The Chemical Company

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Irganox® 5057

Aminic Antioxidant for Processing and Long-Term Thermal Stabilization

Characterization

Irganox 5057 is a 100 % active, liquid aromatic amine antioxidant for various polymers, including polyols and polyurethane.

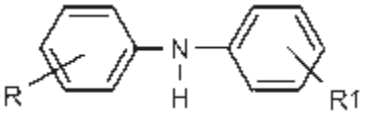
Chemical name

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene

CAS number

68411-46-1

Chemical formula



R, R1 = H, C_4H_9, or C_8H_{17} and other alkyl chains

Applications

Irganox 5057 is used in combination with hindered phenols, such Irganox 1135, as an excellent co-stabilizer in polyurethane foams. In the manufacture of flexible polyurethane slabstock foams, core discoloration or scorching results from the exothermic reaction of diisocyanate with polyol and diisocyanate with water. Proper stabilization of the polyol protects against oxidation during storage and transport of the polyol, as well as scorch protection during foaming. Irganox 5057 can also be used in other polymers such as elastomers and adhesives, and other organic substrates.

Features/benefits

Irganox 5057 is highly efficient and prevents, even at low concentrations, thermal degradation of polymers. Irganox 5057, when used in combination with a phenolic antioxidant, such as the liquid Irganox 1135, is very active in preventing scorching of polyurethane flexible foams.

The low volatility and liquid nature of Irganox 5057 make it ideally suited to many substrates and applications. Irganox 5057 is produced to contain a very low amount residual of diphenylamine, to address customer needs in some PUR markets.

Product forms

Irganox 5057	pale, yellow liquid

Guidelines for use

Typical use levels for Irganox 5057 are between 0.1 % and 0.4 %. Irganox 5057 is a liquid, which is pumpable or can be poured allowing for automatic dosing and reduction in mixing times.

Irganox 5057 may also be used as a co-stabilizer in hot melt adhesives at concentrations of about 0.1 % to 0.5 %. For example, oven aging of an EVA-based hot melt adhesive show superior performance of Irganox 5057 as a co-stabilizer with Irganox 1010, when compared with Irganox 168 as a co-stabilizer also with Irganox1010. Irganox 5057 can be used in combination with other stabilizers, such as hindered phenolic antioxidants, UV absorbers, and hindered amine light stabilizers (HALS). Application data are available upon request.

Physical Properties

Flashpoint	175 °C
Vapor pressure (20 °C)	3 E-3 Pa
Viscosity (25°C)	1320 mPa.s
Density (20 °C)	0.97 g/ml

Solubility (20 °C)	**g/100 g solution**
Acetone	> 50
Chloroform	> 50
1,1-Dichloromethane	> 50
Ethyl acetate	> 50
Ethanol	> 50
Hexane	> 50
Methanol	20
Toluene	> 50
Water	< 0.1

Health & Safety

Irganox 5057 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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