CLARIANT

Print this page Flame Retardants **Additives**

Exolit® AP 750

Edition Date May 28, 2014 **Edition Number**

Intumescent system based on APP, especially for thermoset polymers

Product Description

Exolit AP 750 is a non-halogenated flame retardant based on ammonium polyphosphate as main component, which develops its effectiveness through phosphorus/nitrogen synergism. In contrast to similar competitive material, it shows high processing stability. Exolit AP 750 differs in its mode of action from non phosphorus-based flame retardants (e. g. brominated, chlorinated or mineral FRs like ATH) by achieving its effect through intumescence. Material containing Exolit AP 750 will foam on exposure to flame. The carbon-rich foam layer so formed will protect the polymer and in many cases the substrate below through its heat-insulating effect, reduces further oxygen access and prevents dripping in case of a thermoplastic based formulation. Beyond the primary effects on fire behavior such as reduction of flame propagation rate, rate of heat release, dripping behavior, residual lengths of test specimens after flame tests etc., positive secondary fire effects such as low smoke density, no release of corrosive off-gases, lower formation of toxic smoke gases are of great interest.

Benefits

- Non-halogenated flame retardant based on ammonium polyphosphate as main component, which develops its effectiveness through phosphorus/nitrogen synergism
- Shows high processing stability in contrast to similar competitive material
- Differs in its mode of action from non phosphorus-based flame retardants (e. g. brominated, chlorinated or mineral FRs like ATH) by achieving its effect through intumescence
- Particularly effective in thermoplastic polyolefins (e. g. polyolefin hotmelts), urethanes (e. g. integral skin foams, rigid foams, sealants), and epoxy resins (adhesives, sealants, structural laminates, gelcoats)
- Positive secondary fire effects such as low smoke density, lower formation of toxic smoke or corrosive gases
- Non-halogenated flame retardant with favorable environmental and health profile

Specifications

Characteristics	Unit	Target value	DS[1])	TD[2])	Test method
Phosphorus	% (w/w)	20.0 - 22.0	☑	☐	Photometry after oxidizing dissolution; (11/17)
Water / Moisture	% (w/w)	approx. 0.5	☐	☑	
Nitrogen	% (w/w)	11.5 - 13.5	☑	☐	Elemental analysis; (11/07)
Density	g/cm³	approx. 1.8	☐	☑	
Bulk Density	g/cm³	approx. 0.6	☐	☑	Value after filling
Decomposition Temperature	°C	> 250	☐	☑	

[1]) Delivery specification: The product is monitored on a regular basis to ensure that it adheres to the specified values. Test methods: Clariant method numbers 11/xx in brackets.
[2]) Technical data: The technical data are used solely to describe the product and are not subject to regular monitoring.

Applications

Exolit AP 750 is particularly effective in thermoplastic polyolefins (e. g. polyolefin hotmelts), urethanes (e. g. integral skin foams, rigid foams, sealants) and epoxy resins (adhesives, sealants, structural laminates, gelcoats). For epoxy resins used in Electrical/Electronics application, other Exolit products can be recommended depending on certain requirements. Please contact us to discuss your requirements in detail.

Thanks to its intumescent behavior, the use of Exolit AP 750 is particularly useful in epoxy based gelcoats or PU coatings. Beyond the reduced flammability of the gelcoat itself, the char foam created when exposed to flame may also further thermally insulate the underlaying substrate (e. g. a structural composite part). Depending on the fire test and classification to pass, the whole system (laminate + gelcoat) could pass the test by only adding Exolit AP 750 in the gelcoat. For more demanding requirements (e. g. M1 according to NF P 92501), only minimal amounts of additional FR (e. g. ATH or Exolit AP 422) might be necessary to add into the laminates. To develop its effect, the intumescent gelcoat should be applied at a thickness of 0.5 - 1 mm.

Achievable Fire standards:
When suitably formulated, the Exolit AP 750 can help to pass many fire standards for fire & smoke requirements.

Non-exhaustive list of achievable standards:

Building/Construction
DIN 4102 - Germany
NF P 92501 - France
BS 476 - UK
EN 13823 (SBI) - Europe
ASTM E-84 - US
ASTM E-119 - US
ASTM E-162 - US

Transportation
FMVSS 302 (ISO 3795) - Automotive
TS 45545 - Trains EU
DIN 5510 - Trains DE
NF F 16101 & 16102: M&F class - Trains FR
BS 6853 - Trains UK
FAR 25.853 - Aircraft US
ABD 031 - Aircraft EU
ASTM E-662 (NBS Smoke Box)

Electrical/Electronic
UL 94 V-0 (5V)

Furniture
BS 5852 (crib 5) - UK & Ireland
EN 1021 part 1/ part 2 - EU cigarette & match test
California TB 117 - California Furniture
California TB 603 - California Mattresses

Packaging and Handling

Delivery form
White, free-flowing powder

Packaging
Exolit AP 750 is supplied in bags with 20 kg net weight / 1.000 kg shrink-wrapped pallets.

Storage
Exolit AP 750 should be stored at room temperature in a dry place. Partially emptied containers should be carefully resealed after use.

Although Exolit AP 750 is not hygroscopic by itself, it may still absorb some amounts of moisture due to its high surface area. Therefore, we recommend to store – especially opened bags – in a dry place. It is however usually not necessary to pre-dry the product before use.

Minimum shelf life is 12 months from the date of shipping when stored according to the said conditions.

Safety

For regulatory details such as the classification and labelling as dangerous substances or goods please refer to our corresponding Material Safety Data Sheet.

Contact Us;
Please contact us for safety and regulatory details or the Material Safety Data Sheet (MSDS).

www.clariant.com

Clariant International Ltd