

# ZNT Fuse Paste Part B

## Safety Data Sheet

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

Date of issue: 07/21/2015 Version: 1.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Identification

Product form : Mixture  
Product name : ZNT Fuse Paste Part B

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

Use of the substance/mixture : adhesives

#### 1.3. Details of the supplier of the safety data sheet

Zyvex Technologies  
1255 Kinnear Road  
Suite 100  
Columbus, OH 43212  
T 614-481-2222 - F 614-481-2260  
[cballard@zyvextech.com](mailto:cballard@zyvextech.com)

#### 1.4. Emergency telephone number

Emergency number : Chemtrec (North America): 800.424.9300  
Chemtrec (International): 703.527.3887  
CHEMTREC (24 HOURS)

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Skin Corr. 1B H314 - Causes severe skin burns and eye damage  
Eye Dam. 1 H318 - Causes serious eye damage  
Skin Sens. 1 H317 - May cause an allergic skin reaction  
Repr. 2 H361 - Suspected of damaging fertility or the unborn child

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS07

GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H361 - Suspected of damaging fertility or the unborn child

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe vapors  
P264 - Wash hands thoroughly after handling  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P280 - Wear protective gloves  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - If on skin (or hair): 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  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention

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P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose in a safe manner in accordance with local/national regulations

### 2.3. Other hazards

Other hazards not contributing to the classification : Very toxic to aquatic life with long lasting effects.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
ATBN polymer	(CAS No) 68683-29-4	13 - 19	Skin Irrit. 2, H315 Skin Sens. 1, H317
Polyoxypropylenediamine	(CAS No) 9046-10-0	16 - 18	Skin Corr. 1C, H314 Eye Dam. 1, H318 Aquatic Acute 3, H402 Aquatic Chronic 2, H411
1-(2-Aminoethyl)piperazine	(CAS No) 140-31-8	8 - 14	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412
Phenol, 4-nonyl-, branched	(CAS No) 84852-15-3	7 - 11	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Repr. 2, H361 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Glyceryl poly(oxy propylene)triamine	(CAS No) 64852-22-8	8 - 10	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412
Piperazine	(CAS No) 110-85-0	0.4 - 1.4	Flam. Sol. 1, H228 Skin Corr. 1B, H314 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Repr. 2, H361

Full text of H-phrases: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Get medical advice/attention.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

First-aid measures after eye contact : 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.

First-aid measures after ingestion : Rinse mouth. Not expected to present a significant ingestion hazard under anticipated conditions of normal use.

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

Symptoms/injuries after skin contact : CAUSES (SEVERE) SKIN BURNS. May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Causes serious eye damage.

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

All treatments should be based on observed signs and symptoms of distress in the patient.

## 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.

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### 5.2. Special hazards arising from the substance or mixture

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 environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin, eyes and clothing. Stop leak, if possible without risk. Ventilate spillage area.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Wear suitable gloves. Nitrile rubber. Use splash goggles when eye contact due to splashing is possible.

Emergency procedures : Ventilate area. Avoid contact with skin and eyes. Stop leak if safe to do so.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage.

### 6.4. Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin, eyes and clothing. Provide local exhaust or general room ventilation. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Hygiene measures : Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place.

Incompatible products : Strong oxidizing agents. Strong acids.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No applicable OELS

### 8.2. Exposure controls

Appropriate engineering controls : Provide local exhaust or general room ventilation.

Hand protection : Wear protective gloves: nitrile rubber gloves.

Eye protection : No special eye protection equipment recommended under normal conditions of use. Eye protection should only be necessary where liquid could be splashed or sprayed.

Skin and body protection : Wear suitable protective clothing: Long sleeved protective clothing.

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

Appearance : Amber paste

Color : amber

Odor : characteristic

Odor threshold : No data available

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pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: 0.98
Relative vapor density at 20 °C	: No data available
Solubility	: Water: Solubility in water of component(s) of the mixture : • : 1.3 g/l • : > 100 g/l • : > 1000 g/l
Log Pow	: 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 at ambient temperature and under normal conditions of use.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong oxidizing agents. Strong acids.

### 10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide. Thermal decomposition generates: Corrosive vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Likely routes of exposure : Dermal

Acute toxicity : Not classified

1-(2-Aminoethyl)piperazine (140-31-8)	
ATE US (oral)	500 mg/kg bodyweight
ATE US (dermal)	1100 mg/kg bodyweight
Phenol, 4-nonyl-, branched (84852-15-3)	
LD50 oral rat	1412 mg/kg
ATE US (oral)	1412 mg/kg bodyweight
Piperazine (110-85-0)	
LD50 oral rat	2600 mg/kg
LD50 dermal rabbit	8300 mg/kg
ATE US (oral)	2600 mg/kg bodyweight

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<b>Piperazine (110-85-0)</b>	
ATE US (dermal)	8300 mg/kg bodyweight
<b>Glyceryl poly(oxy propylene)triamine (64852-22-8)</b>	
LD50 oral rat	2690 mg/kg
LD50 dermal rabbit	12500 mg/kg
ATE US (oral)	2690 mg/kg bodyweight
ATE US (dermal)	12500 mg/kg bodyweight
<b>Polyoxypropylenediamine (9046-10-0)</b>	
LD50 oral rat	2885 mg/kg
LD50 dermal rabbit	2980 mg/kg
LC50 inhalation rat (mg/l)	> 0.74 mg/l/4h
ATE US (oral)	2885 mg/kg bodyweight
ATE US (dermal)	2980 mg/kg bodyweight
<b>ATBN polymer (68683-29-4)</b>	
LD50 oral rat	> 15.4 g/kg
LD50 dermal rat	> 3000 mg/kg

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected of damaging fertility or the unborn child. Due to animal tests with piperazine (oral).
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after skin contact	: CAUSES (SEVERE) SKIN BURNS. May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: Causes serious eye damage.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general	: Very toxic to aquatic life with long lasting effects.
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<b>1-(2-Aminoethyl)piperazine (140-31-8)</b>	
LC50 fish 1	2190 mg/l 96 h
EC50 Daphnia 1	58 mg/l 48 h
<b>Phenol, 4-nonyl-, branched (84852-15-3)</b>	
LC50 fish 1	0.08 mg/l
EC50 Daphnia 1	0.14 mg/l
LOEC (chronic)	0.0103 mg/l
NOEC (chronic)	0.006 mg/l
<b>Piperazine (110-85-0)</b>	
LC50 fish 1	> 1800 mg/l
EC50 Daphnia 1	21 mg/l
NOEC chronic crustacea	12.5 mg/l
<b>Polyoxypropylenediamine (9046-10-0)</b>	
LC50 fish 1	> 15 mg/l
EC50 Daphnia 1	80 mg/l

#### 12.2. Persistence and degradability

<b>ZNT Fuse Paste Part B</b>	
Persistence and degradability	Not established.

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### 1-(2-Aminoethyl)piperazine (140-31-8)

Persistence and degradability	Not readily biodegradable.
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### Piperazine (110-85-0)

Biodegradation	65 % 28 days
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### Polyoxypropylenediamine (9046-10-0)

Biodegradation	0 %
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#### 12.3. Bioaccumulative potential

##### ZNT Fuse Paste Part B

Bioaccumulative potential	Not established.
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### 1-(2-Aminoethyl)piperazine (140-31-8)

Log Pow	-1.57
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### Polyoxypropylenediamine (9046-10-0)

Log Pow	1.34
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#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Effect on ozone layer	: None known
Effect on the global warming	: None known
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

Proper Shipping Name (DOT)	: Amine, Liquid, Corrosive, N.O.S. (1-(2-Aminoethyl)piperazine)
Transport hazard class(es) (DOT)	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT)	: 8 - Corrosive



Packing group (DOT)	: II - Medium Danger
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#### TDG

TDG Proper Shipping Name	: Amine, Liquid, Corrosive ,N.O.S. (1-(2-Aminoethyl)piperazine)
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#### Transport by sea

UN-No. (IMDG)	: 2735
Proper Shipping Name (IMDG)	: AMINES, LIQUID, CORROSIVE, N.O.S. (1-(2-Aminoethyl)piperazine)
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: II - substances presenting medium danger

#### Air transport

UN-No. (IATA)	: 2735
Proper Shipping Name (IATA)	: Amines, liquid, corrosive, n.o.s. (1-(2-Aminoethyl)piperazine)
Class (IATA)	: 8 - Corrosives

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Packing group (IATA)

: II - Medium Danger

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

<b>1-(2-Aminoethyl)piperazine (140-31-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Phenol, 4-nonyl-, branched (84852-15-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Piperazine (110-85-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Glyceryl poly(oxy propylene)triamine (64852-22-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	N - N - indicates a polymeric substance containing no free-radical initiator in its Inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used. P - P - indicates a commenced PMN substance. 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)).
<b>Polyoxypropylenediamine (9046-10-0)</b>	
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)).
<b>ATBN polymer (68683-29-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
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)).

#### 15.2. International regulations

##### CANADA

<b>1-(2-Aminoethyl)piperazine (140-31-8)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Phenol, 4-nonyl-, branched (84852-15-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Piperazine (110-85-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Glyceryl poly(oxy propylene)triamine (64852-22-8)</b>	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
<b>ATBN polymer (68683-29-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	

##### EU-Regulations

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318
Sensitisation — Skin, category 1	H317
Reproductive toxicity, Category 2	H361
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400
Hazardous to the aquatic environment — Chronic Hazard, Category 2	H411

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### National regulations

#### 1-(2-Aminoethyl)piperazine (140-31-8)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on Taiwan National Chemical Inventory  
Listed on the Chinese Catalog of Hazardous Chemicals.  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Inventory of Existing Chemical Substances Produced or Imported in China (IECSC).  
Listed on the Korean ECL (Existing Chemicals List)

#### Phenol, 4-nonyl-, branched (84852-15-3)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECI (Korean Existing Chemicals Inventory)  
Listed on Taiwan National Chemical Inventory  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

#### Piperazine (110-85-0)

Listed on the Inventory of Existing Chemical Substances Produced or Imported in China (IECSC).  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on Taiwan National Chemical Inventory  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

#### Glyceryl poly(oxy propylene)triamine (64852-22-8)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECI (Korean Existing Chemicals Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

#### Polyoxypropylenediamine (9046-10-0)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Exempt from the United States Toxic Substances Control Act (TSCA) inventory.  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECI (Korean Existing Chemicals Inventory)  
Listed on Taiwan National Chemical Inventory  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

#### ATBN polymer (68683-29-4)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on KECI (Korean Existing Chemicals Inventory)  
Listed on Taiwan National Chemical Inventory  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on NZIoC (New Zealand Inventory of Chemicals)

### 15.3. US State regulations

#### 1-(2-Aminoethyl)piperazine (140-31-8)

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

## SECTION 16: Other information

Indication of changes : Original Document.  
Data sources : Component Supplier SDSs.  
European Chemicals Agency (ECHA) Registered Substances list.  
Internal Company test data.  
National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.

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### 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.  
NOEC: No Observable Effect Concentration.  
TSCA: Toxic Substances Control Act.

### Full text of H-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Sol. 1	Flammable solids Category 1
Repr. 2	Reproductive toxicity Category 2
Resp. Sens. 1	Respiratory sensitisation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Corr. 1C	Skin corrosion/irritation Category 1C
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
H228	Flammable solid
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H361	Suspected of damaging fertility or the unborn child
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

### NFPA health hazard

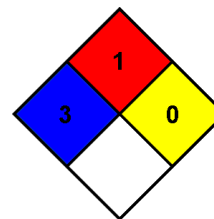
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

### NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

### NFPA reactivity

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



SDS US (GHS HazCom 2012)

### SDS prepared by:

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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*