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Tinuvin® 213

Liquid Benzotriazole UV Absorber

Characterization

Tinuvin 213 is a liquid ultraviolet light absorber (UVA) of the hydroxyphenyl benzotriazole class which imparts good light stability to a variety of polymers

Chemical name

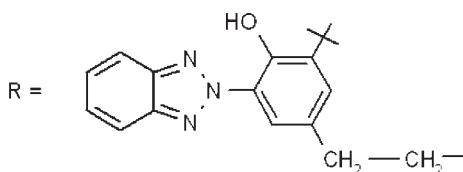
Reaction products of methyl 3-(3-(2H-benzotriazole-2-yl)-5-t-butyl-4-hydroxyphenyl) propionate / PEG 300

CAS number

Component A	104810-48-2	52 %
Component B	104810-47-1	35 %
Component C	25322-68-3	13 %

Chemical formula

Component A	$R - \text{COO} - [(\text{CH}_2)_2 - \text{O}]_n - \text{H}$
Component B	$R - \text{COO} - [(\text{CH}_2)_2 - \text{O}]_n - \text{CO} - R$
Component C	$\text{H O} - [(\text{CH}_2)_2 - \text{O}]_n - \text{H}$



Molecular weight

Component A: 637 g/mol
 Component B: 975 g/mol
 Component C: 300 g/mol

Applications

Tinuvin 213 is a pumpable liquid UVA useful in a variety of substrates and applications, including polyurethanes, adhesives, sealants, liquid color concentrates, elastomers, styrene homo- and copolymers, PMMA, vinyl polymers (PVB, PVC), engineering plastics (e.g. polycarbonate), polyesters and polyolefins.

Features/benefits

Tinuvin 213 provides excellent UV absorption to protect polymers from photodegradation. The liquid form of Tinuvin 213 offers ease of handling and incorporation. It is compatible with a wide variety of substrates. Tinuvin 213 is less volatile than many alternative UVAs, thus providing greater permanence during processing or heat aging conditions.

Product forms

light yellow liquid

Guidelines for use

Use levels of Tinuvin 213 range from 0.15 % to 1.0 %, depending on the substrate and performance requirements of the final application. Tinuvin 213 can be used alone or in a combination with other functional additives such as antioxidants (hindered phenols, phosphites) and HALS light stabilizers. Performance data are available in many substrates and applications.

Physical Properties

Melting Range	–40 °C (solidified)
Flashpoint	114 °C
Specific Gravity (20 °C)	1.173 g/ml
Vapor Pressure (25 °C)	9 E-5 Pa
Viscosity (20 °C)	6410 mPa·s
(40 °C)	850 mPa·s

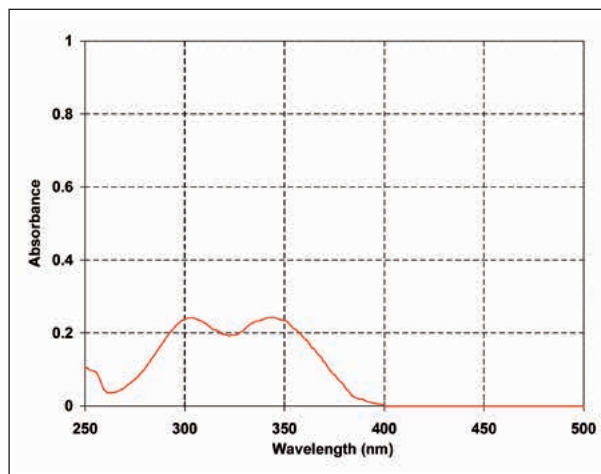
Solubility (20 °C)	g/100 g solution
Acetone	> 50
Chloroform	> 50
Cyclohexane	1
Ethanol	> 50
Ethyl acetate	> 50
n-Heptane	0.1
n-Hexane	0.5
Methanol	4
Methylene chloride	> 50
Toluene	> 50
Water	< 0.01

Volatility (pure substance; TGA, heating rate 10 °C/min in air)

Weight Loss %	Temperature °C
1.0	140
10.0	280

Absorbance spectrum

(10 mg/l, Chloroform)



Tinuvin 213 exhibits strong absorbance in the 300–400 nm region and minimal absorption in the visible region (> 400 nm) of the spectrum. The absorption maxima are at 303 nm and 344 nm ($\epsilon = 15'710 \text{ l/mol} \cdot \text{cm}$) in chloroform solution.

Handling & Safety

Tinuvin 213 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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March 2011

