FIRE-FIGHTING POWDERS

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FOAM UNDER FIRE.

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The Reebok Stadium, Greater Manchester.

Fire-Fighting Powders.

- WHAT ARE THEY?
- Powdered Chemicals with added substances to make them flow and also stop them from getting damp & lumpy.
- They will generally extinguish fires involving gases and liquids (Classes B&C), some will also extinguish solids such as wood (Class A) and some specialist powders will extinguish metal fires (Class D).
- May also be referred to as ‘Dry Chemicals’, or ‘Dry Powder’.
- HOW DO THEY WORK?
- Simply, BC and ABC powders react with substances produced during burning, breaking the chain of combustion and stopping the fire.

- ADVANTAGES OVER FOAM.
- Will ‘knock down’ fire faster than foam.
- No problem with electrical risks.
- Weight for weight, generally more efficient than foam in extinguishing.
- Can be used at very low temperatures.
- Suitable and effective for ‘3-dimensional’ fires.
- Equally efficient on either ‘hydrocarbon’ or ‘alcohol’ type fires.

- DISADVANTAGES WITH RESPECT TO FOAM.
- Possibility of fire ‘re-ignition’ after extinction.
- Cannot ‘interrupt’ application - without almost immediate re-involvement of fire.
- Cannot ‘flow’ around objects sheltering flames.
- Can obstruct vision.
- Systems tend to be larger than engineered foam systems.
- More expensive for a given fire risk.

- ADVANTAGES OVER GASES.
- More efficient -smaller amounts puts out same fire.
- No OD or GH effects on environment.
- ABC powders are very effective on Class A.
- DISADVANTAGES WITH RESPECT TO GASES.
- Messy!!!
- Can be difficult to clear up. (eg. Computers, engines etc).
- May not reach concealed, enclosed, areas.

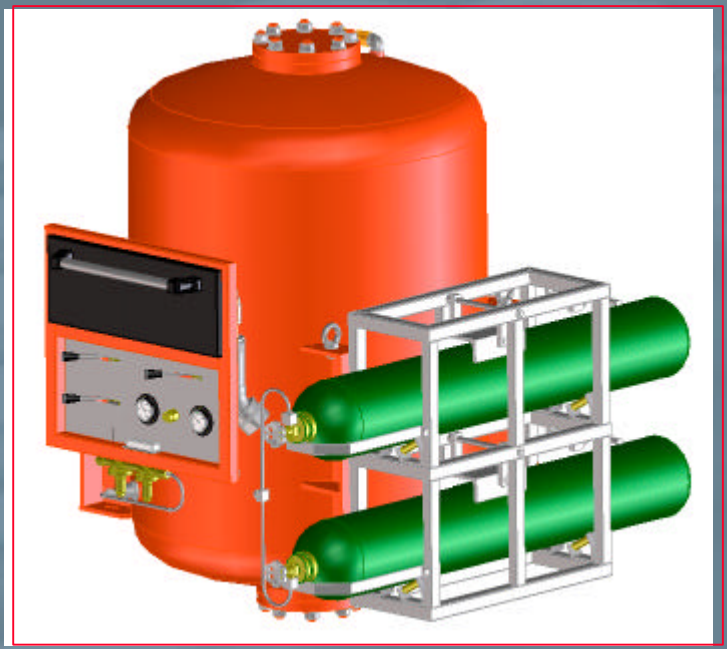
- TYPES AND CHARACTERISTICS OF POWDERS.
- BC powders - used on liquid and gas fires.
- ABC powders - used on solid, liquid and gas fires.
- D powders - used on metal fires.
- BC TYPES - TYPICALLY Sodium or Potassium Bicarbonate based, but also Potassium Sulphate or Potassium Chloride based. Ultra high performance BC can be a combination of Potassium Allophanate and Potassium Bicarbonate.
- ABC TYPES - TYPICALLY Mono Ammonium Phosphate, or a MAP/ Ammonium Sulphate mixture.
- D TYPES - TYPICALLY Halide ‘salt’ mixtures, but also carbon based.

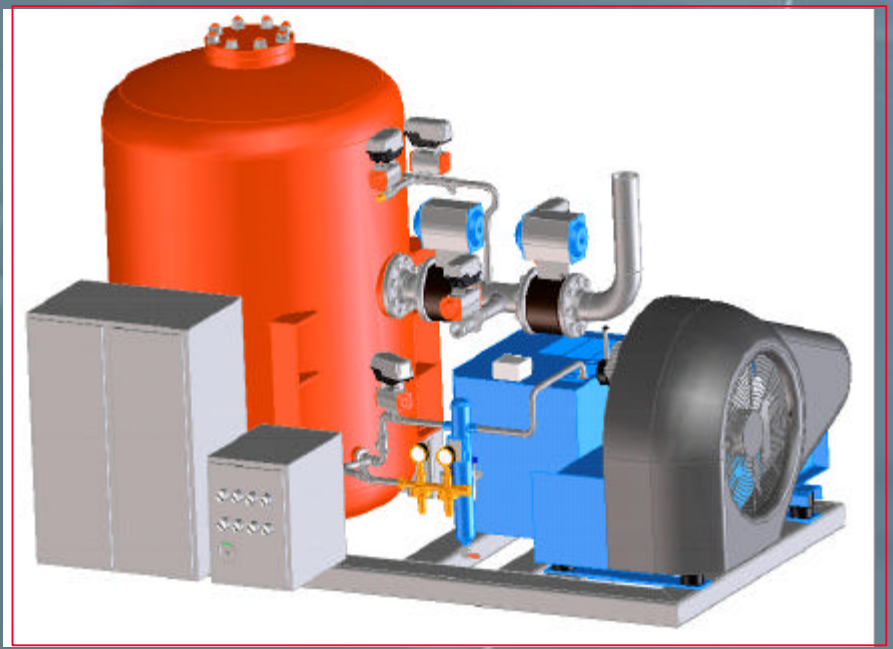
- SIGNIFICANT FACTORS AFFECTING POWDER EFFICIENCY:-
- Particle size and particle distribution.
- Additive packages to promote anti-caking and flow qualities. (Performance in low/high temperature cycling and compaction-tolerance).
- Moisture resistance.
- MAP content (ABC type powders).
- Equipment selection and performance.

- ALTHOUGH THIS PRESENTATION IS INTENDED TO HIGHLIGHT THE POTENTIAL CONSIDERATION OF POWDER, IN A BULK (OR FIRE TRUCK) SITUATION, IT IS WORTH CONSIDERING THESE EXTINGUISHER CHARACTERISTICS:-
- **6 kg** ABC powder will extinguish a **21A fire** (9kg ABC - a 27A fire).
- **6 lt** Foam has to achieve an **8A** (9kg - a 13A fire).
- 6kg ABC powder will extinguish a 113B fire.
- 6 lt Foam has to achieve a 113B fire.

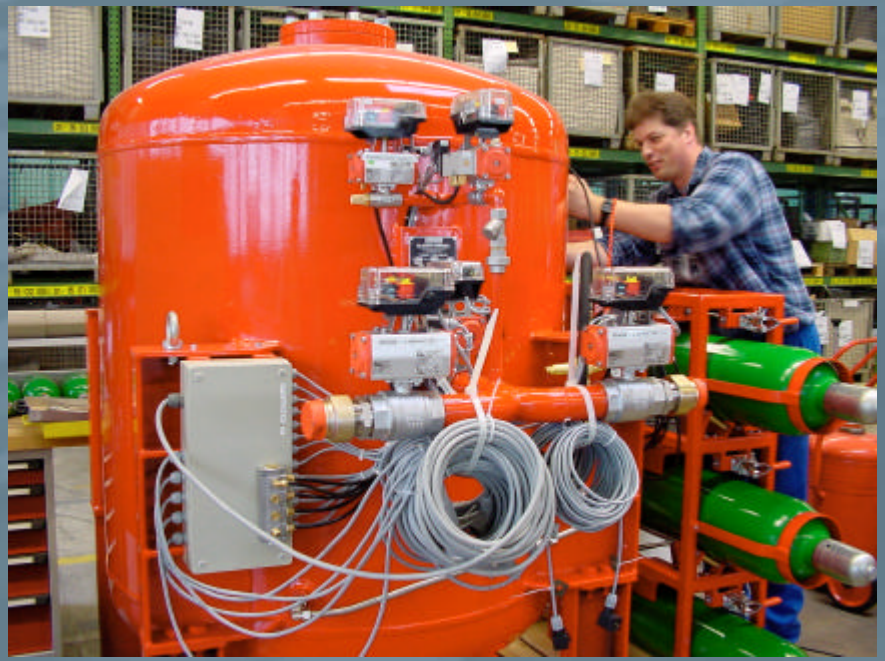
- THE IMPRESSIVE ‘KNOCK-DOWN’ AND EXTINGUISHING CAPABILITIES OF POWDER, ALLIED TO THE IMPRESSIVE POST-FIRE SECURITY OF A HIGH PERFORMANCE FOAM, GIVES CREDANCE TO THE CONCEPT OF DUAL AGENT RESPONSE.
- IT IS FAIR TO SAY THIS TOOL IS NOT GLOBALLY DEPLOYED WITHIN FIRE-FIGHTING, BUT THE TECHNOLOGY IS AVAILABLE AND IS DESERVING OF CONSIDERATION.
- EXAMPLES OF POWDER, EQUIPMENT (including DUAL AGENT), FOLLOWS IN THESE PRODUCT OFFERINGS FROM WITHIN THE KIDDE GROUP.

ONE-TANK SYSTEMS ----- PLA (low pressure)
HD PLA (high pressure)





TEST OF HIGH PRESSURE 1000kg UNIT -50kg/sec; Range 40 metres.



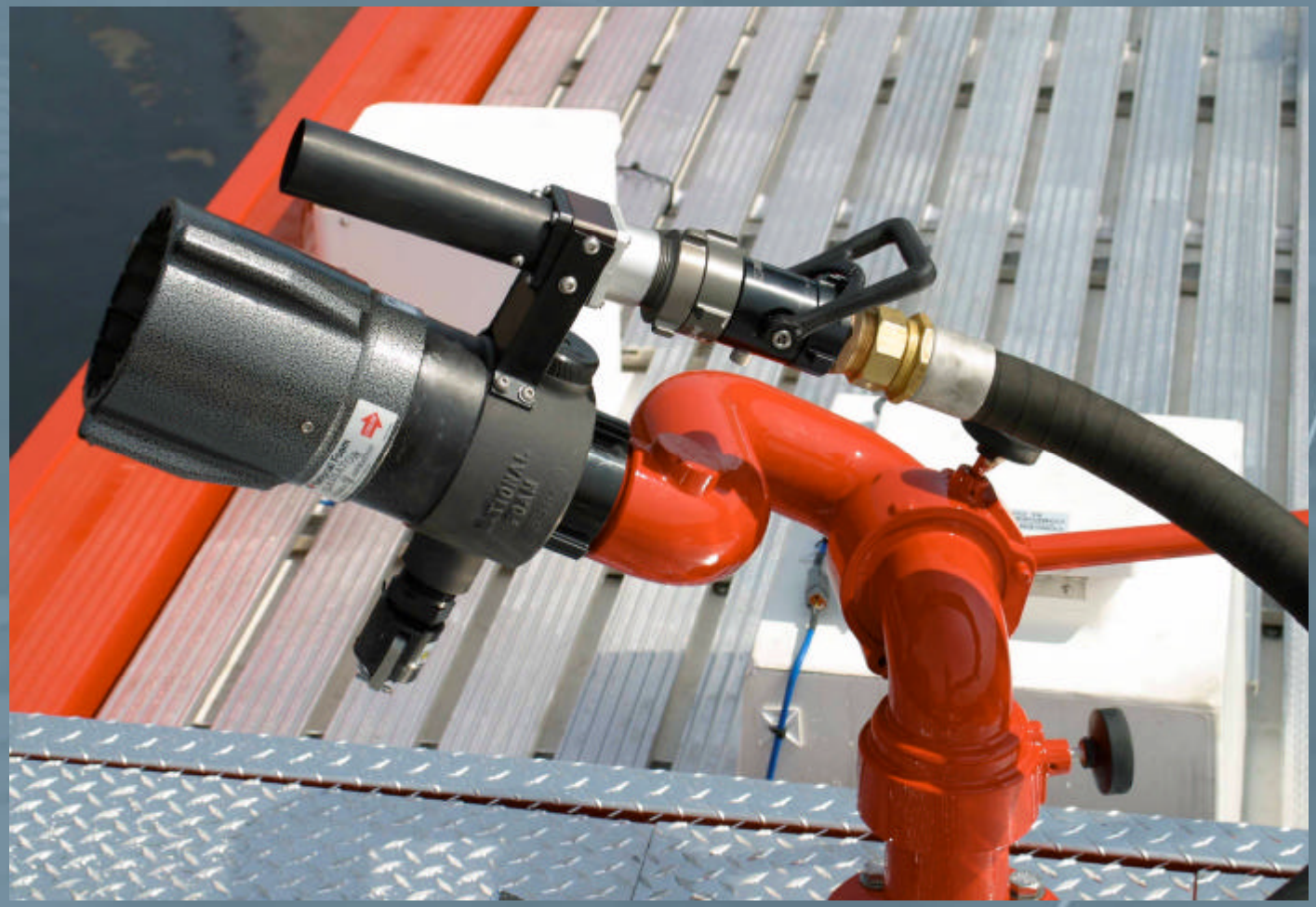
2000kg LOW PRESSURE SYSTEM with swivelling, extending, electrical reels. (Ruthmann platform).

1) TWO MID-SHIP DUAL AGENT PUMPERS - 1000 LBS DC, 1500 GALLON FOAM.
2) MID-SHIP DUAL AGENT PUMPER - 500 LBS DC, 250 GALLON FOAM AND 1000 GALLON WATER.

8000l per minute water pump, with 500kg powder system.

Kidde

Non-aspirating nozzle with dry chemical adaptor.



DUAL AGENT NOZZLES - air aspirated and non-air aspirated.

When I grow up, I want to be like……??????

Hmmmm!! -Be very afraid.