Hampford Research INC
Handcrafted Solutions For A High-Tech World

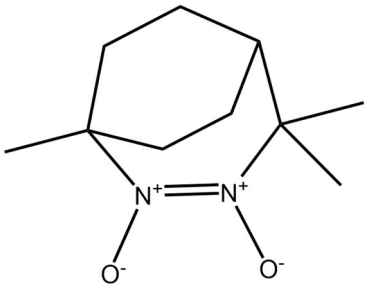
UVTS-52
FP 5445

General

UVTS-52 is a specifically developed azodioxide, formulated for use as an inhibitor in UV photopolymerization reactions. Its unique structure allows the function to be thermally reversible, inhibiting UV polymerization at room temperature, while subsequently allowing the reaction to initiate upon exposure to heat. UVTS-52 temporarily sequesters the acid generated from cationic photoinitiators (photoacid generators, PAGs). In some cases, UVTS-52 can also temporarily sequester the donated proton from coinitiators in type II photoinitiator systems.

Monomer blends containing UVTS-52, can be exposed to UV light without polymerizing, remaining in monomeric form until heat is applied. This makes UVTS-52 ideal for use in industrial adhesives, composite applications, contrast enhancement in stereolithography, and linewidth and edge control in photoresists. It can also be used as a room temperature pot life stabilizer in certain systems.

Chemical Structure



Product Information

Product Type:	Thermally Reversible Polymerization Inhibitor
CAS Number:	34122-40-2
Product Name:	1,4,4-Trimethyl-2,3-diazabicyclo[3.2.2]non-2-ene 2,3-dioxide
Synonyms:	2,3-Diazabicyclo[3.2.2]non-2-ene, 1,4,4-trimethyl-, 2,3-dioxide (8CI, 9CI, ACI)
Applications:	Industrial Adhesives; Stereolithography Contrast Enhancer; Pot Life Stabilizer; Linewidth and Edge Control Photoresists

Typical Properties

Appearance:	Off-White Crystals
Shelf Life:	6 Months when stored at 25°C
Molecular Weight:	198.26 g/mole

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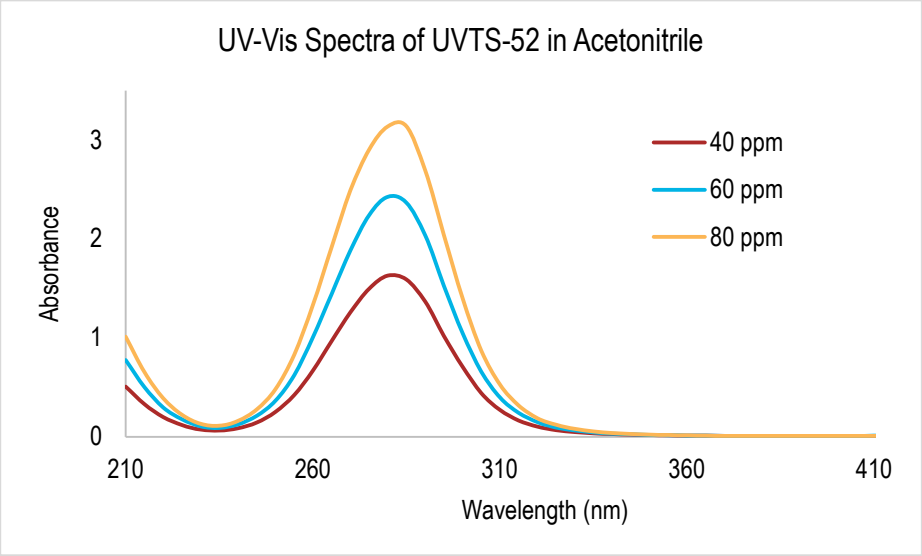
Absorption Spectrum



Safety and Handling

Keep the container tightly closed. Store in a cool and dark place. Material is photosensitive and heat sensitive, do not expose to heat, sunlight, or visible light. Handle in a well-ventilated area with suitable protective equipment. Detailed information is provided in the SDS. 6-month shelf-life when stored at 25°C.

Usage Recommendations

UVTS-52 has been shown to be an effective inhibitor when used in concentrations between 0.1-1% by mass, however results will vary depending upon your system.

The use of sensitizers is often beneficial in any system to expand upon the wavelength absorbance range. This is especially beneficial if the absorbance of the system's PAG overlaps with UVTS-52's absorbance (~275nm). Common sensitizers can be used without interfering with the thermal reversibility of the inhibitor.

UV Light sources must be free of IR radiation, as this will reverse the inhibitor, inducing polymerization. It is advisable to avoid the longer wavelengths of visible light.

Post UV cure, a typical epoxy system can sit for >10 minutes, prior to heat exposure, with no effect on curing. Examples of heat cure times are on the table to the right. Exact times and temperatures will vary by formulation.

Temperature (°C)	Exposure (minutes)
100+	<1
75-85	1 - 5
60-65	>5

For additional information visit our website www.hampfordresearch.com.

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