

Interact's new meshless system means dramatic cost savings—without compromising the quality of fire protection

STARTS

Working in tandem with *International Paint*, one of the manufacturers of the base material, Interact Fire Solutions has completed the R&D on a new approach to the use of cast epoxy intumescent for fire protection in the construction industry. By successfully and safely removing the need for a wire mesh, it brings to market an exclusive product that has dramatic cost savings—and added aesthetic advantages too.

To understand how this development has come about, it is helpful to trace the origins of epoxy intumescent. The medium was first prepared to offer exceptional fire protection for the offshore petrochemical industry. The material had to withstand the rigors of the North Sea in order to protect oil platforms for up to 3 hours in hydrocarbon fire conditions.

The properties of epoxy intumescent—including chemical, impact and weather resistance—also needed to withstand jet fire blowouts and explosions. Such benefits, it was soon realised, had application for many commercial projects—like hospitals, schools and prestigious office/retail projects. The explosion resistance meant that important government and city institutions could also be protected against potential terrorist attack.

Up to now the use, and need, of a wire mesh has always been an integral part of the system, having the function of supporting the intumescent when it has re-acted (i.e. intumesced or expanded) during jet fire conditions. Interact's particular specialism is casting epoxy intumescent for cellulosic (i.e. normal building) conditions. Until recently, it was necessary to incorporate the wire mesh within the casting. The production method was limited, therefore, to a minimum thickness of 10 mm to ensure material flow during casting. In addition, the fire test data was established on the wire mesh being continuous around the structure. This was achieved by fitting a wire tie (3 per linear metre around the casting following the installation of the casting) and placing it in a pre-prepared groove.

Perfectionists in Passive Fire Protection

The drawbacks of this requirement were both practical and aesthetic. From a manufacturing point of view, the wire mesh limited the length of casting to 1 – 1.25 m. This restriction was because the interference of the mesh creates a risk of air pockets forming. Unfortunately, the wire tie grooves also required a fair amount of decoration to conceal their presence.

But recently the rule book has been re-written, and a method developed for producing these castings without the need of a wire mesh. Two of the four raw material manufacturers have re-tested epoxy intumescent specifically for the construction market. Castings can now be made much longer and are only limited to the strength of the mould used to form the circular casing. With no tying wire required to achieve the necessary test data, the aesthetic benefits are obvious.

As Interact's founder and chief executive, Tony Tiernan, enthused, *"The effect on the cost, and final look of the product, are both highly significant. The cost of installation could be as much as 50% less than the previous method, while the extensive number of finishes available will satisfy the increasing demands of architectural design."*

However, he is quick to point out that this is not a panacea for every situation: *"There are limitations, of course. For example, we do not advise that this length of casting should be used all the way up an atrium column. There are health and safety considerations to take into account when working at height. In such cases, we would advise that the installation should revert to one metre lengths following the first 3.5 metres."*

In order to protect and capitalise on these new innovations in cast epoxy intumescent, Interact Fire Solutions has managed to secure its own manufacturing facility. The experience gained in the casting industry means that Interact is in a position to provide the best solution to hollow section fire protection at costs which directly competes with many alternative methods of passive fire protection.

Interact is keen to work with architects and specifiers to analyse costed alternatives—and show how the meshless product not only compares on price but also how it gives true integrity to the fire protection system. The company will continue to embark on new research and development projects designed to maximise the use of epoxy intumescent within the construction industry.

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High resolution photos are available at www.interactfire.co.uk/press