TECHNICAL

FIRE EXTINGUISHERS

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A new breed of composite fire extinguisher is poised to make an impact on facilities managers' maintenance plans, explains Harry Dewick-Eisele

Developments in fire extinguishers have tended to centre on the capability of the extinguishing agent or the suitability of a certain agent for a particular fire type. It's less common to focus on the overall life-cycle cost of the equipment and a reassessment of the maintenance regime that such equipment warrants, but that is what a recently introduced product makes necessary.

The technological trend here is the greater availability at lower cost of a composite material – aramid – the use of which was once the preserve of Formula One car manufacturers seeking the ideal combination of light weight and durability.

Kevlar is the branded form of aramid that made its debut on the racing circuits in the 1980s, and it's a material that, in a variety of forms, has since seen use as a surrounding for gas bottles and in bulletproof vests – examples that prove the material's strength.

For use in a fire extinguisher unit, aramid fibre is spun around an inner three-layered composite container. The outer, UV-protective sleeve finishes off the cylinder. The unit described here is Britannia's P50, which has been kitemarked to the EN3 standard.

The use of aramid composite in place of steel has two effects. It increases the cost of manufacture and puts a premium on the quality of the extinguishing agent inside the container. However, it makes up for the latter by significantly reducing the cost of – and requirement for – operational maintenance.

While these composite extinguishers can cost in the region of £80 up front, the use of aramid means that they do not require annual corrosion tests or five-yearly discharge testing. This means a tested lifespan of 20 years, with a single maintenance requirement after 10 years.

So, with 10 years between servicing, and, assuming a 10-year lifespan, that £80 equates to £8 per unit, per year. By comparison, while standard extinguishers can cost in the region of £20 per unit, they can incur an annual maintenance charge of around £15 – making for an overall cost of £170 over 10 years, or £17 a year.

This figure does not include the likely charge for refilling the unit, which is an otherwise standard requirement after five years.

Further food for thought is the actual designed lifespan of the aramid-bodied extinguisher – 20, not 10 years. Technically, all that's required at the 10-year maintenance service is for the unit to be refilled before it then settles in for a further 10 years' of use. Bring that figure into your overall life calculations and, of course, the costs drop further.

Knowing that a 10-year lifespan was achievable for its composite extinguishers, the Britannia P50 units detailed here were filled with foams and powders of sufficient quality to survive the full ten-year span. Similarly, the metal fittings used on the P50 are made of brass and stainless steel, which means that there is nothing in the extinguisher's make-up that will rust or corrode – key to avoiding the requirement for annual corrosion tests.

Key considerations

For facilities managers, the introduction of composite bodies for fire extinguishers brings with it a couple of important calculations. Additional up-front expenditure is the key issue; despite a significant reduction in overall life-cycle cost, FMs and other budget holders will need to pay more than twice as much when initially specifying these extinguishers. It may prove difficult to convince clients and procurement departments, who are otherwise concentrating on their current year's budget, or basing their cost calculations on three to four-year terms.

Yet with all technological advances comes a point at which accepted wisdom is challenged, and composite-bodied fire extinguishers could be just such an advance.

It will be difficult to get out of the mindset of extinguishers being inspected by third parties on an annual basis and, on this latter point, the impact on third-party maintenance contractors will be significant, should the P50 kind of composite extinguisher become popular. If the need for annual maintenance of fire extinguishers comes down by a factor of 10, that could affect the business models of many service providers.

Is this so fanciful? If you can buy a car that has wheel bearings that last the lifetime of the car without maintenance, surely the same can apply to a fire extinguisher?

Composite extinguishers are now being deployed in some significant facilities – Kier has deployed them on its contract with Legal & General, for example. This new type of extinguisher casing has the potential to shake up the maintenance market. FM