CLARIANT

An extensive range of non-halogenated flame retardants

EXOLIT® OVERVIEW

what is precious to you?

Under the tradename Exolit® Clariant offers a distinctive range of non-halogenated flame retardants solutions providing more environmentally compatible fire protection for buildings, electric and electronic equipment as well as aeroplanes, trains, busses and ships.

The Exolit AP product group provides polymeric Flame Retardants based on ammonium polyphosphate enabling a broad spectrum of different applications. The Exolit OP series offers a unique class of environmentally optimised non-halogenated, organo-phosphorus flame retardants for engineering thermoplastics and thermosets. The Exolit RP family, based on red phosphorus, is used in specialty coatings and polymer applications.

ECOTAIN®

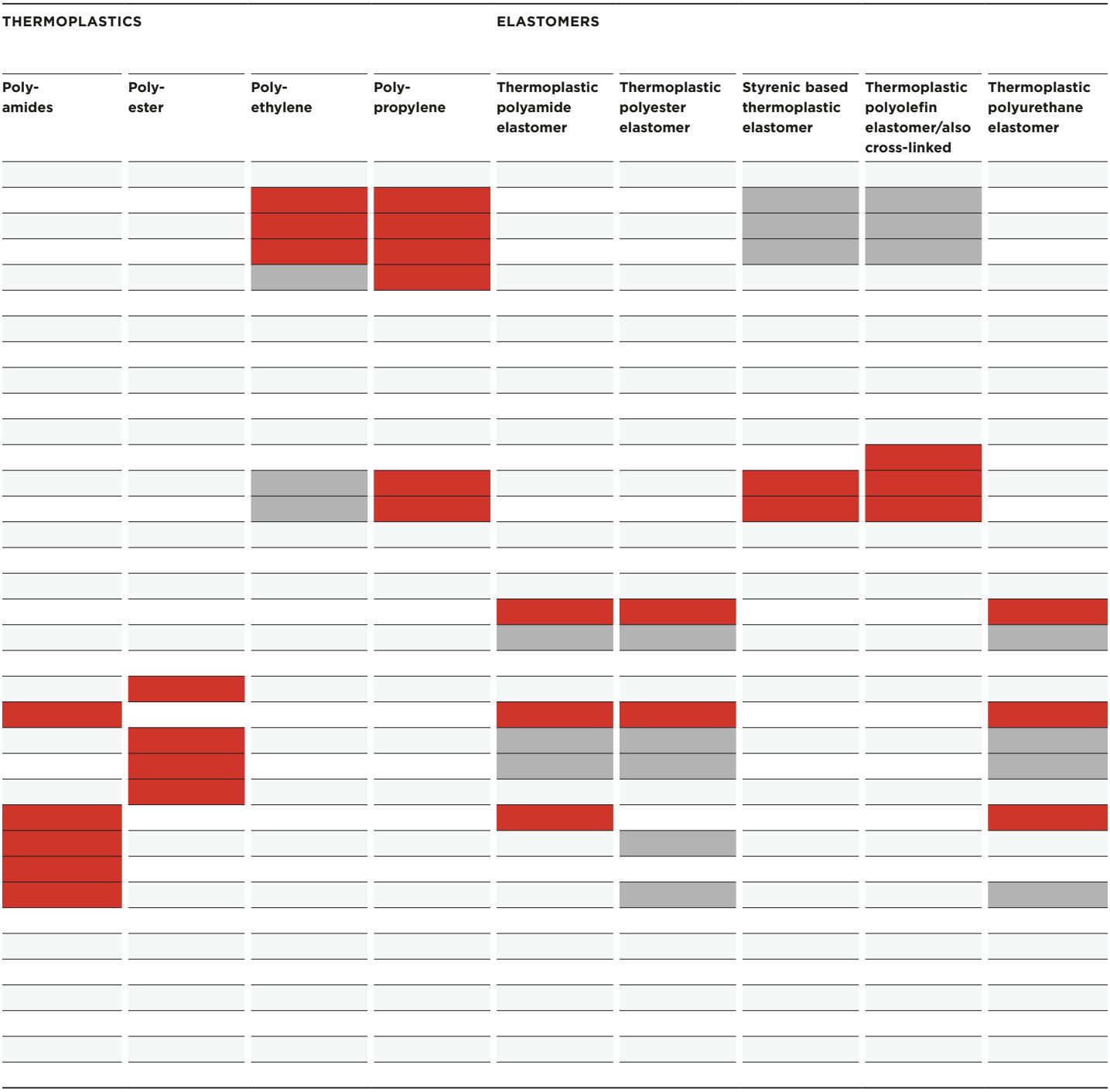
Products that offer outstanding sustainability advantages are excelled with our EcoTain® label. These products have undergone a systematic, in-depth screening process using 36 criteria in all three sustainability dimensions: social, environmental and economic.

EcoTain® products significantly exceed sustainability market standards, have best-in-class performance and contribute overall to sustainability efforts of the company and our customers. We are determined to keep expanding the number of EcoTain® products and continue to screen our product portfolio.

Exolit®
OVERVIEW BY POLYMER CLASS

PRODUCT	ECO TAIN	HAZARD INFO	EXPLANATION
EXOLIT AP 420			Aqueous solution of ammonium polyphosphate (APP)
EXOLIT AP 422	■		Fine-grained white APP powder with low water solubility
EXOLIT AP 423	■		Micronized AP 422, especially fine powder
EXOLIT AP 428			Fine-grained white APP powder with low water solubility
EXOLIT AP 435	■		Fine-grained white APP powder with low water solubility, ensuring low viscosity of IC formulations
EXOLIT AP 462			Microencapsulated AP 422 with extremely low water solubility
EXOLIT AP 468 (TP)			Microencapsulated AP 422 with extremely low water solubility
EXOLIT AP 740			APP blend with synergists for light weight UP resins and gel coats
EXOLIT AP 740 F			APP blend with synergists for light weight UP resins and gel coats, smaller particle size
EXOLIT AP 740 S			APP blend with synergists for light weight UP resins and gel coats, less water soluble
EXOLIT AP 742			APP blend with synergists for light weight UP resins and gel coats, less water soluble
EXOLIT AP 750			Intumescent system based on APP, especially for thermoset polymers
EXOLIT AP 761 (TP)			Intumescent system based on APP, especially for reinforced and extrusion applications
EXOLIT AP 766			Intumescent system based on APP, especially for reinforced and extrusion applications
EXOLIT IFR 36			Synergist APP blend for 2-component epoxy based hydro carbon IC applications
EXOLIT OP 550			Highly effective reactive, non-halogenated phosphorus polyol, functionality approx. 2
EXOLIT OP 560			Highly effective reactive, non-halogenated phosphorus polyol, functionality approx. 2
EXOLIT OP 930	■		Phosphinate, fine grained white powder especially developed for epoxy laminate systems
EXOLIT OP 935	■		Finer grained version of OP 930, especially developed for epoxy laminate systems
EXOLIT OP 945 (TP)			Finest grained version of OP 930, especially developed for adhesives, fibres and films
EXOLIT OP 950		●	Phosphinate, white powder which melts at around 200 °C
EXOLIT OP 1230	■		Highly stable phosphinate flame retardant for high temperature nylons
EXOLIT OP 1240	■		Phosphinate flame retardant for polyester injection moulding applications
EXOLIT OP 1248 (TP)			Phosphinate flame retardant system for polyester injection moulding applications
EXOLIT OP 1260 (TP)			Phosphinate flame retardant system for polyester injection moulding applications
EXOLIT OP 1311			Phosphinate flame retardant system for Thermoplastic Elastomers
EXOLIT OP 1312		●	Standard Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66
EXOLIT OP 1314		●	Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66 for demanding conditions
EXOLIT OP 1400	■		Phosphinate flame retardant system for all polyamides; Highest stability
EXOLIT RP 607		●	Specially treated and stabilized red phosphorus powder
EXOLIT RP 614 PC (TP)		●	Stabilized, micro encapsulated red phosphorus as a wet filtercake
EXOLIT RP 6500		●	Thixotropic dispersion (carrier: epoxy resin) of red phosphorus
EXOLIT RP 6520		●	Thixotropic dispersion (carrier: castor oil) of red phosphorus
EXOLIT 855		●	Pre condensed partial phosphoric ester
EXOLIT 5060 PK	■		Organic halogen free phosphorus flame retardant, especially for incorporation into viscose fibres (press cake)
VISCOFIL®-EXOLIT 5060			Organic halogen free phosphorus flame retardant, especially for incorporation into viscose fibres (dispersion)

■ Established application
■ Development application
TP Test product, scale-up to commercial quantities in preparation
LP Laboratory product, still in development phase
■ Eco Tain Product
● Hazard info see separate table


THERMOPLASTICS
ELASTOMERS
Poly-amides
Poly-ester
Poly-ethylene
Poly-propylene
Thermoplastic polyamide elastomer
Thermoplastic polyester elastomer
Styrenic based thermoplastic elastomer
Thermoplastic polyolefin elastomer/also cross-linked
Thermoplastic polyurethane elastomer

Exolit®
OVERVIEW BY POLYMER CLASS OR MATERIAL

PRODUCT	ECO TAIN	HAZARD INFO	EXPLANATION
EXOLIT AP 420			Aqueous solution of ammonium polyphosphate (APP)
EXOLIT AP 422	■		Fine-grained white APP powder with low water solubility
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EXOLIT AP 435	■		Fine-grained white APP powder with low water solubility, ensuring low viscosity of IC formulations
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EXOLIT OP 1240	■		Phosphinate flame retardant for polyester injection moulding applications
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EXOLIT RP 607		●	Specially treated and stabilized red phosphorus powder
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■ Established application
■ Development application
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LP Laboratory product, still in development phase
■ Eco Tain Product
● Hazard info see separate table


THERMOSETS
FIRE PROTECTION SYSTEMS
OTHER MATERIALS
Poly-urethanes
UP resins
Phenolic resins
Epoxy resins
Rubber
Adhesives, Dispersions, Sealants
Intumescent coatings
Latex
Paper/Wood
Linoleum
Viscose

Exolit®
OVERVIEW BY APPLICATION

PRODUCT	ELECTRICAL & ELECTRONIC							TRANSPORTATION – AUTOMOTIVE, TRAIN, AIRCRAFT, SHIPS					
			Printed circuit boards (PCBs)										
	Connectors, switches etc.	Enclosures/housings	Flexible copper clad laminates (FCCL)	Rigid boards	Encapsulants and cast resins	Cables	Films and adhesive layers	Engine covers/ small structural parts	Electrical parts	Cables	Seat-/Headliner (PUR)	Seat-Frames	Arm rests
EXOLIT AP 420													
EXOLIT AP 422													
EXOLIT AP 423													
EXOLIT AP 428													
EXOLIT AP 435													
EXOLIT AP 462													
EXOLIT AP 468 (TP)													
EXOLIT AP 740													
EXOLIT AP 740 F													
EXOLIT AP 740 S													
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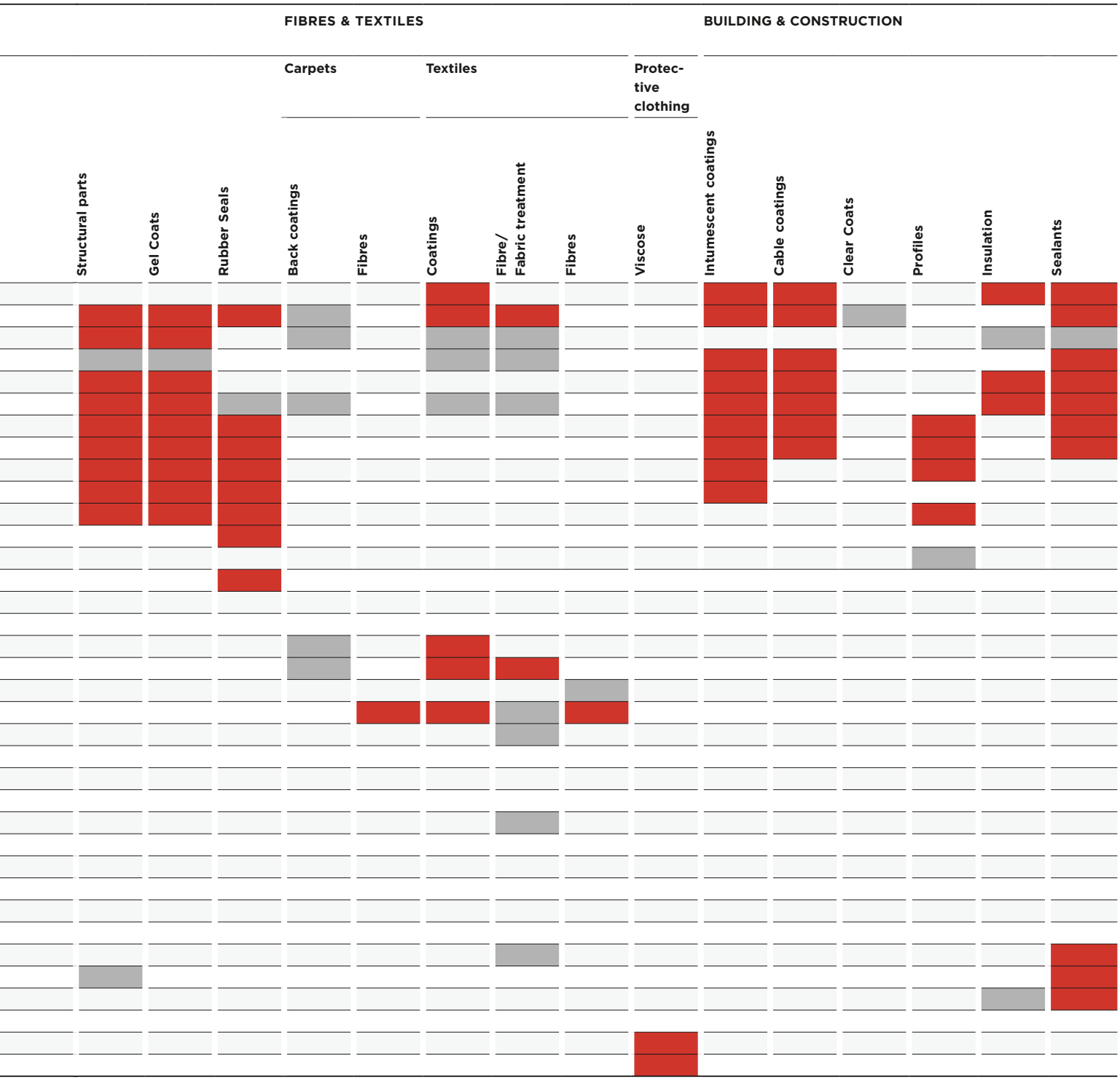
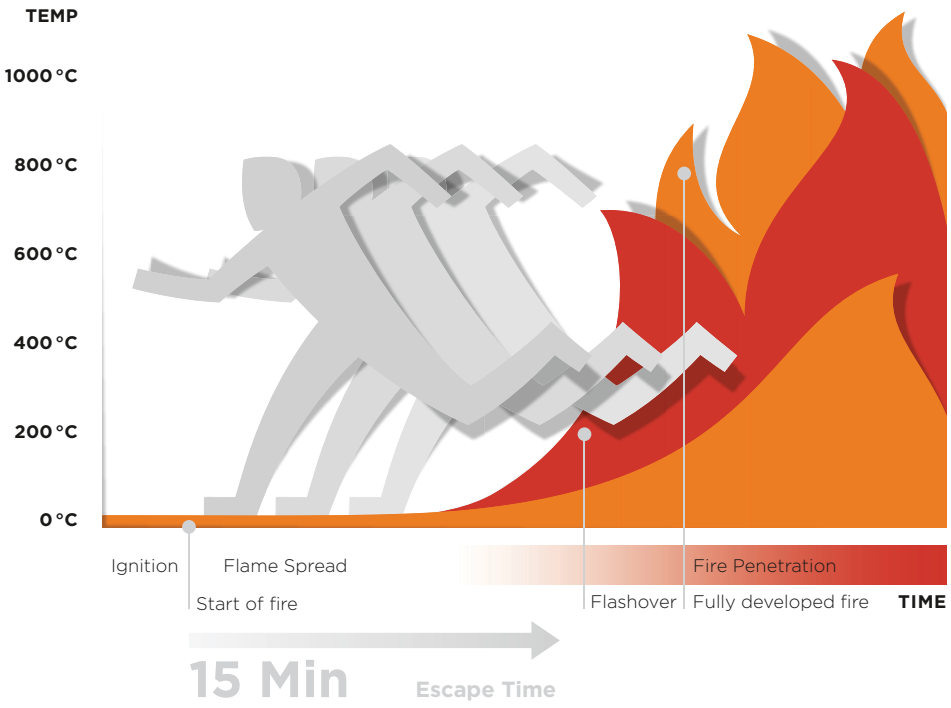
EXOLIT 855													
EXOLIT 5060 PK													
VISCOFIL®-EXOLIT 5060													

Established application
Development application
TP Test product, scale-up to commercial quantities in preparation


FIBRES & TEXTILES
BUILDING & CONSTRUCTION
Carpets
Textiles
Protec-
tive
clothing
Structural parts
Gel Coats
Rubber Seals
Back coatings
Fibres
Coatings
Fibre/
Fabric treatment
Fibres
Viscose
Intumescent coatings
Cable coatings
Clear Coats
Profiles
Insulation
Sealants

How Flame Retardants can **INCREASE ESCAPE TIME IN FIRES**



Flame retardants reduce the risk of ignition and fire spread of many plastic and textile materials which results in more available escape time for occupants. Time to flashover can increase from 5 minutes to 15 minutes which can make the difference between escape and fatalities. Bear in mind that the escape time includes the time to discover the fire, alert other people, take the decision to call the fire brigade, take own actions to extinguish or take the decision to evacuate the building. The times and temperatures in the graphs are typical numbers, but can vary according to the circumstances and materials involved.

Exolit.com

Exolit for Thermoplastics brochure

Exolit for Thermosets brochure

Exolit for Polyurethanes brochure

Discover Value story

HAZARD INFORMATION

The European Regulation on Classfication, Labelling and Packaging of substances and mixtures (»CLP Regulation«, EC 1272/2008) requires that hazard information of chemicals is provided in advertising literature. The properties listed below refer to the neat substance or mixture. Only if there is sufficient exposure, e. g. direct contact with the chemical, will the hazard properties materialize and pose harm to people or the environment. Based on the toxicological data the respective uses are evaluated, e. g. compounding a flame retardant into a polymer, where any chance of exposure by direct skin contact, ingestion or inhalation is greatly reduced. Thereby, safe use conditions are derived and assure that the user may safely handle and apply the products.

PRODUCT	GHS CLASSIFICATION HAZARD CLASS	HAZARD CATEGORY	HAZARD STATEMENTS
EXOLIT OP 1312	Reproductive toxicity	2	Suspected of damaging the unborn child.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
EXOLIT OP 1314	Reproductive toxicity	2	Suspected of damaging the unborn child.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
EXOLIT OP 950	Serious eye damage	1	Causes serious eye damage.
	Aquatic toxicity	1	Very toxic to aquatic life with long lasting effects.
EXOLIT RP 607	Flammable solids	1	Flammable solid.
	Skin sensitisation	1	May cause an allergic skin reaction.
	Aquatic toxicity	2	Toxic to aquatic life with long lasting effects.
EXOLIT RP 614 PC	Flammable solids		Flammable solid.
	Skin sensitisation	1	May cause an allergic skin reaction.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
EXOLIT RP 6500	Skin irritation	2	Causes skin irritation.
	Eye irritation	2	May cause an allergic skin reaction.
	Skin sensitisation	1	Causes serious eye irritation.
	Chronic aquatic toxicity	2	Toxic to aquatic life with long lasting effects.
EXOLIT RP 6520	Skin sensitisation	1	May cause an allergic skin reaction.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
EXOLIT 855	Corrosive to metals	1	May be corrosive to metals.
	Skin corrosion	1 A	Causes severe skin burns and eye damage.
	Serious eye damage	1	Causes serious eye damage.

Information on hazardous properties of Exolit products according to European Regulation (EC) No. 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP-Classification, Labeling and Packaging).

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