

PRODUCT AND REGULATORY INFORMATION

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Ciba Inc. has committed to Responsible Care and Product Stewardship as a corner stone of its environmental, health and safety policy and management practices. Its business processes aim at minimizing business and regulatory non-compliance risks and at establishing sustainable relationships through the whole value chain from vendors to end users in an environment of increasing chemicals control regulation and product liability worldwide.

Disclaimer: The information provided below is based on the technical information available at the date of publication.

SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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Product Trade Name: Ciba® TINUVIN® 360

- Material Safety Data Sheet EU



- Material Safety Data Sheet USA



- Material Safety Data Sheet Canada



- Technical Data Sheet



PRODUCT AND REGULATORY INFORMATION

REGISTRATION

CHEMICAL INVENTORY STATUS

The following table reflects regulatory status (Inventory listing) for product based on its component(s) for general industrial applications and use. Local chemical legislation might apply in addition. For further support, please consult local MSDS and /or contact your local PS&R representative.

Legal Area	Inventory Status	Statement
Australia	Inventory Listed	Listed in the legal area register
Canada DSL	Inventory Listed	All components either exempt or listed on the DSL
Switzerland	Inventory Listed	Listed in the legal area register
China	Inventory Listed	Listed in the legal area register
Japan ENCS	Inventory Listed	Listed in the legal area register
Japan ISLH	Inventory Listed	Listed in the legal area register
Korea	Inventory Listed	Listed in the legal area register
New Zealand	Inventory Listed	Listed in the legal area register
Philippines	Inventory Listed	Listed in the legal area register
USA	Inventory Listed	All component(s) comprising this product are either exempt or listed on the TSCA inventory
EU	-	Compliant with REACH (Regulation (EC) No 1907/2006, June 2007). More info at MyBusiness@Ciba at www.ciba.com)

Disclaimer:

The information provided has been compiled to the best of our knowledge and belief. No claim for completeness is made. Users should only treat this as a guide and should make their own assessment. Ciba Inc. assumes no liability for the content or any use of the content.

TRANSPORT

UN-Number	SEE CURRENT MSDS
Packaging Group	
Technical Name	
Marine Pollutant	



PRODUCT AND REGULATORY INFORMATION

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CUSTOMS/TRADE INFORMATION

Harmonized Customs Tariff Code:

Country :	International
Customs code :	293399
Country :	Switzerland
Customs code :	29339990999
Customs code (import) :	29339990999
Country :	European Union
Customs code :	2933999025
Country :	Germany
Customs code :	29339990250
Country :	USA
Customs code :	2933997900

INTERNATIONAL CONVENTIONS

Convention	
Chemical Weapons	THIS PRODUCT CONTAINS NO CHEMICALS BANNED OR RESTRICTED BY THESE CONVENTIONS
Dual Use	
Drug / Drug Precursor	
POP (<i>Persistent Organic Pollutant</i>)	
Rotterdam PIC (Prior Informed Consent)	

ADDITIONAL COUNTRY SPECIFIC DATA REQUIREMENTS

INFORMATION ON COUNTRY SPECIFIC REGULATIONS SUCH AS TRANSPORT, EXPOSURE LIMITS, REGISTRATION NUMBERS, LOCAL LEGAL REQUIREMENTS ETC., IS GIVEN ON THE COUNTRY SPECIFIC MSDS- PLEASE CONTACT YOUR LOCAL CIBA SALES OFFICE OR <http://www.cibasc.com/pf/>

[COMPOSITIONAL DETAIL](#)

PRODUCT AND REGULATORY INFORMATION

CONSTITUENTS

Constituent		
Aromatic amines (German list)	NONE OF THE SUBSTANCES LISTED ARE USED IN THE PRODUCTION OF or INTENTIONALLY ADDED DURING THE PROCESSING OF THIS PRODUCT	
Asbestos		
Azo compounds		
Bisphenol A, Bisphenol S		
Boranes		
Chlorinated paraffins		
Chlorinated solvents		
Creosote		
Dioxins/furans		This product is made under conditions not expected to produce dioxins or furans
Natural rubber latex		NONE OF THE SUBSTANCES LISTED ARE USED IN THE PRODUCTION OF or INTENTIONALLY ADDED DURING THE PROCESSING OF THIS PRODUCT
Nonylphenol / Nonylphenol ethoxylates		
Octylphenol /Octylphenol ethoxylates		
Organo-cadmium pigments		
Organo-tin compounds		
Ozone depleting substances , CFCs etc. incl EU regulated (2037/2000/EC)		
Penta/octabrom/decabromo-diphenyl ethers		
Phthalates incl EU regulated (di-isononyl, di 2ethylhexyl, di-n-octyl, di-n-decyl, butylbenzyl, di-butyl)		
Polybrominated biphenyls/terphenyls		
Polybrominated/chlorinated organic compounds		
Polychlorinated biphenyls/terphenyls		
PAH (Polycyclic Aromatic Hydrocarbons)		
PFOS (Perfluorooctanesulfonates)		
PFAS (Perfluoroalkyl sulfonates)		
PFOA (Perfluorooctanoic acid)		

TRACE METALS AND SUBSTANCES WITH END ARTICLE COMPLIANCE STATEMENTS

This information is based on random analysis & not quality control nor part of a specification, nor may it be construed as a warranty, express or implied.



PRODUCT APPLICATION AND USE DATA

FOOD CONTACT APPROVAL STATUS

No food approval available

PRODUCT AND REGULATORY INFORMATION

PRODUCT SOURCING

SOURCE OF ALL INGREDIENTS USED IN THE PRODUCT:

Synthetic: yes no partly

Animal origin: yes no partly

Animal: bovine ovine (sheep) caprine (goat) other

In the case of animal origin:

Can risks linked with Bovine Spongiform Encephalopathy (BSE) be excluded, based on the pre treatment of the material complying with the conditions of inactivation of the agents of Bovine Spongiform Encephalopathy (BSE), as described in Commission Decision 97/735/EC and amendment(s)?

yes no

Vegetable origin: yes no partly

In the case of vegetable origin:

Derived from genetically manipulated organisms (GMO):

yes no unknown not guaranteed

This product is manufactured from starting materials which do not knowingly contain allergenic material viz peanuts, milk, fish, tree nuts, soybean, eggs, shellfish, wheat

yes no

Global Product Safety & Registration
Plastic Additives Segment
Ciba Inc.
CH 4002 Basel, Switzerland
psr_pa.service@ciba.com

Date of last amendment: 03.04.2009
Document validity/ next revision date: 24 months from last amendment

Safety Data Sheet

May not comply with national legislation; shall be used only as a source of information.



TINUVIN 360

Release: 1.1 (REG_EU)
Date / Revised: 05.03.2008
Date of Print: 07.03.2008

1. Identification of the Substance/Preparation and of the Company/Undertaking

Designation/Trade Name: **TINUVIN 360**
Use: stabilizer
Company: Ciba AG
Klybeckstrasse 141
CH-4002 BASEL
Schweiz
Tel +41 61 636 1111
Fax +41 61 636 1212
Emergency contact: +41 61 632 07 79

2. Composition/Information on Ingredients

Chemical nature:

2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)

Hazardous ingredients		Classification*	Content (%)
CAS-No.: 103597-45-1 EC-No.: 403-800-1	2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)	R 53	100

*) The wording of the hazard symbols and R-phrases is specified in chapter 16 if dangerous ingredients are mentioned.

3. Hazards Identification

Classified according to Annex 1

R phrase(s):

R53 May cause long-term adverse effects in the aquatic environment.

4. First-aid Measures

If inhaled:

Move to fresh air. Seek medical attention if you feel unwell or if exposure prolonged. In case of irritation of the respiratory system or mucous membranes, seek medical attention.

On skin contact:

Wash with plenty of soap and water. Do not use organic solvents. Get medical attention if irritation occurs.

On contact with eyes:

Rinse immediately with plenty of water for at least 10 minutes taking care to wash under the eyelids. If irritation persists, seek medical attention.

On ingestion:

Affected person should drink 500 - 800 ml water, if possible with suspended activated carbon for medical use. In case of spontaneous vomiting be sure that vomitus can freely drain because of danger of suffocation. Give water repeatedly. Rinse mouth and then drink plenty of water. Induce vomiting (only first-aid staff) if person is conscious. Seek medical attention. Never give anything by mouth to an unconscious person.

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5. Fire-fighting Measures

Suitable extinguishing media:

water spray, carbon dioxide, foam, dry powder

Unsuitable extinguishing media for safety reasons:

water jet

Combustion products:

Carbon oxides., Nitrogen oxides, toxic gases/vapours

Exposure hazards:

Do not release chemically contaminated water into drains, soil or surface water. Sufficient measures must be taken to retain the water used for extinguishing. Dispose of contaminated water and soil according to local regulations.

Special protective equipment:

Full protective clothing. Wear a self-contained breathing apparatus.

6. Accidental Release Measures

Personal precautions:

Do not breathe vapours/dust. Sources of ignition should be kept well clear. Avoid contact with the skin, eyes and clothing.

Environmental precautions:

Prevent entry into sewage systems, ground and surface waters.

Methods for cleaning-up or taking-up:

Take up mechanically and collect in suitable container (adequately labelled) for disposal. Collect waste in suitable containers, which can be labeled and sealed. Avoid raising dust.

7. Handling and Storage

Handling

Handle and open container with care. Avoid dust formation and ignition sources. Ensure good local exhaust ventilation. Do not eat, drink or smoke at the workplace. Close containers immediately after use.

Protection against fire and explosion:

Avoid creating dusty conditions. Risk of explosion if an air-dust mixture forms. Inert container or use a system otherwise designed to prevent or contain an explosion - seek expert advice.

Storage requirements:

Keep away from food and drink. Keep only in the original container. Keep container tightly closed. Avoid dust formation and ignition sources. Ensure good local exhaust ventilation. Do not eat, drink or smoke at the workplace. Keep in a dry, cool place.

8. Exposure Controls and Personal Protection

Exposure limit values

103597-45-1: 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)

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Release: 1.1 (REG_EU)
Date / Revised: 05.03.2008
Date of Print: 07.03.2008

Company Internal Exposure Limit:
8h TWA: 10 mg/m³ (Inhalable)
General exposure limit for inhalable particulate matter

Technical measures/precautions:

Exposure limit(s) should be monitored using suitable analytical equipments.

Respiratory protection:

Dustmask.

Hand protection:

Protective gloves.

Eye protection:

Safety glasses with side-shields.

Skin and body protection:

Working clothes.

Closed footwear.

9. Physical and Chemical Properties

Form:	powder	
Colour:	slightly yellow	
Odour:	odourless	
pH value:	Not applicable	
Melting point:	> 195 °C	(Directive 92/69/EEC, A.1)
Boiling point:	Not applicable	
Flash point:	Not applicable	
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Ignition temperature:	400 °C	(BAM)
Self-ignition temperature:	No self-ignition	(Directive 92/69/EEC, A.16)
Explosion hazard:	not explosive	(Directive 92/69/EEC, A.14)
Fire promoting properties:	not fire-propagating	(Directive 92/69/EEC, A.17)
Vapour pressure:	0.6 pPa (25 °C) Extrapolated value	(OECD 104/EC A.4)
Density:	1.2 g/cm ³ (20 °C)	(EC A.3)
Solubility in water:	< 0.007 mg/l (20 °C)	(Directive 92/69/EEC, A.6)
Solubility:	acetone 0.4 g/l (20 °C) Chloroform 1,481.7 g/l (20 °C) Ethanol 0.2 g/l (20 °C) n-Hexane 0.2 g/l (20 °C) Dichloromethane (Methylene chloride) 1,002 g/l (20 °C) Toluene 296 g/l (20 °C)	
Partitioning coefficient n-octanol/water (log Pow):	12.7 calculated	(OECD Guideline 117)

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10. Stability and Reactivity

Decomposition temperature:

> 350 °C (Temperature program (Lütolf))

Conditions to avoid:

Avoid electro-static discharge.

Materials to avoid:

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products:

Carbon oxides., nitrogen oxides, toxic gases/vapours

11. Toxicological Information

Acute oral toxicity:

rat/LD50: > 2,000 mg/kg
(OECD Guideline 401)

Acute dermal toxicity:

rat/LD50: > 2,000 mg/kg
(OECD Guideline 402)

Acute inhalation toxicity:

Not tested

Skin irritation/corrosion:

rabbit/non-irritant (OECD Guideline 404)

Eye irritation/corrosion:

rabbit/non-irritant (OECD Guideline 405)

Skin Sensitization:

guinea pig/Non-sensitizing. (OECD Guideline 406)

Genetic toxicity in vitro:

Ames-test/Non-mutagenic. (OECD 471/EC B.14)

Repeated dose toxicity:

rat / Subacute Toxicity:
NOEL: > 1000 mg/kg (OECD 407/EC B.7)

12. Ecological Information

Toxicity to fish:

Brachydanio rerio/96 h/LC50: > 12.7 mg/l (Directive 92/69/EEC, C.1)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic invertebrates:

Daphnia magna/48 h/EC50: > 50.2 mg/l (Directive 92/69/EEC, C.2)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic plants:

Scenedesmus subspicatus/72 h/LC50: > 2.0 mg/l (OECD 201/EC C. 3)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to microorganisms:

activated sludge/3 h/EC50: > 100 mg/l (EEC C. 11)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

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Biodegradation:

28 d: (OECD Guideline 302 C)
Not readily biodegradable.

Chemical oxygen demand (COD):

1,870 mg/g (Directive 84/449/EEC, C.9)

Bioaccumulation:

< 1.5 (OECD Guideline 305 C)

Additional remarks environmental fate and pathway:

Do not discharge product uncontrolled into the environment.

13. Disposal Considerations

Waste from residue/unused products:

Residual chemical should be disposed by incineration or by other modes of disposal in compliance with local legislation.

Contaminated packaging:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

Dispose of in accordance with national, state and local regulations.

Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

14. Transport Information

Land transport (ADR):

Not classified as a dangerous good under transport regulations.

Land transport (RID):

Not classified as a dangerous good under transport regulations.

Sea transport (IMDG):

Not classified as a dangerous good under transport regulations.

Air transport (ICAO/IATA):

Not classified as a dangerous good under transport regulations.

15. Regulatory Information

Regulations of the European Union (Labelling) / National legislation/regulations

Classified according to Annex 1

R phrase(s):

R53 May cause long-term adverse effects in the aquatic environment.

S phrase(s):

S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

Contains:

2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)

EC Number: 403-800-1

Safety Data Sheet

May not comply with national legislation; shall be used only as a source of information.



TINUVIN 360

Release: 1.1 (REG_EU)
Date / Revised: 05.03.2008
Date of Print: 07.03.2008

16. Other Information

Use:

Restricted use:

THIS MATERIAL IS NOT INTENDED FOR USE IN PRODUCTS FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES, BODY FLUIDS OR ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS SPECIFICALLY INTENDED, UNLESS THE FINISHED PRODUCT HAS BEEN TESTED IN ACCORDANCE WITH NATIONALLY AND INTERNATIONALLY APPLICABLE SAFETY TESTING REQUIREMENTS. BECAUSE OF THE WIDE RANGE OF SUCH POTENTIAL USES, CIBA IS NOT ABLE TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR SUCH USES AND ASSUMES NO LIABILITY FOR SUCH USES.

R phrases and hazard symbols:

R53 May cause long-term adverse effects in the aquatic environment.

Vertical lines in the left hand margin indicate an amendment from the previous version.

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with any legal regulation. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

NFPA Hazard codes:

Health: 1 Fire: 1 Reactivity: 0 Special:

HMIS III rating

Health: 1 Flammability: 1 Physical hazard: 0 Personal protection: X

HMIS Note: * Indicates possible chronic health effects.

1. Identification of the Substance/Preparation and of the Company/Undertaking

Company Information

Company: Ciba Corporation
540 White Plains Road
P.O. Box 2005
Tarrytown, NY 10591-9005
U.S.A.
Customer Service / Product Information: 1-800-474-4731
MSDS Request Line: 1-800-431-2360

Emergency information

Emergency 24-Hour Health/Environmental Phone: (24h) +1-800-873-1138
CHEMTREC: (800) 424-9300 (24hrs) or (703) 527-3887

Product information

Product: TINUVIN 360
Use: stabilizer

2. Hazards Identification

Emergency overview

Signal word: NOTICE! !
Colour: slightly yellow
Appearance: powder
State of matter: solid
Odour: odourless
Health: This product presents little or no immediate hazard to people if spilled or released.
Physical/Chemical hazards: Refer to MSDS Section 7 for Dust Explosion information.

Potential health effects

Primary routes of entry:

Ingestion, Skin, Inhalation, Eyes

Potential environmental effects

This product is moderately toxic to aquatic organisms. Releases to the environment are to be avoided.

3. Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS Number</u>	<u>Content (Weight)</u>	<u>Hazardous</u>
PHENOL, 2,2'-METHYLENEBIS[6-(2H-BENZOTRIAZOL-2-YL)-4-(1,1,3,3-TETRAMETHYLBUTYL)- (9CI)	103597-45-1	1.0 - 100.0 %	N

This material is classified as not hazardous under OSHA regulations.

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

4. First-aid Measures

Inhalation:

Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.

Skin:

If clothing is contaminated, remove and launder before reuse.
After contact with skin, wash immediately with plenty of water and soap.
Get medical attention if irritation occurs.

Eyes:

Immediately flush the eye(s) with lukewarm, gently flowing water for 15 minutes or until the chemical is removed.
Get immediate medical attention if irritation persists.

Ingestion:

Do not induce vomiting. If vomiting occurs naturally, have casualty lean forward to reduce the risk of aspiration.
Seek medical attention immediately.

Notes to physician:

None known.

5. Fire-fighting Measures

Suitable extinguishing media:

carbon dioxide, dry powder, foam, water fog

Hazardous combustion products:

Burning may produce toxic combustion products.

Hazards during fire-fighting:

Standard procedure for chemical fires.
The product can form an explosive dust/air mixture. For further information, see Section 7 Explosion Hazards.

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

6. Accidental Release Measures

Cleanup:

Sweep up and shovel into suitable containers for disposal.
Avoid raising dust.
Wear suitable protective equipment.
Should not be released into the environment.

7. Handling and Storage

Handling

General advice:

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.

Protection against fire and explosion:

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) fiberdrums, 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.

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

Storage

General advice:

Keep container tightly closed in a cool, well-ventilated place.

> for industrial use only <

8. Exposure Controls and Personal Protection

Engineering Controls:

Work in well ventilated areas. Do not breathe dust.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified respirator as necessary.

Eye protection:

Wear safety goggles (chemical goggles) if there is potential for airborne dust exposures.

Body protection:

Wear chemical resistant gloves and protective clothing.

General safety and hygiene measures:

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

9. Physical and Chemical Properties

Colour:	slightly yellow	
Form:	powder	
State of matter:	solid	
Odour:	odourless	
pH value:		Not tested
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Flash point:		Not applicable
Self-ignition temperature:		(Directive 92/69/EEC, A.16) No self-ignition
Dust explosion class:	Very heavy dust explosion (>300 bar.m/sec). (3)	
Melting point:	> 195 °C	
Boiling point:		Not applicable
Vapour pressure:		(25 °C) (OECD 104/EC A.4) Extrapolated value
Density:	1.2 g/cm ³	(20 °C) (EC A.3)
Partitioning coefficient n-octanol/water (log Pow):	12.7	(20 - 25 °C) (OECD Guideline 117) calculated
% Volatiles:		not determined
Solubility in water:	< 0.007 mg/l	(20 °C)
Solubility in other solvents:		Not tested
Autoignition:	400 °C	(BAM)
Decomposition temperature:	> 350 °C	(Temperature program (Lütolf))
	> 200 °C	(with air (Grewer))

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

10. Stability and Reactivity

Conditions to avoid: Avoid electro-static discharge. Avoid sources of ignition.

Substances to avoid: Strong oxidizing agents, strong acids, strong bases.

Possibility of Hazardous Reactions: No hazardous reactions known.

Hazardous decomposition products: No decomposition expected under normal storage conditions.

11. Toxicological Information

Acute oral toxicity:

LD50 / oral / rat: > 2,000 mg/kg

Acute inhalation toxicity:

Not tested

Acute dermal toxicity:

LD50 / dermal / rat: > 2,000 mg/kg

Skin irritation:

(Rabbits) Not an irritant.

Eye irritation:

(Rabbits) Not an irritant.

Skin Sensitization:

(Guinea pig) Maximization test: Not a sensitizer.

Subchronic Toxicity:

(Rats) In a 14 day study and 28 study, 0 to 1000 mg/Kg was administered orally. No significant effects were recorded. The no-observable effect level (NOEL) was recorded as 1000 mg/Kg. (Rats) The test article was administered by gavage for at least 93 days at dose levels of 100, 300 or 1,000 mg/Kg. All animals survived the study with no clinical signs of toxicity. There were no effects on body weight, food consumption, behavioral reactions, hematology, urinalysis or gross and histopathologic examination. The NOEL was determined to be 1,000 mg/Kg.

Subacute Toxicity:

not determined

Chronic toxicity:

not determined

Genetic toxicity:

Cytogenic: Negative.

Chinese Hamster Cells (V79): Negative.

Ames Test (S. typhimurium and E. coli): Negative

Carcinogenicity:

None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity:

not determined

Developmental toxicity/teratogenicity:

not determined

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

Additional Information:

Not determined

12. Ecological Information

Toxicity to fish:

Brachydanio rerio/96 h/LC50: > 12.7 mg/l (Directive 92/69/EEC, C.1)

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic invertebrates:

Daphnia magna/24 h/EC50: > 50.2 mg/l (Directive 92/69/EEC, C.2)

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic plants:

algae/72 h/EC50: > 2.0 mg/l (OECD 201/EC C. 3)

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to microorganisms:

activated sludge/3 h/IC50: > 100 mg/l (EEC C. 11)

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Biodegradation:

Evaluation: Not biodegradable.

Bioaccumulation:

OECD Guideline 305 C

Bioconcentration factor: < 1.5

13. Disposal Considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

Resource Conservation and Recovery Act (RCRA): Not a hazardous waste under RCRA (40 CFR 261).

14. Transport Information

U.S. Department of Transportation

The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

Road transport:

Special shipping information: Not classified as a dangerous good under transport regulations.

Air transport:

Special shipping information: Not classified as a dangerous good under transport regulations.

Inland-waterway transport:

Special shipping information: Not classified as a dangerous good under transport regulations.

15. Regulatory Information

Canada: Domestic Substances List (DSL): All components either exempt or listed on the DSL

US: Toxic Substances Control Act (TSCA): All component(s) comprising this

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

product are either exempt or listed on the TSCA inventory

United States - Regulations

SARA Section 311/312 Hazard Communication Standard:

Acute Health:	N	Fire:	N
Chronic Health:	N	Reactivity:	N
		Sudden release of pressure:	N

SARA Reportable Quantities:

No components listed.

SARA Section 313 Toxic Chemical List:

No components listed.

OSHA hazard category:

This material is classified as not hazardous under OSHA regulations.

Toxic Substances Control Act (TSCA) Significant New Use Rule (SNUR):

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

Toxic Substances Control Act (TSCA) Section 5(e) Consent Orders:

This product is not subject to a Section 5(e) Consent Order.

Toxic Substances Control Act (TSCA) Section 5(f):

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

Toxic Substances Control Act (TSCA) Section 12(b) Export Notification:

No components listed.

Clean Air Act 111 - Volatile Organic Compounds (VOC):

This product does not contain any SOCOM 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 602 - 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).

Pennsylvania Right to Know:

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

California Proposition 65 - Chemicals Known to the State to Cause Cancer:

No components listed.

California Proposition 65 - Chemicals Known to the State to Cause Reproductive Toxicity:

No components listed.

International Regulations

Chemical Weapons Convention:

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

16. Other Information

Material Safety Data Sheet

OSHA / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.2

Product: TINUVIN 360

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.

END OF DATA SHEET

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

1. Identification of the Substance/Preparation and of the Company/Undertaking

Company Information

Company: Ciba Canada Ltd.
2626 Argentia Road
Mississauga, Ontario L5N 5N2
Canada
Customer Service / Product Information: 1-866-679-2422

Emergency information

Emergency 24-Hour Health/Environmental Phone: 24h: +1-800-873-1138
CANUTEC: (613) 996-6666 (24hrs)

Product information

Product: TINUVIN 360
Use: stabilizer

2. Hazards Identification

Emergency overview

Signal word: NOTICE! !
Colour: slightly yellow
Appearance: powder
State of matter: solid
Odour: odourless
Health: This product presents little or no immediate hazard to people if spilled or released.
Physical/Chemical hazards: Refer to MSDS Section 7 for Dust Explosion information.

Potential health effects

Primary routes of entry:

Ingestion, Skin, Inhalation, Eyes

Potential environmental effects

This product is moderately toxic to aquatic organisms. Releases to the environment are to be avoided.

3. Composition/Information on Ingredients

This material does not contain any hazardous components that are reportable according to WHMIS criteria.

4. First-aid Measures

Inhalation:

Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.

Skin:

If clothing is contaminated, remove and launder before reuse.
After contact with skin, wash immediately with plenty of water and soap.
Get medical attention if irritation occurs.

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

Eyes:

Immediately flush the eye(s) with lukewarm, gently flowing water for 15 minutes or until the chemical is removed. Get immediate medical attention if irritation persists.

Ingestion:

Do not induce vomiting. If vomiting occurs naturally, have casualty lean forward to reduce the risk of aspiration. Seek medical attention immediately.

Notes to physician:

None known.

5. Fire-fighting Measures

Suitable extinguishing media:

carbon dioxide, dry powder, foam, water fog

Hazardous combustion products:

Burning may produce toxic combustion products.

Hazards during fire-fighting:

Standard procedure for chemical fires.

The product can form an explosive dust/air mixture. For further information, see Section 7 Explosion Hazards.

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

6. Accidental Release Measures

Cleanup:

Sweep up and shovel into suitable containers for disposal.

Avoid raising dust.

Wear suitable protective equipment.

Should not be released into the environment.

7. Handling and Storage

Handling

General advice:

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.

Protection against fire and explosion:

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) fiberdrums, 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.

Storage

General advice:

Keep container tightly closed in a cool, well-ventilated place.

> for industrial use only <

8. Exposure Controls and Personal Protection

Engineering Controls:

Work in well ventilated areas. Do not breathe dust.

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified respirator as necessary.

Eye protection:

Wear safety goggles (chemical goggles) if there is potential for airborne dust exposures.

Body protection:

Wear chemical resistant gloves and protective clothing.

General safety and hygiene measures:

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

9. Physical and Chemical Properties

Colour:	slightly yellow	
Form:	powder	
State of matter:	solid	
Odour:	odourless	
pH value:		Not tested
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Flash point:		Not applicable
Self-ignition temperature:		(Directive 92/69/EEC, A.16) No self-ignition
Dust explosion class:	Very heavy dust explosion (>300 bar.m/sec). (3)	
Melting point:	> 195 °C	
Boiling point:		Not applicable
Vapour pressure:		(25 °C) (OECD 104/EC A.4) Extrapolated value
Density:	1.2 g/cm ³	(20 °C) (EC A.3)
Partitioning coefficient n-octanol/water (log Pow):	12.7	(20 - 25 °C) (OECD Guideline 117) calculated
% Volatiles:		not determined
Solubility in water:	< 0.007 mg/l	(20 °C)
Solubility in other solvents:		Not tested
Autoignition:	400 °C	(BAM)
Decomposition temperature:	> 350 °C	(Temperature program (Lütolf))
	> 200 °C	(with air (Grewer))

10. Stability and Reactivity

Conditions to avoid: Avoid electro-static discharge. Avoid sources of ignition.

Substances to avoid: Strong oxidizing agents, strong acids, strong bases.

Possibility of Hazardous Reactions: No hazardous reactions known.

Hazardous decomposition products: No decomposition expected under normal storage conditions.

11. Toxicological Information

Acute oral toxicity:

LD50 / oral / rat: > 2,000 mg/kg

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

Acute inhalation toxicity:

Not tested

Acute dermal toxicity:

LD50 / dermal / rat: > 2,000 mg/kg

Skin irritation:

(Rabbits) Not an irritant.

Eye irritation:

(Rabbits) Not an irritant.

Skin Sensitization:

(Guinea pig) Maximization test: Not a sensitizer.

Subchronic Toxicity:

(Rats) In a 14 day study and 28 study, 0 to 1000 mg/Kg was administered orally. No significant effects were recorded. The no-observable effect level (NOEL) was recorded as 1000 mg/Kg. (Rats) The test article was administered by gavage for at least 93 days at dose levels of 100, 300 or 1,000 mg/Kg. All animals survived the study with no clinical signs of toxicity. There were no effects on body weight, food consumption, behavioral reactions, hematology, urinalysis or gross and histopathologic examination. The NOEL was determined to be 1,000 mg/Kg.

Subacute Toxicity:

not determined

Chronic toxicity:

not determined

Genetic toxicity:

Cytogenic: Negative.
Chinese Hamster Cells (V79): Negative.
Ames Test (S. typhimurium and E. coli): Negative

Carcinogenicity:

None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity:

not determined

Developmental toxicity/teratogenicity:

not determined

Additional Information:

Not determined

12. Ecological Information

Toxicity to fish:

Brachydanio rerio/96 h/LC50: > 12.7 mg/l (Directive 92/69/EEC, C.1)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic invertebrates:

Daphnia magna/24 h/EC50: > 50.2 mg/l (Directive 92/69/EEC, C.2)
No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to aquatic plants:

algae/72 h/EC50: > 2.0 mg/l (OECD 201/EC C. 3)

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Toxicity to microorganisms:

activated sludge/3 h/IC50: > 100 mg/l (EEC C. 11)

No effects at the highest tested concentration. The tested concentration is well above its water solubility

Biodegradation:

Evaluation: Not biodegradable.

Bioaccumulation:

OECD Guideline 305 C

Bioconcentration factor: < 1.5

13. Disposal Considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

14. Transport Information

TDG (Canada) Road transport

Special shipping information: Not classified as a dangerous good under transport regulations.

International Air Transport Association (IATA)

Special shipping information: Not classified as a dangerous good under transport regulations.

International Maritime Dangerous Goods Code (IMDG)

Special shipping information: Not classified as a dangerous good under transport regulations.

15. Regulatory Information

Canada: Domestic Substances List (DSL):

All components either exempt or listed on the DSL

US: Toxic Substances Control Act (TSCA):

All component(s) comprising this product are either exempt or listed on the TSCA inventory

Canada Regulations

Workplace Hazardous Materials Information System (WHMIS Classification):

This product is not WHMIS controlled.

Significant New Activity Conditions (SNAC):

This product does not contain any components subject to a SNAC Notice.

International Regulations

Chemical Weapons Convention:

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

16. Other Information

Product Safety Contact:

Prepared by: Terence Ma (905) 812-7280

Phone number of preparer:

Date / Revised: 02-23-2007

Material Safety Data Sheet

WHMIS / ANSI Z400.1-2004 Compliant



Date / Revised: 02-23-2007

Release: 1.1

Product: TINUVIN 360

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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.

END OF DATA SHEET



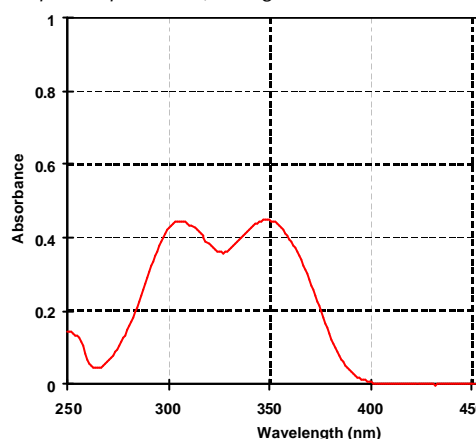
Ciba® TINUVIN® 360

Very Low Volatile Benzotriazole UV Absorber

Characterization	TINUVIN® 360 is a very low volatile, dimeric 2-hydroxy benzotriazole UV-absorber used in a variety of polymers and resin compositions.		
Chemical name	2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-1,1,3,3-tetramethylbutyl)phenol		
CAS number	103597-45-1		
Structure	TINUVIN 360 		
Molecular weight	659 g/mol		
Applications	TINUVIN 360 applications include acrylic resins, polyalkylene terephthalates, polycarbonates, modified polyphenylene ether or sulfide compounds, polyamides, polyacetals, polyolefins, styrenics, elastomers and high performance plastics.		
Features/benefits	<p>TINUVIN 360 is particularly suitable for processing and aging conditions where high loads, low volatility and good compatibility are required. The specific objective is to achieve high UV-screen performance and minimize sublimation through vents as well as prevention of deposits on molds, chill-rolls or calibrators. It can prevent exudation/crystallization on end-parts during manufacturing or exposure to high service temperatures.</p> <p>Such requirements are especially critical for complex moldings, fibers, sheets, twin wall sheets, thin films, adhesive layers and laminated or co-extruded semi-finished parts.</p> <p>Depending on equipment, processing conditions, and polymer types, TINUVIN 360 allows direct two-layer co-extrusion of sheets without the use of a neutral third top layer to prevent sublimation and/or deposits generated by the thin, highly UVA-loaded second layer.</p>		
Product forms	<i>Code:</i>	TINUVIN 360	TINUVIN 360 ED
	<i>Appearance:</i>	Slightly yellow powder	Slightly yellow, free-flowing granules
Guidelines for use	<p>TINUVIN 360 (0.2 - 10% by weight) can be readily incorporated in the polymer by using conventional techniques such as powder, solution, or melt blending (e.g. extrusion compounding).</p> <p>TINUVIN 360 can be used alone or in a variety of blends and combinations with Ciba IRGAFOS®, Ciba IRGANOX®, TINUVIN, Ciba CHIMASSORB® and other functional stabilizers where often a synergistic performance is observed.</p>		

Physical Properties	
Melting Point	195 °C
Flashpoint	>200 °C
Density (20 °C)	1.2 g/cm ³
Vapor Pressure (25 °C)	6 E-13 Pa
Solubility (20 °C)	
Water	<0.001
Acetone	0.01
Chloroform	10
Ethanol	0.01
Ethyl acetate	0.01
n-Hexane	0.01
Methylene chloride	7.5
Toluene	3.4
Volatility	
Weight Loss (%)	Pure substance; TGA, heating rate 20°C/min in air Temperature °C
1.0	333
2.0	350

Absorption Spectrum (10 mg/l, Chloroform)



TINUVIN 360 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 308 nm and 349 nm ($\epsilon = 31895$ l/mol·cm) in chloroform solution

Handling & Safety	
	In accordance with good industrial practice, handle with care and 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 360 is listed on the following Inventories:
Australia:	AICS
China:	First Import
Europe:	ELINCS
Japan:	MITI
Korea:	ECL
USA:	TSCA

IMPORTANT: The following supersedes Buyer's documents.

SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is interded; or for uses for which implantation within the human body is intended.

TINUVIN 360

Element/Substance	aluminium	antimony	arsenic	barium	cadmium	calcium	chromium	copper	lead	manganese	mercury	nickel	selenium	tin	zinc
Abbreviation	Al	Sb	As	Ba	Cd	Ca	Cr	Cu	Pb	Mn	Hg	Ni	Se	Sn	Zn
Analytical Method		ICP-AES	ICP-MS	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES	ICP-AES
Content max. [ppm]		10	10		10		10	10	10		10	10		10	10

Element/Substance	bromine	chlorine	iron	potassium	magnesium	sodium	sulfur	silicon	PBB	PBDPE					
Abbreviation	Br	Cl	Fe	K	Mg	Na	S	Si	PBB	PBDPE					
Analytical Method															
Content max. [ppm]									none	none					

none: not used or intentionally added

END ARTICLE COMPLIANCE STATEMENTS

EU Directive 94/62/EC ("Packaging and packaging waste directive") as amended by 2004/12/EC 30.6.2001– WHEREIN the total heavy metals is below the following:

Pb + Cd + Cr + Hg 100 ppm

- **YES - the product conforms to the requirements of the Directive**

Trace metal requirement of the EU Directive 2000/53/EC ("End of life vehicle directive") as amended 27.6.2002 –WHEREIN the total heavy metals is below the following:

Pb 1000 ppm

Cd 100 ppm

Cr (VI) 1000 ppm

Hg 1000 ppm

- **YES - the product conforms to the trace metal requirements of the Directive**

Note: customers must also refer to the msds for hazard classification (defined by Directive 67/548/EEC)

EU Directive 91/689/EEC ("Hazardous Waste Directive")

- **YES- the product conforms to the trace metal requirements of the Directive**

Note: customers must refer to the msds for hazard classification (defined by Directive 67/548/EEC)

EU Directive 2002/95/EC ("ROHS"-Electrical & Electronic Equipment) under which Hg, Cd, Pb, Cr VI and PBB, PBDPE are to be reduced to:

Pb 1000 ppm

Cd 100 ppm

Cr (VI) 1000 ppm

Hg 1000 ppm

PBB 1000 ppm

PBDPE 1000 ppm

- **YES - the product conforms to the requirements of the Directive**

EU Directive 2002/96/EC (Waste Electrical & Electronic Equipment WEEE) .

under which Hg, PCB, PCT; CFC, HCFC; HFC; hydrocarbons, plastic-containing brominated flame retardants asbestos, ozone depleting substances (see Annex II).

Note the Constituents table & information on trace metals given above

- **YES - the product conforms to the requirements of the Directive**

European standards for the safety of toys EN Standard: EN 71-3 (1994); WHEREIN the total heavy metals is below the following:

Sb	60 ppm
As	25 ppm
Ba	1000 ppm
Cd	75 ppm
Cr	60 ppm
Pb	90 ppm
Hg	60 ppm
Se	500 ppm

• **NO- the product does not conform to the requirements of the EN 71-3 or has not been evaluated**

Compliance with Regulation (EC) No 1907/2006 ANNEX XVII

(RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, PREPARATIONS AND ARTICLES Previous Marketing and Use Directives)

• **YES- the correct use of this product will not lead to contravention of this regulation as implemented on June 1st 2007-note the constituents table & information on trace metals given above**

Compliance with Automotive Lists- specifically the requirements listed in Global Automotive Declarable Substance List GADSL (March 2008)

• **NO - the product does not conform to the requirements or has not been evaluated**

Compliance with US Council of Northeastern Governors (CONEG) WHEREIN the total heavy metals is below the following:

Cd	100 ppm
Hg	100 ppm
Pb	100 ppm
Cr	100 ppm

• **YES - the product conforms to the requirements of the Directive**

Compliance with California Proposition 65 and other USA State regulations

SEE USA COUNTRY SPECIFIC MSDS - PLEASE CONTACT YOUR LOCAL CIBA SALES OFFICE