Ciba® TINUVIN® P

Benzotriazole UV Absorber

Characterization

TINUVIN P is an ultraviolet light absorber (UVA) of the hydroxyphenyl benzotriazole class, imparting good light stability to a wide variety of polymers.

Chemical name

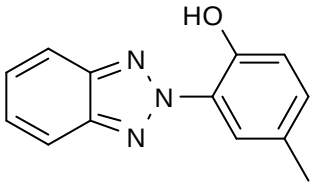
2-(2H-benzotriazol-2-yl)-p-cresol

CAS number

2440-22-4

Structure

TINUVIN P



Molecular weight

225 g/mol

Applications

TINUVIN P provides ultraviolet protection in a wide variety of polymers including styrene homo- and copolymers, engineering plastics such as polyesters and acrylic resins, polyvinyl chloride, and other halogen containing polymers and copolymers (e.g. vinylidenes), acetals and cellulose esters. Elastomers, adhesives, polycarbonate blends, polyurethanes, and some cellulose esters and epoxy materials also benefit from the use of TINUVIN P.

Features/benefits

TINUVIN P features a strong absorption of ultraviolet radiation in the 300-400 nm region. It also has a high degree of photostability over long periods of light exposure. The high absorbance combined with photostability and the ability to release absorbed energy in non sensitizing ways make TINUVIN P an effective stabilizer against the effects of ultraviolet light.

Product forms

Code:	TINUVIN P
Appearance:	Slightly yellow powder

Guidelines for use

The use levels of TINUVIN P range between 0.10% and 0.50%, depending on substrate and performance requirements of the final application. TINUVIN P can be used alone or in a variety of blends and combinations with Ciba IRGAFOS®, Ciba IRGANOX® and Ciba CHIMASSORB® stabilizers where often a synergistic performance is observed.

TINUVIN P may react with various heavy metal ions to form salts or complexes. For example, if TINUVIN P comes into contact with iron or cobalt ions, colored complexes are formed. Reducing and oxidizing agents used in polymerization and curing processes have no effect on the stability of TINUVIN P.

Physical Properties

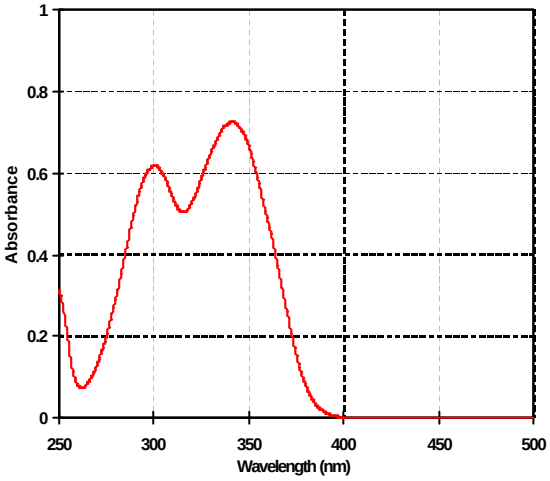
Melting Range	128-132 °C
Flashpoint	205 °C
Density (20 °C)	1.38 g/cm³
Vapor Pressure (20 °C)	1.5 E-4 Pa

Solubility (20 °C)	**% w/w**
Water	<0.01
Acetone	3
Benzene	7
Chloroform	13
Cyclohexane	1
Ethyl acetate	3.5
n-Hexane	0.8
Methanol	0.2
Methylene chloride	16

Volatitility — **Pure substance; TGA, heating rate 20 °C/min in air**

Weight Loss (%)	*Temperature °C*
1.0	153
2.0	170
5.0	190

Absorption Spectrum (10 mg/l, Chloroform)



TINUVIN P exhibits strong absorbance in the 300-400 nm region and minimal absorbance in the visible region (> 400 nm) of the spectrum. The absorption maxima are at 301 nm and 341 nm (ε = 16150 l/mol·cm) in chloroform solution.

Handling & Safety

In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Protect skin. Prevent contamination of the environment. Avoid dust formation and ignition sources.
For more detailed information please refer to the material safety data sheet.

Registration

TINUVIN P is listed on the following Inventories:

Australia:	AICS
Canada:	DSL
China:	First Import
Europe:	EINECS
Japan:	MITI
Korea:	ECL
Philippines:	PICCS
USA:	TSCA

TINUVIN P is approved in many countries for use in food contact applications.
For detailed information refer to our Positive List or contact your local sales office.