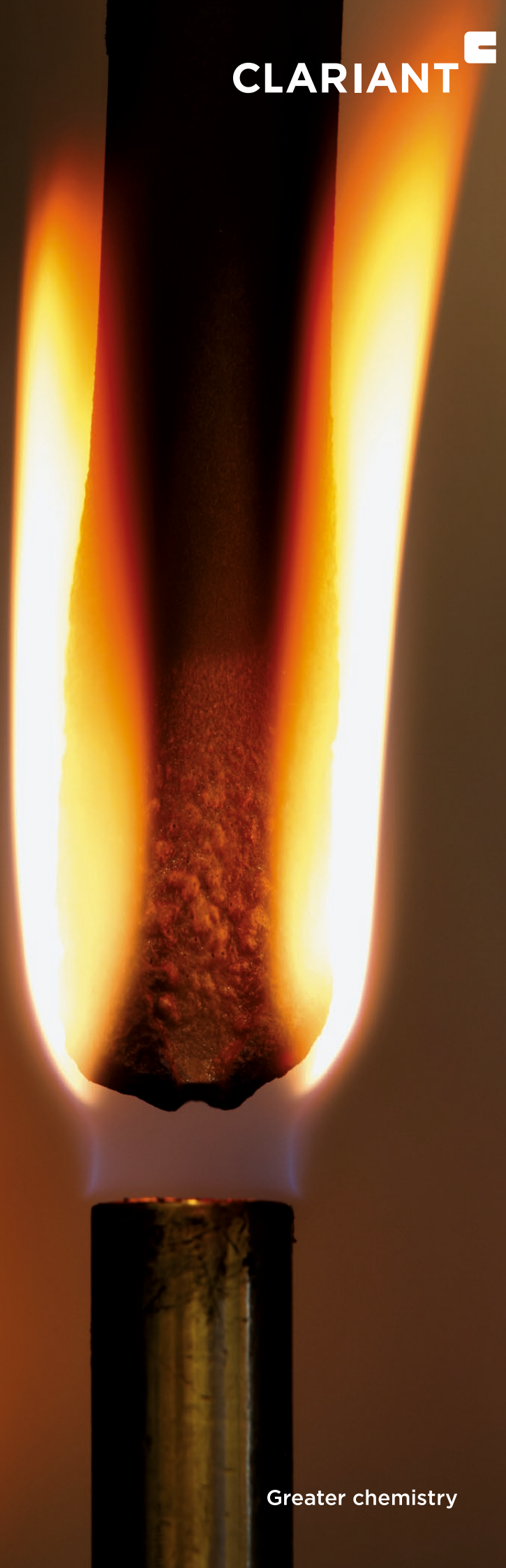




EXOLIT™ OVERVIEW

Add Exolit™.
And enable
halogen-free
fire safety.



**Under the tradename Exolit™
Clariant offers a distinctive range
of non-halogenated flame retardant
solutions providing more environmen-
tally compatible fire protection for
building & construction, electric
and electronic equipment as well
as for (electric) vehicles, 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.

Exolit™

Overview by polymer class

PRODUCT	HAZARD INFO	EXPLANATION
Exolit AP 418		Fine-grained white powder, providing optimized performance of solvent-based intumescent coatings
Exolit AP 420		Aqueous solution of ammonium polyphosphate (APP)
Exolit AP 422		Fine-grained white APP powder with low water solubility
Exolit AP 422 A		SVHC-free* version of fine-grained white APP powder with low water solubility
Exolit AP 423		Micronized AP 422, especially fine powder
Exolit AP 435		Fine-grained white APP powder, providing optimized viscosity and storage stability in waterborne coatings
Exolit AP 462		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 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, enabling lower viscosity of UP formulation
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 EP 150		Liquid reactive flame retardant for epoxy resin modification
Exolit EP 360		Reactive, semi solid flame retardant with resin characteristic and epoxy functionality
Exolit OP 540 (TP)		Highly effective reactive, non-halogenated phosphorus polyol, functionality approx. 2
Exolit OP 552		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		Finest grained version of OP 930, especially developed for adhesives, fibers 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 1242		Phosphinate flame retardant for polyester injection moulding applications; improved hydrolytical stability
Exolit OP 1248	●	Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1260 / OP 1262		Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1266 (TP)		Phosphinate flame retardant system for polyester injection moulding applications; improved CTI performance
Exolit OP 1311 / OP 1321		Phosphinate flame retardant system for Thermoplastic Elastomers
Exolit OP 1312 / OP 1322	●	Standard Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66
Exolit OP 1314 / OP 1324	●	Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66 for demanding conditions
Exolit OP 1380	●	Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 6 & 66
Exolit OP 1400		Phosphinate flame retardant system for all polyamides; Highest stability
Exolit OP 1420		Phosphinate flame retardant system for all polyamides
Exolit OP 1466		Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 6
Exolit OP 1480		Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 66
Exolit 855	●	Pre condensed partial phosphoric ester

* SVHC-free according to Article 31 of the REACH Regulation as it contains less than 0.1% melamine

Exolit™

Overview by polymer class or material

PRODUCT	HAZARD INFO	EXPLANATION
Exolit AP 418		Fine-grained white powder, providing optimized performance of solvent-based intumescent coatings
Exolit AP 420		Aqueous solution of ammonium polyphosphate (APP)
Exolit AP 422		Fine-grained white APP powder with low water solubility
Exolit AP 422 A		SVHC-free* version of fine-grained white APP powder with low water solubility
Exolit AP 423		Micronized AP 422, especially fine powder
Exolit AP 435		Fine-grained white APP powder, providing optimized viscosity and storage stability in waterborne coatings
Exolit AP 462		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 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, enabling lower viscosity of UP formulation
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 EP 150		Liquid reactive flame retardant for epoxy resin modification
Exolit EP 360		Reactive, semi solid flame retardant with resin characteristic and epoxy functionality
Exolit OP 540 (TP)		Highly effective reactive, non-halogenated phosphorus polyol, functionality approx. 2
Exolit OP 552		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		Finest grained version of OP 930, especially developed for adhesives, fibers 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 1242		Phosphinate flame retardant for polyester injection moulding applications; improved hydrolytical stability
Exolit OP 1248	●	Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1260 / OP 1262		Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1266 (TP)		Phosphinate flame retardant system for polyester injection moulding applications; improved CTI performance
Exolit OP 1311 / OP 1321		Phosphinate flame retardant system for Thermoplastic Elastomers
Exolit OP 1312 / OP 1322	●	Standard Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66
Exolit OP 1314 / OP 1324	●	Phosphinate flame retardant system for reinforced polyamide 6 and polyamide 66 for demanding conditions
Exolit OP 1380	●	Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 6 & 66
Exolit OP 1400		Phosphinate flame retardant system for all polyamides; Highest stability
Exolit OP 1420		Phosphinate flame retardant system for all polyamides
Exolit OP 1466		Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 6
Exolit OP 1480		Phosphinate flame retardant system for GWIT 775° in reinforced polyamide 66
Exolit 855	●	Pre condensed partial phosphoric ester

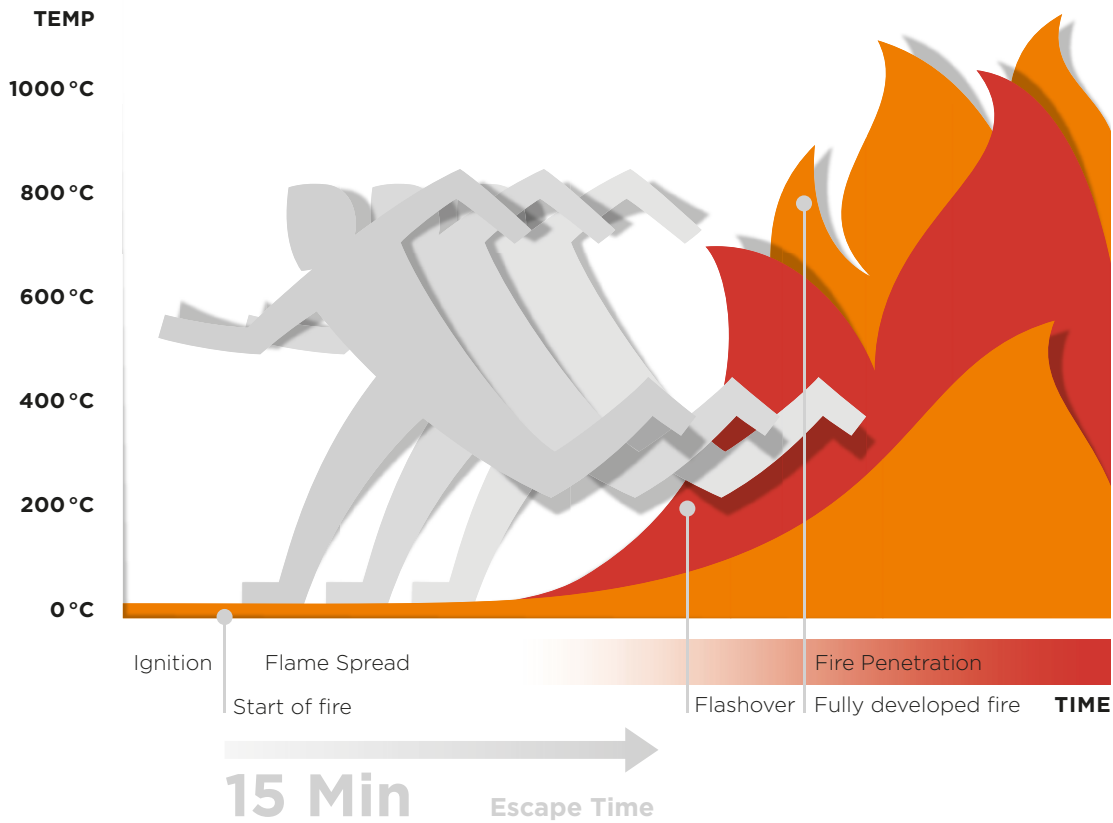
* SVHC-free according to Article 31 of the REACH Regulation as it contains less than 0.1% melamine

Exolit™

Overview by application

PRODUCT	ELECTRICAL & ELECTRONIC							TRANSPORTATION - AUTOMOTIVE, TRAIN, AIRCRAFT, SHIPS					
	Connectors, switches etc.	Enclosures/housings	Printed circuit boards (PCBs) 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 418							●				●		●
Exolit AP 420													
Exolit AP 422							●				●		●
Exolit AP 422 A							●				●		●
Exolit AP 423													
Exolit AP 435							●				●		
Exolit AP 462												●	
Exolit AP 740												●	
Exolit AP 740 S												●	●
Exolit AP 742													
Exolit AP 766	●	●											
Exolit IFR 36							●	●				●	
Exolit EP 150			●	●	●		●		●			●	
Exolit EP 360			●	●	●		●		●			●	
Exolit OP 552											●		
Exolit OP 540 (TP)											●		
Exolit OP 560											●		
Exolit OP 930			●	●	●	●	●		●	●			
Exolit OP 935			●				●						
Exolit OP 945	●	●					●						
Exolit OP 950	●	●				●		●	●	●		●	
Exolit OP 1230	●	●				●		●	●	●		●	
Exolit OP 1240	●	●				●		●	●	●		●	
Exolit OP 1242	●	●				●		●	●	●		●	
Exolit OP 1248	●	●				●		●	●	●		●	
Exolit OP 1260 / OP 1262	●	●				●		●	●	●		●	
Exolit OP 1266 (TP)	●	●				●		●	●	●		●	
Exolit OP 1311 / OP 1321	●	●				●		●	●	●		●	
Exolit OP 1312 / OP 1322	●	●				●		●	●	●		●	
Exolit OP 1314 / OP 1324	●	●				●		●	●	●		●	
Exolit OP 1380	●	●											
Exolit OP 1400			●	●	●								
Exolit OP 1420			●	●	●								
Exolit OP 1466	●	●							●				
Exolit OP 1480	●	●							●				
Exolit 855													

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.

Hazard information

The European Regulation on Classification, 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 AP 740	Carcinogenicity	2	Suspected of causing cancer.
	Reproductive toxicity	2	Suspected of damaging fertility.
	Organ toxicity	2	May cause damage to organs through prolonged or repeated exposure.
Exolit AP 740 S	Carcinogenicity	2	Suspected of causing cancer.
	Reproductive toxicity	2	Suspected of damaging fertility.
	Organ toxicity	2	May cause damage to organs through prolonged or repeated exposure.
Exolit OP grades 1230, 1240, 930, 935, 933, 945 and respective TERRA versions	Mobility, Persistence	vPvM	EU 451: Can cause very long-lasting and diffuse contamination of water resources (only Europe)
Exolit OP 1248	Carcinogenicity	2	Suspected of causing cancer.
	Reproductive toxicity	2	Suspected of damaging fertility.
Exolit OP 1312	Germ cell mutagenicity	2	Suspected of causing genetic defects.
	Reproductive toxicity	2	Suspected of damaging the unborn child.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
Exolit OP 1314	Germ cell mutagenicity	2	Suspected of causing genetic defects.
	Reproductive toxicity	2	Suspected of damaging the unborn child.
	Aquatic toxicity	3	Harmful to aquatic life with long lasting effects.
Exolit OP 1380	Germ cell mutagenicity	2	Suspected of causing genetic defects.
	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 855	Acute toxicity	4	Harmful if swallowed. Harmful if inhaled.
	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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