
- There were no injuries, only damage to property but the incident had a potential to cause fatality to people in the vicinity.
- Post incident, visual inspection across site discovered signs of potential head failure in 4 of 327 such fire extinguishers. This is the most common extinguisher type globally and comes in a variety of configurations.



What are the learnings for implementation?

- All maintainers, potential users (everyone) and those tasked with simple routine inspection of fire extinguishers need awareness of how extinguishers can fail.
- Though rare, this and other incidents across our industry have highlighted that failure at the head and its forceful projection upwards is the most likely catastrophic failure. It's therefore important to emphasize in initial and continuation training not to put oneself (or others) in the line-of-fire when handling, operating or maintaining extinguishers.
- In this specific case, the rupture on the fire extinguisher head occurred due to:
 - Casting quality of the cap, which had number of casting defects e.g.: porosity, blow holes and shrinkage found on the fracture surface.
 - The existing cap design (of all dry powder (dry chemical) fire extinguishers on site) has a curved edge at the top while the new model has uniform flat surface and a 'square' edge. The revised design is thought to reduce the risk of this failure mode, though this is subject to further testing.
 - Mechanical marks in tightening direction of the extinguisher's metal cap suggest possible over tightening of the cap (by impact) during servicing.

This incident has highlighted the continued importance of visual inspection and maintenance (including tool selection) of extinguishers, including checking for these potential causal or contributory factors.