

VITAFLO® 280

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

Date of issue: 07/14/2017 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : VITAFLO® 280
Other means of identification : EPA Reg. No. 400-564

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

Recommended use : Fungicide, Agriculture, For professional users only
Restrictions on use : No additional information available

1.3. Details of the supplier of the safety data sheet

MacDermid Agricultural Solutions, Inc.
245 Freight Street
Waterbury, CT 06702 - USA
T 1-866-761-9397
sds.request@arysta.com

1.4. Emergency telephone number

Emergency number : FOR 24-HOUR MEDICAL EMERGENCY ASSISTANCE CALL PROPHARMA: 1-866-303-6952
or +1-651-603-3432
FOR 24-HOUR CHEMICAL EMERGENCY (Spill, leaks, fire, exposure or accident) call
CHEMTREC: 1-800-424-9300 or +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2 H315
STOT RE 2 H373
Aquatic Acute 1 H400
Aquatic Chronic 2 H411

Full text of H statements : see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS07

GHS08

GHS09

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H315 - Causes skin irritation
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapours, spray
P264 - Wash hands, forearms and face thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves
P302+P352 - If on skin: Wash with plenty of soap, Water
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment (see First aid measures on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P391 - Collect spillage
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

- 1.59% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)
- 1.59% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)
- 1.59% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	% (w/w)	GHS-US classification
Carboxin	(CAS-No.) 5234-68-4	15.6	Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ethylene glycol	(CAS-No.) 107-21-1	10 – 20	Acute Tox. 4 (Oral), H302 STOT RE 2, H373
Tetramethylthiuram disulfide	(CAS-No.) 137-26-8	13.3	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Comb. Dust
Dispersant	(CAS-No.) trade secret	1 – 3	STOT RE 2, H373
Surfactant	(CAS-No.) trade secret	0.5 – 1.5	Eye Irrit. 2A, H319

*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects : May cause damage to organs through prolonged or repeated exposure.
- Symptoms/effects after skin contact : Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Burning produces irritating, toxic and noxious fumes.
- Explosion hazard : Product is not explosive.
- Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear a self contained breathing apparatus. Wear fire/ flame resistant/retardant clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid all eye and skin contact and do not breathe vapour and mist. Use personal protective equipment as required.

6.1.1. For non-emergency personnel

Protective equipment : Refer to section 8.2.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Refer to section 8.2.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid all eye and skin contact and do not breathe vapour and mist. Use personal protective equipment as required.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container. Keep container tightly closed.
Incompatible products : Strong bases. Strong acids. Strong oxidizers.
Incompatible materials : Sources of ignition. Direct sunlight.
Storage area : Store in dry, cool, well-ventilated area.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

VITAFLO® 280		
ACGIH	Not applicable	
OSHA	Not applicable	
Carboxin (5234-68-4)		
ACGIH	Not applicable	
OSHA	Not applicable	
Tetramethylthiuram disulfide (137-26-8)		
ACGIH	ACGIH TWA (mg/m ³)	0.05 mg/m ³

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Tetramethylthiuram disulfide (137-26-8)		
ACGIH	Remark (ACGIH)	Body weight & hematologic eff; DSEN; A4 (Not classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories)
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³

Dispersant (trade secret)		
ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ (Inhalable particulates not otherwise specified); 3 mg/m ³ (Respirable particulates not otherwise specified)
OSHA	Not applicable	

Surfactant (trade secret)		
ACGIH	Not applicable	
OSHA	Not applicable	

Ethylene glycol (107-21-1)		
ACGIH	ACGIH Ceiling (mg/m ³)	100 mg/m ³
ACGIH	ACGIH Ceiling (ppm)	39.4 ppm
ACGIH	Remark (ACGIH)	Kidney dam; URT & eye irr
OSHA	Not applicable	

8.2. Exposure controls

Appropriate engineering controls	: Avoid splashing. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide local exhaust or general room ventilation.
Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear suitable gloves resistant to chemical penetration.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: In case of inadequate ventilation wear respiratory protection. Approved respirator.
Environmental exposure controls	: Prevent leakage or spillage. Prevent contaminated water run-off.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: light pink
Odour	: mild Sweet
Odour threshold	: No data available
pH	: 7.8
Melting point	: -20 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 93.3 °C estimated
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: No data available
Relative density	: 1.09 - 1.14 @ 25 °C
Relative vapour density at 20 °C	: No data available

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Density	: 1.117 g/cm ³
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known.

10.2. Chemical stability

Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure	: Inhalation; Skin and eye contact
Acute toxicity	: Not classified

VITAFLO® 280	
LD50 oral rat	4587 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 1 mg/l/4h
ATE US (oral)	4587 mg/kg bodyweight
Carboxin (5234-68-4)	
LD50 oral rat	2588 mg/kg male
LD50 dermal rat	> 4000 mg/kg
LC50 inhalation rat (mg/l)	> 4.7 mg/l/4h
ATE US (oral)	2588 mg/kg bodyweight
Tetramethylthiuram disulfide (137-26-8)	
LD50 oral rat	1800 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	3.46 mg/l/4h
ATE US (oral)	1800 mg/kg bodyweight
ATE US (vapours)	3.46 mg/l/4h
ATE US (dust,mist)	3.46 mg/l/4h
Dispersant (trade secret)	
LD50 oral rat	> 12000 mg/kg
Ethylene glycol (107-21-1)	
LD50 oral rat	500 mg/kg
LD50 dermal rat	> 3500 mg/kg mouse

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Ethylene glycol (107-21-1)	
LC50 inhalation rat (mg/l)	> 2.5 mg/l/4h
ATE US (oral)	500 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Not classified.
Respiratory or skin sensitisation	: Not classified.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Tetramethylthiuram disulfide (137-26-8)	
IARC group	3 - Not classifiable

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: May cause damage to organs through prolonged or repeated exposure.

Carboxin (5234-68-4)	
NOAEL (oral, rat, 90 days)	5.5 mg/kg bodyweight/day
NOAEL (subacute, oral, animal/male, 28 days)	30 mg/kg bodyweight

Ethylene glycol (107-21-1)	
LOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight/day
NOAEL (oral, rat, 90 days)	150 mg/kg bodyweight/day kidney

Aspiration hazard	: Not classified
Symptoms/effects after skin contact	: Causes skin irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water	: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.
-----------------	--------------------------------------------------------------------------------

Carboxin (5234-68-4)	
LC50 fish 1	2.3 mg/l 96 h
EC50 Daphnia 1	> 57 mg/l 48 h <i>Oncorhynchus mykiss</i>
EC50 other aquatic organisms 1	0.48 mg/l 120 h <i>Pseudokirchneriella subcapitata</i>
NOEC chronic fish	0.32 mg/l 21 d <i>Cyprinus carpio</i>
NOEC chronic crustacea	0.32 mg/l 17 d <i>Daphnia magna</i>

Tetramethylthiuram disulfide (137-26-8)	
LC50 fish 1	0.046 - 0.54 mg/l
EC50 Daphnia 1	0.011 - 0.139 mg/l 48 h
EC50 other aquatic organisms 1	> 0.14 mg/l 120 h algae
NOEC (chronic)	0.0046 mg/l

Dispersant (trade secret)	
LC50 fish 1	361 ppm 96h <i>Pimephales promelas</i>

Ethylene glycol (107-21-1)	
LC50 fish 1	72860 mg/l <i>Pimephales promelas</i>
EC50 Daphnia 1	> 100 mg/l
NOEC chronic fish	15380 mg/l <i>Pimephales promelas</i>
NOEC chronic crustacea	8590 mg/l <i>Ceriodaphnia sp.</i>

12.2. Persistence and degradability

VITAFLO® 280	
Persistence and degradability	May cause long-term adverse effects in the environment.

Carboxin (5234-68-4)	
Persistence and degradability	Not readily biodegradable.

Tetramethylthiuram disulfide (137-26-8)	
Persistence and degradability	Not readily biodegradable.

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Dispersant (trade secret)	
Persistence and degradability	Biodegrades slowly.
Biochemical oxygen demand (BOD)	0.021 g O ₂ /g substance (5 day/day); 0.043 g O ₂ /g (30 day/days)

Ethylene glycol (107-21-1)	
Persistence and degradability	Readily biodegradable.
Biodegradation	> 60 % 28 d

12.3. Bioaccumulative potential

VITAFLO® 280	
Bioaccumulative potential	Not established.

Carboxin (5234-68-4)	
Log Pow	2.3

Ethylene glycol (107-21-1)	
Log Pow	- 1.36
Bioaccumulative potential	Not expected to bioaccumulate.

12.4. Mobility in soil

Tetramethylthiuram disulfide (137-26-8)	
Log Koc	3.35 - 4.39

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Non bulk (< 8.1 gallons / 24.8 liters) : Not regulated
Non bulk (>= 8.1 gallons / 24.8 liters) : RQ, UN3082 Environmentally hazardous substances, liquid, n.o.s. (Carboxin, Tetramethylthiuram disulfide), 9, III
Bulk (> 119 gallons / 450 liters) : RQ, UN3082 Environmentally hazardous substances, liquid, n.o.s. (Carboxin, Tetramethylthiuram disulfide), 9, III
Packing group (DOT) : III - Minor Danger
Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



Dangerous for the environment : Yes
Marine pollutant : Yes



Transport by sea


IMDG

Transport hazard class(es) (IMDG) : 9

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	:	
Marine pollutant	:	Yes
UN-No. (IMDG)	:	3082
Transport document description (IMDG)	:	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Carboxin, Tetramethylthiuram disulfide), 9, III, MARINE POLLUTANT
Class (IMDG)	:	9 - Miscellaneous dangerous substances and articles
Packing group (IMDG)	:	III - substances presenting low danger
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-F

Air transport

IATA

Transport hazard class(es) (IATA)	:	9
	:	
Marine pollutant	:	Yes
UN-No. (IATA)	:	3082
Transport document description (IATA)	:	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Carboxin, Tetramethylthiuram disulfide), 9, III
Class (IATA)	:	9 - Miscellaneous Dangerous Goods
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Carboxin	CAS-No. 5234-68-4	14.328 - 15.92%
Tetramethylthiuram disulfide	CAS-No. 137-26-8	> 13.181%
Ethylene glycol	CAS-No. 107-21-1	14.43%

Carboxin (5234-68-4)

EPA TSCA Regulatory Flag: Exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

Tetramethylthiuram disulfide (137-26-8)

CERCLA RQ: 10 lb

Dispersant (trade secret)

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

Ethylene glycol (107-21-1)

EPA TSCA Regulatory Flag: T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

CERCLA RQ: 5000 lb

SARA Section 313 - Emission Reporting: >95%

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.:

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EPA Registration Number	400-564
FIFRA Signal Word	CAUTION
FIFRA Hazard Statement	Causes moderate eye and skin irritation. Harmful if swallowed, inhaled or absorbed through skin. Do not get in eyes, on skin or on clothing. Because of possible unpleasant side effects, avoid alcoholic beverages for 24 hours before and after working with VITAFLO-280 or treated seed.
FIFRA Other	This pesticide is toxic to fish, aquatic invertebrates, oysters and shrimp. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate. Do not use or store near heat or open flame.

15.2. International regulations

CANADA

Carboxin (5234-68-4)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Tetramethylthiuram disulfide (137-26-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Dispersant (trade secret)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Ethylene glycol (107-21-1)

Listed on the Canadian DSL (Domestic Substances List) inventory.

15.3. US State regulations

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm

Ethylene glycol (107-21-1)

U.S. - California - Proposition 65 - Carcinogens List

U.S. - California - Proposition 65 - Developmental Toxicity

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

No significant risk level (NSRL)

No

Yes

No

No

Carboxin (5234-68-4)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities

U.S. - New Jersey - Right to Know Hazardous Substance List

Tetramethylthiuram disulfide (137-26-8)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

U.S. - Pennsylvania - RTK (Right to Know) List

Ethylene glycol (107-21-1)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

U.S. - Pennsylvania - RTK (Right to Know) List

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SECTION 16: Other information

Data sources : ACGIH (American Conference of Government Industrial Hygienists).
European Chemicals Agency (ECHA) C&L Inventory database. Accessed at <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>.
Kristen Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.
Manufacturer Information.
National Fire Protection Association. Fire Protection Guide to Hazardous Materials; 10th edition.
OSHA 29CFR 1910.1200 Hazard Communication Standard.
TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.

Other information : None.

Full text of H-statements:

H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

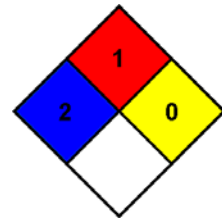
Abbreviations and acronyms:

	ATE: Acute Toxicity Estimate
	CAS (Chemical Abstracts Service) number
	EC50: Environmental Concentration associated with a response by 50% of the test population.
	GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
	LD50: Lethal Dose for 50% of the test population
	OSHA: Occupational Safety & Health Administration
	STEL: Short Term Exposure Limits
	TSCA: Toxic Substances Control Act
	TWA: Time Weighted Average

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product