

An extensive range of non-halogenated flame retardants

EXOLIT™ OVERVIEW



Under the tradename Exolit[™] Clariant offers a distinctive range of non-halogenated flame retardant solutions providing more environmentally 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 nonhalogenated, 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		Melamine-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 750		Intumescent system based on APP, especially for thermoset polymers
Exolit AP 766		Intumescent system based on APP, especially for reinforced and extrusion applications
Exolit EP 360		Reactive, semi solid flame retardant with resin characteristic, epoxy functionality
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 925		Phosphinate, not grained but with defined top cut
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 1248	•	Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1260		Phosphinate flame retardant system for polyester injection moulding applications
Exolit OP 1311		Phosphinate flame retardant system for Thermoplastic Elastomers
Exolit OP 1312	٠	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 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 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
Exolit 5060 PK		Organic halogen free phosphorus flame retardant, especially for incorporation into viscose fibers (press cake)
Exolit 5060 DP		Organic halogen free phosphorus flame retardant, especially for incorporation into viscose fibers (dispersion)

* According to Article 31 of the REACH Regulation (Regulation (EC) No 1907/2006)

• Established application • Development application • Hazard info see separate table

THERMOPLAS	TICS			ELASTOMERS				
Polyamides	Polyester	Polyethylene	Polypropylene	Thermoplastic polyamide elastomer	Thermoplastic polyester elastomer	Styrenic based thermoplastic elastomer	Thermoplastic polyolefin elastomer/also cross-linked	Thermoplastic polyurethane elastomer
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Exolit™ Overview by polymer class or material

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• Established application • Development application • Hazard info see separate table

THERMOSET	S				FIRE PROTE	CTION	OTHER MA	TERIALS		
Poly- urethanes	UP resins	Phenolic resins	Epoxy resins	Rubber	Adhesives, Dispersions, Sealants	Intumescent coatings	Latex	Paper/Wood	Linoleum	Viscose
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Exolit[™] Overview by application

	ELECTRICAL & ELECTRONIC						TRANSPORTATION - AUTOMOTIVE, TRAIN, AIRCRAFT, SHIPS							
PRODUCT			Printed boards (circuit (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 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 750	•	•												
Exolit AP 766	•	•												
Exolit EP 360	_	_	•	•	•		•		•			•		
Exolit OP 550	_	_									•			
Exolit OP 560	_		•	•	•	•	•		•	•				
Exolit OP 925														
Exolit OP 930			•	•	•	•	•		•	•				
Exolit OP 935			٠				٠							
Exolit OP 945	•	•					•							
Exolit OP 950	٠	•				٠		٠	•	•		•		
Exolit OP 1230	•	•				•		•	•	•		•		
Exolit OP 1240	•	٠				•		•	•	•		•		
Exolit OP 1248	•	•				•		•	•	•				
Exolit OP 1260	٠	٠				٠		•	٠	٠		•		
Exolit OP 1311	•	•				•		•	•	•		•		
Exolit OP 1312	•	•				•		•	•	•		•		
Exolit OP 1314	•	•				•		•	•	•		•		
Exolit OP 1380	•	•												
Exolit OP 1400	_		•	•	•					_	_			
Exolit OP 1466	•	•			_	_		_	•					
Exolit OP 1480												_		
Exolit 855		_			_			_		_		_	_	
Exolit 5060 PK		_			_			_		_		_	_	
Exolit 5060 DP														

Established application Oevelopment application

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