



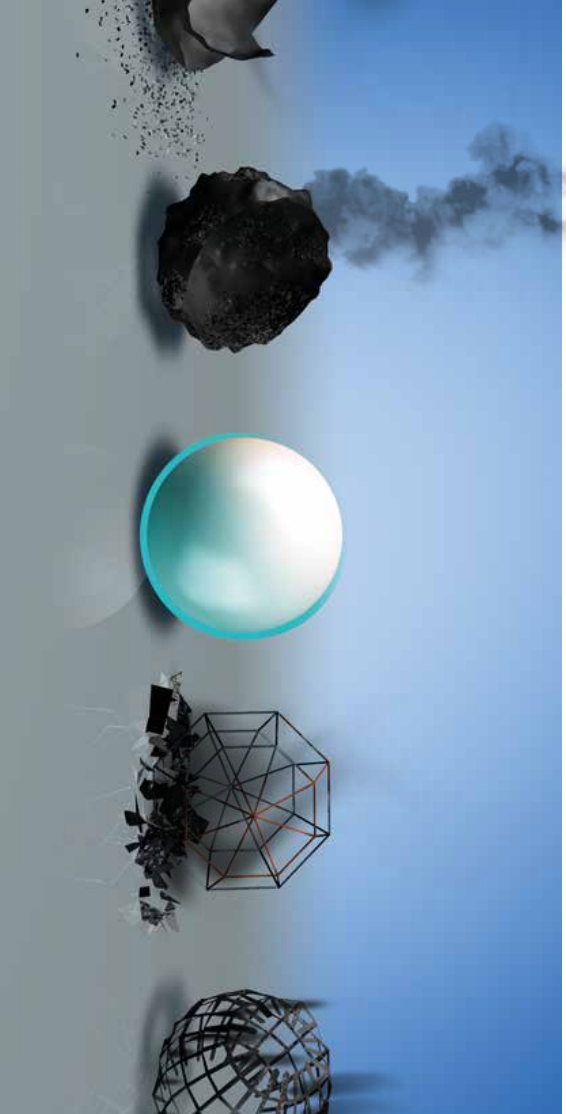
OPTIMAL SAFETY

Fire Retardant systems



Halogenfree resins

Resin name	BUFA®-Firestop S 425	BUFA®-Firestop S 430	BUFA®-Firestop S 520	BUFA®-Firestop S 555	BUFA®-Firestop S 570	BUFA®-Firestop 900 Foaming Resin
Art. No.	716-0425	716-0430	716-0520	716-0555	716-0570	716-0900
Resin base	DCPD	DCPD	DCPD	DCPD	OP	OP
Non-volatile matter [%]	56	78	74	69	84	70
Viscosity [mPa.s]	230 (20s/1)	720 (20s/1)	800	750	900	1250
Elongation at break [%]	not tested	not tested	2.8	not tested	2	1.8
Tensile strength [MPa]	not tested	not tested	82	not tested	82	58
HDT [°C] calculated	110	110	100	100	88	78
Comments	Slightly filled, halogen-free, pre-accelerated, for structural components in vacuum injection processes	Halogen-free filled system, HLU, ideal for spray up application, preaccelerated	ATH filled injection resin for structural components, preaccelerated	ATH filled injection resin, preaccelerated	ATH-filled, thixotropic resin for structural components, preaccelerated	Filled foaming resin with good fire retardant properties



Fire Retardant Systems

BUFA®-Firestop – Fire protection with a system

In all systems in which glass fibre reinforced plastics are used, BUFA®-Firestop makes GRP composites a flame retarding material and the GRP cladding turns into a fire protection wall.

Bottom line: BUFA®-Firestop protects itself. This extraordinary effect is achieved by:

1. Carbonization

When exposed to heat, the integrated flame retardant converts to phosphoric acid. This causes the surface to carbonize which in turn acts as a protective layer.

2. Elimination of water

At temperatures above 200 °C, aluminium hydroxide is split into aluminium oxide and water. The water cools the source of fire and thins the resulting fumes. Aluminium oxide forms a ceramic protective layer.

3. Intumescence

Higher temperatures cause the surface of the component to swell. During the swelling process, the surface sets a carbon based protective foam free.

4. Effect in the gas phase

Through efficient suppression of the source of fire, starting in the gas phase, further spread of the fire is prevented.

The products in the BUFA®-Firestop line can make optimum use of their qualities, either individually or combined with each other, in all imaginable applications.

All of the BUFA®-Firestop products are strictly tested according to German as well as international standards. They can be applied quickly without any problems and no special requirements are placed on the production process.

BUFA Fire Retardant systems give GRP components the necessary protection against fire and therefore give you optimum safety. Innovative solutions for all applications!

Why BUFA Fire Retardant Systems?

In-house research and development

In-house production

In-house test centre where the following test methods are used:

- ISO 5660 (Cone Calorimeter)
- DIN 5510-2
- LOI (Limited Oxygen Index)
- ISO 4589-2
- UIC 564-2

The result:

Maximum safety and maximum efficiency at minimum cost.



Cone Calorimeter

Resin name	BUFA®-Firestop 5001-W-2	BUFA®-Firestop 5001-T-1	BUFA®-Firestop 8175-W-1
Art. No.	716-5002	716-5003	716-8175
Resin base	DCPD	DCPD	DCPD
Non-volatile matter [%]	80	not tested	76
Viscosity [mPa.s]	1100 (20s/1)	100	750 (20s/1)
Elongation at break [%]	2.2	0.45 (filled)	3
Tensile strength [MPa]	87	51 (filled)	80
HDT [°C]	90	not tested	> 100
Comments	Highly ATH-filled resin for higher standards, preaccelerated	Prepared to be highly filled, little smoke development (+ 300 parts of ATH), not preaccelerated	ATH-filled, thixotropic resin for structural components, preaccelerated



Halogenated resins

Resin name	BUFA®-Firestop S 810	BUFA®-Firestop 2754-P-2	BUFA®-Firestop 2777-P-1	BUFA®-Firestop 6806-N-5	BUFA®-Firestop 6815-N-4	BUFA®-Firestop S 840
Art. No.	716-0810	716-2754	716-2777	788-0806	788-0816	788-0840
Resin base	DCPD	OP	DCPD	OP	DCPD	ISO
Non-volatile matter [%]	82	65	68	60	65	60
Viscosity [mPa.s]	500 (250s/1)	230 (20s/1)	420 (20s/1)	200	210	not tested
Elongation at break [%]	not tested	1.8	1.2	0.6	1.9	>100
Tensile strength [MPa]	not tested	49	25	96	75	5
HDT [°C]	not tested	65	50	63	54	35
Comments	ATH-filled and halogenated white resin for the highest fire protection requirements, not preaccelerated, also available as a filled version (716-0811)	Halogenated unfilled resin for HLU- and RTM applications, preaccelerated, also available as a filled version (716-2755)	Halogenated unfilled resin for HLU applications, preaccelerated, for IMO 1006 life boats	Halogenated resin for translucent applications, not pre-accelerated	Halogenated resin for translucent applications, designed for higher standards, not pre-accelerated	Halogenated highly flexible resin (e.g. for roofing applications), not pre-accelerated, also available as a styrene free version (788-0842)

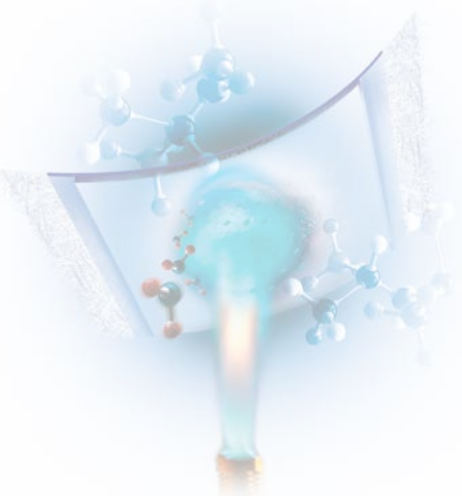
Fire Retardant Systems



Gelcoats

Gelcoat name	BUFA®-Firestop GC S 230	BUFA®-Firestop GC S 250	BUFA®-Firestop GC S 260	BUFA®-Firestop GC S 270	BUFA®-Firestop GC S 285	BUFA®-Firestop GC S 300
Art. No	714-2300	708-colour (spraying quality) / 728-colour (brushing quality)	714-2600	714-2702	714-2852	714-3000
Resin base	IP	IP	OP / NPG	VE / DCPD	IP	VE / DCPD
Non-volatile matter [%]	82	Colour 708 = 77 Colour 728 = 84	76	84	80	85
Viscosity [mPa.s]	30,000	Colour 708 = 7,500 Colour 728 = 30,000	11,500	28,000	14,000	25,000
Elongation at break [%]	5	8.2	3.4	3	4.5	2.5
Tensile strength [MPa]	50	52	56	45	48	45
HDT [°C]	59	41	39	60	36	85
Comments	Gelcoat in a spraying quality with increased fire protection properties	Gelcoat in a spraying quality with good fire protection properties	Gelcoat in a spraying quality with increased fire protection properties	Gelcoat in a hand and spraying quality with highest fire protection properties	Gelcoat in a hand and spraying quality with highest fire protection properties	Gelcoat in a spraying quality with highest fire protection properties

Chemical properties	DCPD: dicyclopentadiene	OP: orthophthalic acid	IP: isophthalic acid	VE: vinyl ester	NPG: neopentyl glycol
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FR-Additives

Product name	BUFA®-Accelerator Complex 9003	BUFA®-Accelerator Complex 9004	BUFA®-Additive Viscoreducer	BUFA®-Repair Additive	BUFA®-Accelerator Foaming Agent
Art. No.	715-9003	715-9004	742-0018	742-0030	020-0880
Chemical composition	Accelerator complex for curing of highly filled fire retardant systems	Accelerator complex for curing of highly filled fire retardant systems based on polymeric cobalt	Viscosity reducer for filled HI-U- and infusion systems	Repair solution for the repair of gelcoat surfaces in spray up-technics	Foaming agent for BUFA®-Foaming resins

Fire Retardant Systems



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Bonding Pastes and further additives

Product name	BUFA®-Firestop Liquid mat	BUFA®-Firestop Adhesive 0255	BUFA®-Firestop Barriercoat 9002	BUFA®-Firestop Surfacer
Art. No.	715-0245	715-0255	715-0709	715-0250
Resin base	OP	VE	IP	IP
Non-volatile matter [%]	87	85	83	72
Viscosity [mPa.s]	300,000	400,000	29,000	10,000
Elongation at break [%]	2.5	4.5	8	6
Tensile strength [MPa]	6.5	12.5	not tested	not tested
HDT [°C]	70	85	not tested	not tested
Comments	Liquid fire protection mat. Levels sharp edges and corners. fire protection adhesive	Adhesive for structural applications with increased fire protection properties	Fire protection barriercoat to achieve optimum surface quality	Spray spackle with fire retardant properties

