

New Crystic® Fireguard 75PA Excel Intumescent Topcoat Helps Wright Composites Make Tougher Class 1 Fire Rated Bus Parts.

Wright Composites, part of the Wright Group, located in Galgorm, Ballymena, Northern Ireland, manufactures a range of passenger vehicle FRP parts to demanding quality standards, mechanical performance levels and stringent fire resistance specifications. To achieve all these key criteria, Wright Composites only use Scott Bader's Crystic® Class 1 and 2 Fire retardant (FR) and HDT resin systems in combination with Crystic® Fireguard 75PA Excel intumescent topcoat and a variety of woven and CSM reinforcements and Airex® foams. The laminate structure of each part is designed in-house to match the needs of the application as cost effectively as possible. The Wright Composites team discovered for themselves that using Crystic Fireguard 75PA Excel enables them to produce much tougher BS 476 Class 1 Fire rated bus parts, such as electrical enclosures, interior floor sections, roof panels, engine and driver cab panels, which are supplied to sister company, Wrightbus as well as other vehicle manufacturing customers.

An intumescent topcoat, such as Crystic Fireguard 75PA Excel, when applied to a cured FRP laminate surface provides a passive fire protective barrier to block the path of a fire. It works due to its unique chemistry and its reaction when it is exposed to a direct flame. In simple terms, when fire attacks the intumescent topcoat it causes a chemical reaction which makes the topcoat expand to form a non flammable protective layer that insulates the surface over which it has been applied. While it will not protect indefinitely from an unchecked fire, Crystic Fireguard 75PA Excel can withstand a direct flame at a temperature of 700 deg. C for over 60 minutes without the laminate behind catching fire. This is a significant period of time to contain a fire and prevent it from rapidly spreading, which can help to avoid catastrophic fire damage and save lives.

The new Crystic Fireguard 75PA Excel intumescent topcoat is a product upgrade. The long established Crystic 75PA has been reformulated by Scott Bader's R & D team. The new 'Excel' version offers better FR properties and significant handling improvements, yet is still cured with a standard MEKP catalyst (2% addition by weight). The original Crystic 75PA has been specified for over 30 years in critical internal applications which need to meet BS 476 Part 6 Class 0 or BS 476 Part 7 Class 1 FR test standards. It has been used for interior parts in buildings, rail and other public transport vehicles, as well as in the marine sector where it is used to protect the engine compartments of both pleasure craft and working boats. The most recent successful new applications, now with Crystic Fireguard 75PA Excel, have been produced by Wright Composites for a range of different Wrightbus parts which can go up to 10 sq. metres in size.

Established since 2005, Wright Composites, has developed into a significant stand alone business with a dedicated workforce of 120 employees operating from their modern, purpose built 4,800 sq. m production facilities. This ISO 9001-2008 accredited company manufactures components for the

Wrightbus vehicle range, currently making approximately 70% of the Group's OEM passenger vehicle composites needs, as well as supplying the bus aftermarket customer base and a variety of other industry sectors. Led by General Manager Mr. Andy Colhoun, the focus in Wright Composites is very much on looking for innovative ways to raise quality standards and deliver what customers need, while controlling costs and improving productivity. A lot of time is spent by the Wright Composites team re-evaluating the raw materials and reinforcements available, ways to improve laminate designs, and their production methods. Significant investments have been made over the years to increase production capacity and productivity to enable them to keep pace with growing demand. Depending on the part size, type and numbers needed, they now have the flexibility to make components by hand layup, spray layup or light resin transfer moulding (LRTM). They have a dedicated LRTM facility that uses closed mould systems from MVP and Composite Integration.

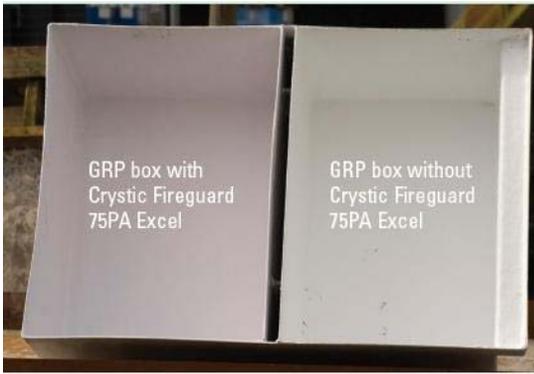
Crystic Fireguard 75PA has been used by Wright Composites for many years. In 2010, they switched to using the new 75PA Excel version, which laminators on the production floor of Wright Composites claim has an improved consistency and cure, with much better handle ability. Overall, they found Crystic Fireguard 75PA Excel easy to apply by brush or with a roller and that it was touch dry 'tack free' within 30 minutes; a big help for shop floor productivity. These product improvements in 75PA Excel have encouraged Wright Composites to think about how they can use the benefits of an FR intumescent topcoat more widely. They have come up with a number of innovative new ideas to either improve the mechanical performance of a part or to reduce cost and scrap.

On the performance improvement side, a development they have successfully proved and implemented is to achieve a BS 474 Class 1 FR specification using Crystic Fireguard 75PA Excel in combination with a Class 2 rated Crystic FR resin, offering improved toughness without compromising the required FR rating for the part. Andy Colhoun, General Manager, Wright Composites Ltd commented; *"We chose Crystic Fireguard 75PA Excel as this FR coating product enable us to provide a Class 1 fire rated part and a mechanically better performing laminate system to other class 1 laminate system options. In our experience, Class 1 resin systems tend to be brittle by nature. Using Crystic Fireguard 75PA Excel allows us to us achieve the superior structural benefits that we get with our class 2 resin system, but provide a Class 1 fire rating as well. Customers benefit from having FR rated parts with tougher performance capabilities in use."*

On the cost saving side, a creative idea that they are currently working on, which could be a double win for both aftermarket vehicle customers and the environment, is to use *Crystic Fireguard 75PA Excel* as a 'retrofit' FR refurbishment product. Rather than replacing an entire composite part, Wright Composites is looking at the overall costs and feasibility of applying *Crystic Fireguard 75PA Excel* FR topcoat to certain critical FRP parts fitted on vehicles currently in service which must have their FR rating upgraded to comply with the latest legislation. The expectation is that this 'retrofit' FR upgrade idea will offer significant cost saving opportunities for some customers, which is also environmentally friendly as it can extend the life of a part and help to reduce the amount of FRP scrap from public transport vehicles.

Scott Bader supplies Crystic Fireguard 75PA Excel in 25kg kegs and 225kg drums. It is available as standard in black, white and grey, but other colours can be manufactured on request, subject to a 100kg minimum order quantity. While it has been designed primarily for use as FR topcoat for FRP, Crystic Fireguard 75PA Excel can also be used on interior wood sections or other parts made from slightly porous materials.

For more information about the full range of Crystic resins, gelcoats, and structural adhesives visit www.scottbader.com. To find out more about Wright Composites go to www.wright-composites.com .



The fire in the unprotected right side box raging after 4 minutes, clearly showing the effective fire protection barrier properties of Crystic® Fireguard 75PA Excel topcoat used in the left side box, when compared to a standard unsaturated polyester topcoat subjected to identical direct flame fire conditions in this simulated test.

Opened in 2005, the Wright Composites production site in Galgorm, Ballymena, Northern Ireland, specialises in manufacturing FRP passenger vehicle parts for Wrightbus and other OEMs.



Wright Composites apply Crystic® Fireguard 75PA Excel FR intumescent topcoat to this rear wheel arch floor section bus part (5 mtr long x 1mtr wide x 1.5 mtr deep.) to meet the BS474 Class 1 FR specification. [Photo courtesy of Wright Composites.]

Laminator at Wright Composites found Crystic® Fireguard 75PA Excel easy to apply by brush or with a roller and that it was touch dry 'tack free' within 30 minutes. [Photo courtesy of Wright Composites.]



The Wrightbus for the Kowloon Motor Bus Company (1933) Ltd in operation in Hong Kong, is fitted with the rear wheel arch part shown in picture (3); one on each side. [Photo reproduced with kind permission of Wrightbus.]



StreetCar RTV for Regional Transportation Commission of Southern Nevada in operation in Las Vegas. All parts supplied by Wright Composites used in the occupant compartments of a motor vehicle must meet stringent US FMVSS 302 (Federal Motor Vehicle) fire safety standards. [Photo reproduced with kind permission of Wrightbus.]



About Scott Bader

Scott Bader was established in 1921. Today it is a £180 million multinational chemical company, employing 560 people worldwide. It is a common trusteeship company, having no external shareholders, with a strong commitment to support its customers, workforce and the environment.

Scott Bader's headquarters is based in the UK where they have purpose-built, state-of-the-art technical facilities that provide R & D as well as complete evaluation, testing and application support. They have manufacturing facilities in the UK, France, Croatia, The Middle East and South Africa. For further information regarding Scott Bader, please call +44 (0)1933 663100, visit www.scottbader.com or e-mail info@scottbader.com.