



## Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant

MSDS date: 08-Sep-2006

**NFPA Rating:** Health: 1 Flammability: 1 Instability: 0  
**HMIS Rating:** Health: 1\* Flammability: 1 Physical Hazard: 0 Personal Protection: X

\* Indicates possible chronic health effects

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Tinuvin 234

**Product Number:** 0613965

**Intended Use:** UV Absorber

**Manufacturer/Supplier:** Ciba Specialty Chemicals Corporation  
540 White Plains Road  
Tarrytown, NY 10591  
8:30am - 5pm Phone Number: 1-914-785-2000  
MSDS Request Line (voicemail): 1-800-431-2360  
Customer Service/Product Information 1-800-474-4731

**Emergency 24-Hour Health/Environmental Phone: 1-800-873-1138**

### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**Signal Word:** CAUTION!  
**Physical Form:** Solid  
**Color:** Light yellow  
**Odor:** None  
**Health:** Chronic exposure may cause liver damage. .  
**Physical Hazards:** Refer to MSDS Section 7 for Dust Explosion information. .  
**Environmental:** This product is moderately toxic to aquatic organisms. Releases to the environment are to be avoided.

**OSHA Hazardous Substance:** This material is classified as not hazardous under OSHA regulations.

**Primary Route(s) of Entry:** Ingestion, Skin, Inhalation, Eyes.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### HAZARDOUS COMPONENTS

Components	CAS Number	Weight %
2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol	70321-86-7	100

### 4. FIRST AID MEASURES

<b>Eyes:</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin:</b>	Wash off immediately with soap and plenty of water. Get medical attention if irritation occurs.
<b>Inhalation:</b>	Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.
<b>Ingestion:</b>	Do not induce vomiting. If vomiting occurs naturally, have casualty lean forward to reduce the risk of aspiration. Seek medical attention immediately.
<b>Notes to physician:</b>	None known.

### 5. FIRE FIGHTING MEASURES

<b>Fire Fighting Measures:</b>	Standard procedure for chemical fires.
<b>Suitable Extinguishing Media:</b>	Carbon dioxide, dry chemical, foam or water mist.
<b>Fire Fighting Equipment:</b>	Wear self-contained breathing apparatus and protective suit.
<b>Unusual hazards:</b>	The product can form an explosive dust/air mixture. For further information, see Section 7 Explosion Hazards.
<b>Hazardous Combustion Products:</b>	Burning may produce toxic combustion products.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Cleanup Instructions:</b>	Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Wear suitable protective equipment. Should not be released into the environment.
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### 7. HANDLING AND STORAGE

<b>Handling:</b>	As with all industrial chemicals, use good industrial practices when handling. Avoid eye, skin, and clothing contact. Do not inhale. Do not taste or swallow. Use only with adequate ventilation.
<b>Storage:</b>	Keep containers tightly closed in a cool, well-ventilated place.

**Explosion Hazards:**

- Combustible powder.
- Avoid creating dusty conditions.
- Grounding is required when emptying into a conductive container.
- When flammable solvents are present, the container must be inerted or the system otherwise designed to prevent or contain an explosion. Seek expert advice.

In addition, for products packaged in fused-lined (coated) fiber drums, fiber drums with conductive liners, steel drums, steel pails, and Type "C" FIBC (bulk bags), or other conductive the following instructions also apply:

- Always ground this package before emptying.

The user is responsible for designing the system to handle solid and ensuring proper training of employees in the system's use.

**For Industrial Use Only****8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Guidelines:**

There are no OSHA or ACGIH exposure guidelines available for component(s) in this product.

Components	OSHA PEL	OSHA STEL	ACGIH TWA	ACGIH STEL	Ciba/ Manufacturer IEL:
2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol 70321-86-7					2 mg/m <sup>3</sup>

**Ciba IEL for Product:** 2 mg/m<sup>3</sup> air (8 hour TWA)

**Personal Protective Equipment**

**Eye/Face Protection:** Wear safety glasses or goggles to protect against dust particles.

**Skin Protection:** Wear chemical resistant gloves and protective clothing.

**Respiratory Protection:** Use NIOSH approved respirator as needed to mitigate exposure.

**Engineering Controls:** Work in well ventilated areas. Do not breathe dust.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical Form:</b>	Solid
<b>Color:</b>	Light yellow
<b>Odor:</b>	None.
<b>Boiling Point:</b>	Not applicable
<b>Freezing/Melting Point:</b>	135 - 143°C (275 - 289°F)
<b>Solubility in water:</b>	< .04 ppm @ 20 °C
<b>Vapor Density:</b>	Not applicable
<b>Vapor Pressure:</b>	~ 1.5x10 <sup>-12</sup> mm Hg @ 20°C (68°F)
<b>Density:</b>	Not determined
<b>Specific Gravity:</b>	~ 1.22 (Water = 1)
<b>pH:</b>	Not determined

<b>Percent Volatile:</b>	< 0.5 %
<b>VOC:</b>	< 0.5 %
<b>Partition Coefficient (Octanol/Water):</b>	log Pow = 6.5
<b>Decomposition Temperature:</b>	> 350°C (662°F)
<b>Ignition Temperature:</b>	400°C (752°F) BAM (fluidized dust method)
<b>Flammability Limits in Air:</b>	
<b>Flash point:</b>	195°C (383°F)
<b>Test Method (for Flash Point):</b>	Pensky-Martens Closed Cup (ASTM D-93)

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable.
<b>Conditions to Avoid:</b>	Avoid static discharge.
<b>Incompatibility:</b>	Strong oxidizing agents, strong acids, strong bases.
<b>Hazardous Decomposition Products:</b>	No decomposition expected under normal storage conditions.
<b>Possibility of Hazardous Reactions:</b>	None expected.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute Oral Toxicity:</b>	LD50 7550 mg/kg (Rats)
<b>Acute Dermal Toxicity:</b>	LD50 >2000 mg/kg (Rats)
<b>Acute Inhalation Toxicity:</b>	Not determined.
<b>Eye Irritation:</b>	(Rabbits) Not an irritant.
<b>Skin Irritation:</b>	(Rabbits) Not an irritant.
<b>Skin Sensitization:</b>	(Guinea pig) Maximization test: Not a sensitizer.
<b>Carcinogenicity (IARC; NTP; OSHA; ACGIH):</b>	None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.
<b>Mutagenicity:</b>	Ames test: Non-mutagenic Nucleus anomaly test in somatic interphase nuclei (Chinese hamsters): Non-mutagenic Sister chromatid exchange studies on somatic cells (Chinese hamsters): Non-mutagenic Autoradiographic DNA repair test on rat hepatocytes: Non-mutagenic
<b>Reproductive Toxicity:</b>	Not determined
<b>Teratogenicity:</b>	(Rats) During a teratology study, rats received oral doses of 0, 300, 1,000 or 3,000 mg/kg/day on days 6-15 of gestation. No teratogenic or embryotoxic effects were noted in this study. The no observable effect level (NOEL) was 3000 mg/kg for maternal toxicity and embryotoxic and teratogenic effects.
<b>Neurotoxicity:</b>	Not determined

<b>Subacute Toxicity:</b>	Not determined
<b>Subchronic Toxicity:</b>	During a 90-day feeding study with rats, dietary doses of 0, 50, 300, 2000 and 10,000 ppm were fed. Increases in liver weights were seen at 300 ppm and above. No liver enzyme changes were found but hepatocellular hypertrophy or vacuolization was evident at the two highest doses. These latter findings did not completely reverse during a 30-day recovery period. The no observable effect level (NOEL) was 50 ppm, equivalent to 3.7 mg/kg/day.
<b>Chronic toxicity:</b>	Not determined
<b>Absorption / Distribution / Excretion / Metabolism:</b>	Not determined
<b>Additional Information:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Toxicity to Fish:</b>	LC50: > 67 ppm 96 hour (Zebra fish)
<b>Toxicity to Invertebrates:</b>	EC50: > 91 ppm 24 hour (Daphnia magna)
<b>Toxicity to Algae:</b>	EC50: > 100 ppm 72 hour (Green algae)
<b>Toxicity to Sewage Bacteria:</b>	Inhibitory concentration on respiration of aerobic waste water bacteria: IC20, IC50, IC80 >100 ppm
<b>Activated Sludge Respiration Inhibition Test:</b>	Not determined
<b>Biochemical Oxygen Demand (BOD):</b>	Not determined
<b>Chemical Oxygen Demand (COD):</b>	2.383 g COD/g
<b>Total Oxygen Demand (TOD):</b>	Not determined
<b>Biodegradability:</b>	Modified Sturm test: Not readily biodegradable, with 3-6% in 28 days
<b>Bioaccumulation:</b>	Japanese (MITI) bioaccumulation study, carp: Not bioaccumulative at test concentrations of 1 and 0.1 ppm.
<b>Additional Environmental Data:</b>	Not determined

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal:** Dispose in accordance with local, state, provincial and federal regulations.

## 14. TRANSPORT INFORMATION

**U.S. Department of Transportation (DOT):**

Not regulated for this mode of transport.

**International Maritime Dangerous Goods (IMDG):**

Not regulated for this mode of transport.

**International Air Transportation Authority (IATA):**

Not regulated for this mode of transport.

## 15. REGULATORY INFORMATION

### Federal Regulations

**OSHA Hazardous Substance:** This material is classified as not hazardous under OSHA regulations

**Clean Air Act - Hazardous Air Pollutants (HAP):** This product does not contain any Hazardous Air Pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

**Clean Air Act - Volatile Organic Compounds (VOC):** This product does not contain any SOCMII Intermediate or Final Volatile Organic Compounds (VOC), as defined by the U.S. Clean Air Act Section 111 (40 CFR 60.489).

**Clean Air Act - Ozone Depleting Substances (ODS):** This product neither contains, nor was manufactured with, a Class I or Class II ozone depleting substance (ODS), as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A+B).

**Clean Water Act - Priority Pollutants (PP):** This product does not contain any priority pollutants listed under the U.S. Clean Water Act Section 307 (2)(1) Priority Pollutant List (40 CFR 401.15).

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261.21).

**SARA Section 302 Extremely Hazardous Substances (EHS):** This product does not contain any components regulated under Section 302 (40 CFR 355) as Extremely Hazardous Substances.

**SARA Section 304 CERCLA Hazardous Substances:** This product does not contain any components regulated under Section 304 (40 CFR 302) as hazardous chemicals for emergency release notification ("CERCLA" List).

**SARA Section 311/312 Hazard Communication Standard (HCS):** This product is regulated under Section 311/312 HCS (40 CFR 370). Its hazard(s): Chronic (delayed) health hazard.

**SARA Section 313 Toxic Chemical List (TCL):** This product does not contain any component(s) listed on the Section 313 Toxic Chemical List.

**TSCA Section 8(b) Inventory Status:** All component(s) comprising this product are either exempt or listed on the TSCA inventory.

**TSCA Section 5(e) Consent Orders:** This product is not subject to a Section 5(e) Consent Order.

**TSCA Significant New Use Rule (SNUR):** This product is not subject to a Significant New Use Rule (SNUR).

**TSCA Section 5(f):** This product is not subject to a Section 5(f)/6(a) rule.

**TSCA Section 12(b) Export Notification:** This product does not contain any component(s) that are subject to a Section 12(b) Export Notification

### **State Regulations**

**California Proposition 65:** This product does not contain any components currently on the California list of Known Carcinogens and Reproductive Toxins.

**Pennsylvania Right-To-Know:** This product does not contain any components that are subject to the Pennsylvania Right-To-Know disclosure requirement.

### **International Regulations**

**Chemical Weapons Convention (CWC):** This product does not contain any component(s) listed under the Chemical Weapons Convention Schedule of Chemicals.

**Domestic Substance List (DSL) Status:** All components either exempt or listed on the DSL.

## **16. OTHER INFORMATION**

**Disclaimer:** The information contained herein is based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to such data or information. The user is responsible for determining whether the product is suitable for its intended conditions of use.