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Irganox® 1010

Phenolic primary antioxidant for processing and long-term thermal stabilization

Characterization

Irganox 1010 – a sterically hindered phenolic antioxidant – is a highly effective, non discoloring stabilizer for organic substrates such as plastics, synthetic fibers, elastomers, adhesives, waxes, oils and fats. It protects these substrates against thermo-oxidative degradation.

Chemical name

Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)

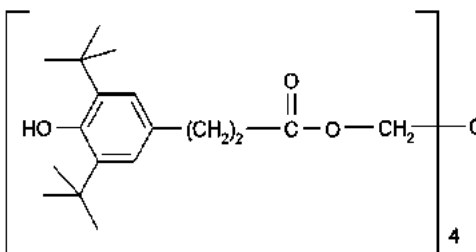
CAS number

6683-19-8

Structure

Irganox 1010

Chemical formula



Molecular weight

1178 g/mol

Applications

Irganox 1010 can be applied in polyolefins, such as polyethylene, polypropylene, polybutene and olefin copolymers such as ethylene-vinylacetate copolymers. Also, its use is recommended for the processing of polymers such as polyacetals, polyamides and polyurethanes, polyesters, PVC, styrene homo- and copolymers, ABS, elastomers such as butyl rubber (IIR), SBS, SEBS, EPM and EPDM as well as other synthetic rubbers, adhesives, natural and synthetic tackifier resins, and other organic substrates.

Features/benefits

Irganox 1010 has good compatibility, high resistance to extraction and low volatility. It is odorless and tasteless. The product can be used in combination with other additives such as costabilizers (e. g. thioethers, phosphites, phosphonites), light stabilizers and other functional stabilizers. The effectiveness of the blends of Irganox 1010 with Irgafos 168 (Irganox B-blends) or with Irgafos 168 and Irgafos FS042 is particularly noteworthy.

Product forms

Irganox 1010	white, free-flowing powder
Irganox 1010 FF	white, free-flowing granules
Irganox 1010 DD	white to slightly green pellets

Guidelines for use

Already 0.05 %–0.1 % ppm of Irganox 1010 provide long-term thermal stability to the polymer. Concentrations up to several percent may be used depending on the substrate and the requirements of the end application. In polyolefins the concentration levels for Irganox 1010 range between 0.05 % and 0.4 % depending on substrate, processing conditions and long-term thermal stability requirements. The optimum level has to be determined application specific. Concentration levels of Irganox 1010 in hot melt adhesives range from 0.2 % to 1 %, in synthetic tackifier resins, Irganox 1010 concentration ranges between 0.1 % and 0.5 %. Extensive performance data of Irganox 1010 in various organic polymers and applications are available upon request.

Physical Properties

Melting range:	110–125 °C
Flashpoint:	297 °C
Density (20 °C):	1.15 g/ml
Vapor pressure (20 °C):	7 E-10 Pa (extrapolated)

Bulk density:	
Powder:	530–630 g/l
FF:	480–570 g/l
DD:	450–550 g/l

Solubility (20 °C)	g/100 g solution
Acetone	47
Chloroform	71
Ethanol	1.5
Ethylacetate	47
n-Hexane	0.3
Methanol	0.9
Methylene chloride	63

Health & Safety

Irganox 1010 exhibits a very low order of oral toxicity and does not present any abnormal problems in its handling or general use.

Detailed information on handling and any precautions to be observed in the use of the product(s) described in this leaflet can be found in our relevant health and safety information sheet.

Note

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