

SAFETY DATA SHEET

Version 5.6
Revision Date 02/27/2015
Print Date 04/30/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Butylated hydroxytoluene
Product Number : W218405
Brand : Aldrich
CAS-No. : 128-37-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Warning

Hazard statement(s)

H410 : Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 : Avoid release to the environment.

P391 : Collect spillage.

P501 : Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances**

Synonyms : 2,6-Di-tert-butyl-4-methylphenol
BHT
DBPC

2,6-Di-tert-butyl-p-cresol
Butylhydroxytoluene
Butylated hydroxytoluene

Formula : C₁₅H₂₄O
Molecular weight : 220.35 g/mol
CAS-No. : 128-37-0
EC-No. : 204-881-4

Hazardous components

Component	Classification	Concentration
2,6-di-tert-Butyl-p-cresol		
	Aquatic Acute 1; Aquatic Chronic 1; H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2,6-di-tert-Butyl-p-cresol	128-37-0	TWA	2.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: crystalline Colour: white
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: 69 - 73 °C (156 - 163 °F) - lit.
f) Initial boiling point and boiling range	265 °C (509 °F) - lit.
g) Flash point	127.0 °C (260.6 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	0.01 hPa (0.01 mmHg) at 20.0 °C (68.0 °F)
l) Vapour density	No data available
m) Relative density	1.05 g/cm ³ at 20 °C (68 °F)
n) Water solubility	0.0004 g/l at 20 °C (68 °F) - slightly soluble
o) Partition coefficient: n-octanol/water	log Pow: 5.1
p) Auto-ignition temperature	470.0 °C (878.0 °F)
q) Decomposition temperature	No data available
r) Viscosity	3.47 mm ² /s at 80 °C (176 °F) -
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

Solubility in other Toluene - soluble

solvents	Methanol - soluble Acetone - soluble
Dissociation constant	12.2

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Acid chlorides, Acid anhydrides, Oxidizing agents, Bases, Brass, Copper

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 6,000 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Eyes - Rabbit
Result: No eye irritation
(Read-across (Analogy))

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Ames test
S. typhimurium
Result: negative

Mouse - male and female
Result: negative

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - No observed adverse effect level - 25 mg/kg
RTECS: GO7875000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 - *Oryzias latipes* - 5.3 mg/l - 48 h

Toxicity to daphnia and other aquatic invertebrates static test EC50 - *Daphnia magna* (Water flea) - 0.48 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to bacteria Growth inhibition EC50 - Protozoa - 1.7 mg/l - 24 h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-di-tert-Butyl-p-cresol)
 Marine pollutant:yes

IATA

UN number: 3077 Class: 9 Packing group: III
 Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (2,6-di-tert-Butyl-p-cresol)

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,6-di-tert-Butyl-p-cresol	128-37-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,6-di-tert-Butyl-p-cresol	128-37-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,6-di-tert-Butyl-p-cresol	128-37-0	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3.**

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6

Revision Date: 02/27/2015

Print Date: 04/30/2016

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12

Version: 9.0

Page: 1/12

(30074902/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

TINUVIN® 328

Recommended use of the chemical and restriction on use

Unsuitable for 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, we are not able to recommend this material as safe and effective for such uses and assume no liability for such uses.

Recommended use*: additive for the plastics industry

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C22 H29 N3 O
Chemical family:	Additive for plastic material stabilization
Synonyms:	UV Stabilizer

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

STOT RE

2

Specific target organ toxicity — repeated

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 2/12
(30074902/SDS_GEN_US/EN)

Aquatic Chronic	4	exposure
Combustible Dust	Combustible Dust (1)	Hazardous to the aquatic environment - chronic Combustible Dust

Label elements

Pictogram:



Signal Word:
Warning

Hazard Statement:

H373	May form combustible dust concentration in air. May cause damage to organs (Liver, Kidney) through prolonged or repeated exposure.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary Statements (Prevention):

P260	Do not breathe dust/gas/mist/vapours.
P273	Avoid release to the environment.

Precautionary Statements (Response):

P311	Call a POISON CENTER or doctor/physician.
------	---

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
------	---

Hazards not otherwise classified

See section 12 - Results of PBT and vPvB assessment. If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. The product is under certain conditions capable of dust explosion.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

CAUTION:

May cause mechanical irritation to eyes, skin and respiratory system.
Overexposure may cause liver and kidney damage, and blood disorders.
Take precautionary measures against static discharges.
Refer to MSDS Section 7 and 10 for Dust Explosion information.
Avoid dust formation.
Use with local exhaust ventilation.
Wear suitable protective clothing, gloves and eye/face protection.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
-------------------	-----------------	----------------------

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 3/12
(30074902/SDS_GEN_US/EN)

25973-55-1 <= 100.0% 2-(2H-Benzotriazol-2-yl)-4,6-ditertpentylphenol

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
25973-55-1	100.0 %	2-(2H-Benzotriazol-2-yl)-4,6-ditertpentylphenol

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention.

If on skin:

Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

If irritation develops, seek medical attention.

If swallowed:

Rinse mouth immediately with water. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting due to aspiration hazard. Seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
dry powder, foam

Unsuitable extinguishing media for safety reasons:
carbon dioxide

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 4/12
(30074902/SDS_GEN_US/EN)

Additional information:

Avoid whirling up the material/product because of the danger of dust explosion.

Special hazards arising from the substance or mixture

Hazards during fire-fighting:

harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

6. Accidental release measures

Further accidental release measures:

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Avoid the formation and build-up of dust - danger of dust explosion. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Use personal protective clothing.

Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Nonsparking tools should be used.

7. Handling and Storage

Precautions for safe handling

Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Closed containers should only be opened in well-ventilated areas. Avoid dust formation. Do not use any sparking tools.

Protection against fire and explosion:

Avoid dust formation. Take precautionary measures against static discharges.

Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Dust explosion class: Dust explosion class 2 (Kst-value 200 up to 300 bar m s⁻¹).

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 5/12
(30074902/SDS_GEN_US/EN)

Conditions for safe storage, including any incompatibilities

No applicable information available.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

8. Exposure Controls/Personal Protection

No occupational exposure limits known.

Advice on system design:

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.

Hand protection:

Wear chemical resistant protective gloves.

Eye protection:

Safety glasses with side-shields.

Body protection:

Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form:	powder	
Odour:	odourless	
Odour threshold:	No data available.	
Colour:	white to slightly yellow	
pH value:	5.8 (1 %(m), 20 - 25 °C) (as aqueous suspension)	
melting range:	80 - 86 °C (1,013 hPa)	(capillary tube method)
Boiling point:	not applicable	
Sublimation point:	No data available.	
Flash point:	229 °C	(DIN 51758)
Flammability:	not highly flammable	(Regulation 440/2008/EC, A.10)

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 6/12
(30074902/SDS_GEN_US/EN)

Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Autoignition:	450 °C	
	390 °C	(BAM)
Vapour pressure:	0.000005 Pa	(measured)
	(20 °C)	
Density:	1.17 g/cm ³	(pycnometer)
	(20 °C)	
Relative density:	No data available.	
Bulk density:	300 - 1,000 kg/m ³	
Vapour density:	No data available.	
Partitioning coefficient n-octanol/water (log Pow):	> 6.5	(OECD Guideline 117)
	(23 °C)	
Self-ignition temperature:	not self-igniting	
	not applicable	
Thermal decomposition:	> 220 °C	
	Thermal decomposition above the indicated temperature is possible. No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	not determined	
Particle size:	D50 11.6 µm	(measured)
Solubility in water:	< 0.0001 g/l	
	(20 °C)	
Solubility (quantitative):	No data available.	
Solubility (qualitative):	No data available.	
Molar mass:	351.49 g/mol	
Evaporation rate:	The product is a non-volatile solid.	
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

Oxidizing properties:

not fire-propagating

Dust explosivity characteristics:

Kst: 250 m.bar/s

Revaluation 2015

Dust explosion class:

Dust explosion class 2 (Kst-value 200 up to 300 bar m s⁻¹) (St 2)

Minimum ignition energy:

No data available.

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12

Version: 9.0

Page: 7/12

(30074902/SDS_GEN_US/EN)

Reactions with water/air:	Reaction with:	water
	Flammable gases:	no
	Toxic gases:	no
	Corrosive gases:	no
	Smoke or fog:	no
	Peroxides:	no
	Reaction with:	air
	Flammable gases:	no
	Toxic gases:	no
	Corrosive gases:	no
	Smoke or fog:	no
	Peroxides:	no
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
	Oven temperature:	220 °C
	Specific decomposition gas volume:	0.04 l/kg

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Dust explosion hazard.

Conditions to avoid

Avoid dust formation. Avoid deposition of dust. Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge.

Incompatible materials

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

> 220 °C

Thermal decomposition above the indicated temperature is possible. No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12

Version: 9.0

Page: 8/12

(30074902/SDS_GEN_US/EN)

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Oral

Type of value: LD50

Species: rat

Value: > 7,750 mg/kg (similar to OECD guideline 401)

Inhalation

Type of value: LC50

Species: rat

Value: > 0.4 mg/l (similar to OECD guideline 403)

Exposure time: 4 h

Highest concentration available for testing.

Dermal

Type of value: LD50

Species: rabbit

Value: > 1,100 mg/kg (similar to OECD guideline 402)

No mortality was observed.

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: Not irritating to eyes and skin.

Skin

Species: rabbit

Result: non-irritant

Method: OECD Guideline 404

Eye

Species: rabbit

Result: non-irritant

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test

Species: guinea pig

Result: Non-sensitizing.

Method: OECD Guideline 406

Aspiration Hazard

not applicable

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated oral exposure may affect certain organs. The substance may cause damage to the liver after repeated ingestion. The substance may cause damage to the kidney after repeated ingestion.

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12

Version: 9.0

Page: 9/12

(30074902/SDS_GEN_US/EN)

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture.

Carcinogenicity

Assessment of carcinogenicity: The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The results were determined in a Screening test (OECD 421/422).

Teratogenicity

Assessment of teratogenicity: In animal studies the substance did not cause malformations. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. No toxic effects occur within the range of solubility. May cause long-term adverse effects in the aquatic environment. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) > 100 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Limit concentration test only (LIMIT test). Nominal concentration.

Aquatic invertebrates

EC50 (24 h) > 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Nominal concentration.

EC50 (48 h) > 0.083 mg/l, Daphnia magna (OECD Guideline 202, part 1, semistatic)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Limit concentration test only (LIMIT test). The value meets the highest applied test concentration. No toxic effects occur within the range of solubility. The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants

EC50 (72 h) > 10 mg/l (biomass), Desmodemus subspicatus (OECD Guideline 201, static)

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 10/12
(30074902/SDS_GEN_US/EN)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. No effects at the highest test concentration. The EC50 is higher than the solubility limit. Nominal concentration.

No observed effect concentration (72 h) < 0.1 mg/l (biomass), *Desmodesmus subspicatus* (OECD Guideline 201, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. No effects at the highest test concentration. The EC50 is higher than the solubility limit. Nominal concentration.

EL50 (72 h) > 0.1 mg/l (growth rate), *Pseudokirchneriella subcapitata* (Algal growth inhibition test, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Limit concentration test only (LIMIT test). No toxic effects occur within the range of solubility. Nominal concentration.

No observed effect concentration (72 h) 0.1 mg/l (growth rate), *Pseudokirchneriella subcapitata* (Algal growth inhibition test, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Limit concentration test only (LIMIT test). No toxic effects occur within the range of solubility. Nominal concentration.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aquatic

activated sludge/EC20 (3 h): > 100 mg/l

Limit concentration test only (LIMIT test). Nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Not readily biodegradable (by OECD criteria). Poorly biodegradable.

Elimination information

2 - 8 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic)

Assessment photodegradation

After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

Bioaccumulative potential

Bioaccumulation potential

Bioconcentration factor: 4,790 (56 d) (OECD Guideline 305 E)

Accumulation in organisms is expected.

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is expected.

Additional information

Adsorbable organically-bound halogen (AOX):

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12
Version: 9.0

Page: 11/12
(30074902/SDS_GEN_US/EN)

This product contains no organically-bound halogen.

Other ecotoxicological advice:
Must not be discharged into the environment.

13. Disposal considerations

Waste disposal of substance:

Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations.

Container disposal:

Dispose of in accordance with national, state and local regulations. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA: None

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories):

Chronic; Fire (Combustible Dust)

NFPA Hazard codes:

Health : 1 Fire: 3 Reactivity: 0 Special:

HMIS III rating

Health: 1[□] Flammability: 3 Physical hazard: 0

16. Other Information

SDS Prepared by:

Safety Data Sheet

TINUVIN® 328

Revision date : 2016/01/12

Version: 9.0

Page: 12/12

(30074902/SDS_GEN_US/EN)

BASF NA Product Regulations

SDS Prepared on: 2016/01/12

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

TINUVIN® 328 is a registered trademark of BASF Corporation or BASF SE
IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED
HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS
PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT
PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO
DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR
TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING
WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE
MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET
FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED
WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE
SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED
A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY
UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION
FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO
OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION
GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Section 1: Identification

Product Name: (Z,E)-5,7-Dodecadienal
Product Code: (Z,E)-5,7-12Ald

Manufacturer: ISCA TECHNOLOGIES, Inc.
1230 Spring Street
Riverside, CA 92507
www.iscatech.com

Recommended Use: Insect Pheromone

Emergency Phone Number: 951 686 5008

Section 2: Hazard Identification

GHS-US classification and Hazard Statement:

H227 - Combustible Liquid
H316 - Causes mild skin irritation
H320 - Causes eye irritation
H335 - May cause respiratory irritation

Hazard Pictograms:



GHS07

Precautionary Statements:

P210 - Keep away from heat, open flames, sparks.
P233 - Keep container tightly closed.
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing mist, spray, vapors
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P280 - Wear eye protection, protective clothing, protective gloves
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell
P337+P313 - If eye irritation persists: Get medical advice/attention
P370+P378 - In case of fire: Use appropriate media for extinction
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P235 - Keep cool
P501 - Dispose of contents/container according to local, regional, national, and international regulations

Other Hazards

HMIS Rating
Health: 0
Flammability: 2
Reactivity: 0

NFPA Rating
Health: 0
Flammability: 2
Reactivity: 0

SECTION 3: Composition/information on ingredients

Name	Product Identifier	Molecular Mass	Molecular Formula	Chemical Name	GHS-US Classification
(Z,E)-5,7-Dodecadienal	CAS #: 75983-33-4	180.25	C ₁₂ H ₂₀ O	(Z,E)-5,7-Dodecadienal	H227, H316, H320, H335

SECTION 4: First aid measures

Description of first aid measures

Inhalation: Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.

Skin: In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Wash skin with soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention.

Eye: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: Do NOT induce vomiting. If person is drowsy or unconscious and vomiting, place on the left side with head down. Seek medical attention.

Most important symptoms and effects, both acute and delayed: Refer to Section 11 - Toxicological Information.

Notes to Physician: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

Suitable Extinguishing Media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Cool all affected containers with flooding quantities of water.

Unsuitable Extinguishing Media: Avoid the use of heavy water stream, as this may spread the fire.

Advice for firefighters: Exercise caution when fighting any chemical fire. Wear full protective gear. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Personal Precautions: Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) Keep out of low areas. Keep unauthorized personnel away. Stay upwind. Ventilate closed spaces before entering.

Environmental precautions: Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up: Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. A vapor suppressing foam may be used to reduce vapors. **LARGE SPILLS:** Dike far ahead of liquid spill for later disposal.

Section 7 - Handling and Storage

Storage: Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources. Keep container closed when not in use. Keep away from incompatible materials.

Incompatible materials: Keep away from heat, ignition sources oxidizers and strong acids.

SECTION 8: Exposure controls/personal protection

Exposure Controls:

Engineering Controls: Safety shower and eye wash. Mechanical exhaust required.

Personal Protective Equipment: Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

General Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Section 9 - Physical and Chemical Properties

Physical state:	Liquid	Specific Density:	Data not available
Odor:	Waxy, fatty	Partition coefficient n-octanol/water:	Data not available
pH:	Not applicable	Solubility:	Not soluble in water. Soluble in most organic solvents
Melting point:	Data Not Available	Evaporation Rate:	Data Not Available
Boiling point:	Data not available	Vapor Pressure:	Data Not Available
Flash Point:	Data Not Available		

Section 10: Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: High temperatures, sparks, open flames and live electrical circuits.

Incompatible materials: Oxidizing agents, strong acids.

Hazardous decomposition products: In case of fire oxides of carbon, fumes or vapors, soot and smoke may be produced.

Section 11 - Toxicological Information

Toxicological properties of this product have not been investigated

Section 12 - Ecological Information

Ecological properties of this product have not been investigated

Section 13 - Disposal Considerations

Appropriate Method of disposal: Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT: Not dangerous goods

IATA: Not dangerous goods

Section 15 - Regulatory Information

United States Regulatory information: SARA Listed: No

Canada Regulatory information: WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: No NDSL: No.

Section 16 - Other Information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Isca Technologies, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. Furthermore, Isca Technologies, Inc. assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer as described in Section 1.

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Section 1: Identification

Product Name: (Z,E)-5,7-Dodecadienol
Product Code: (Z,E)-5,7-12OH

Manufacturer: ISCA TECHNOLOGIES, Inc.
1230 Spring Street
Riverside, CA 92507
www.iscatech.com

Recommended Use: Insect Pheromone

Emergency Phone Number: 951 686 5008

Section 2: Hazard Identification

GHS-US classification and Hazard Statement:

H227- Combustible Liquid
H316 - Causes mild skin irritation
H320 - Causes eye irritation
H335 - May cause respiratory irritation

Hazard Pictograms:



Precautionary Statements:

P210 - Keep away from heat, open flames, sparks.
P233 - Keep container tightly closed.
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing mist, spray, vapors
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P280 - Wear eye protection, protective clothing, protective gloves
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell
P337+P313 - If eye irritation persists: Get medical advice/attention
P370+P378 - In case of fire: Use appropriate media for extinction
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P235 - Keep cool
P501 - Dispose of contents/container according to local, regional, national, and international regulations

HMIS Rating
Health: 0
Flammability: 2
Reactivity: 0

Other Hazards

NFPA Rating
Health: 0
Flammability: 2
Reactivity: 0

SECTION 3: Composition/information on ingredients

Name	Product Identifier	Molecular Mass	Molecular Formula	Chemical Name	GHS-US Classification
(Z,E)-5,7-Dodecadienol	CAS #: 73416-71-4	182.31	C ₁₂ H ₂₂ O	(Z,E)-5,7-Dodecadienol	H227, H316, H320, H335

SECTION 4: First aid measures

Description of first aid measures

Inhalation: Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.

Skin: In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Wash skin with soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention.

Eye: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: Do NOT induce vomiting. If person is drowsy or unconscious and vomiting, place on the left side with head down. Seek medical attention.

Most important symptoms and effects, both acute and delayed: Refer to Section 11 - Toxicological Information.

Notes to Physician: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

Suitable Extinguishing Media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Cool all affected containers with flooding quantities of water.

Unsuitable Extinguishing Media: Avoid the use of heavy water stream, as this may spread the fire.

Advice for firefighters: Exercise caution when fighting any chemical fire. Wear full protective gear. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Personal Precautions: Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) Keep out of low areas. Keep unauthorized personnel away. Stay upwind. Ventilate closed spaces before entering.

Environmental precautions: Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up: Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. A vapor suppressing foam may be used to reduce vapors. LARGE SPILLS: Dike far ahead of liquid spill for later disposal.

Section 7 - Handling and Storage

Storage: Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources. Keep container closed when not in use. Keep away from incompatible materials.

Incompatible materials: Keep away from heat, ignition sources oxidizers and strong acids.

SECTION 8: Exposure controls/personal protection

Exposure Controls:

Engineering Controls: Safety shower and eye wash. Mechanical exhaust required.

Personal Protective Equipment: Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

General Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Section 9 - Physical and Chemical Properties

Physical state:	Liquid	Specific Density:	0.844±0.06 g/cm ³ Temp: 20 °C
Odor:	Waxy, fatty	Partition coefficient n-octanol/water:	Log P: 8.540±0.253 Temp: 25°C
pH:	Not applicable	Solubility:	Not soluble in water. Soluble in most organic solvents
Melting point:	Data Not Available	Evaporation Rate:	Data Not Available
Boiling point:	340.6±10.0 °C @ Press: 760 Torr	Vapor Pressure:	1.68E-4 Torr. Temp: 25 °C
Flash Point:	Flash Point: 139.7±15.9 °C		

Section 10: Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: High temperatures, sparks, open flames and live electrical circuits.

Incompatible materials: Oxidizing agents, strong acids.

Hazardous decomposition products: In case of fire oxides of carbon, fumes or vapors, soot and smoke may be produced.

Section 11 - Toxicological Information

Toxicological properties of this product have not been investigated

Section 12 - Ecological Information

Ecological properties of this product have not been investigated

Section 13 - Disposal Considerations

Appropriate Method of disposal: Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations .

Section 14 - Transport Information

DOT: Not dangerous goods

IATA: Not dangerous goods

Section 15 - Regulatory Information

United States Regulatory information: SARA Listed: No

Canada Regulatory information: WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: No NDSL: No.

Section 16 - Other Information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Isca Technologies, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. Furthermore, Isca Technologies, Inc. assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer as described in Section 1.