

# Material Safety Data Sheet

Print Date 01-Jun-2011

Revision Date 01-Jun-2011

Revision Number 2

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Common name</b>	SERIES 436 PART A
<b>Product code</b>	F436-5021A
<b>Trade name</b>	PERMA-SHIELD FR GRAY
<b>Product Class</b>	MODIFIED POLYAMINE EPOXY PAINT
<b>Manufacturer</b>	Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372
<b>Emergency telephone</b>	800-535-5053 (INFOTRAC) - TNE MEC REGULATORY DEPT: 816-474-3400

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

#### DANGER!

CAUSES SKIN AND EYE BURNS.  
HARMFUL OR FATAL IF SWALLOWED.  
HARMFUL IF INHALED.  
MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA.  
MAY CAUSE EYE, SKIN, NOSE, THROAT AND RESPIRATORY TRACT IRRITATION.  
MAY CAUSE ALLERGIC SKIN REACTION; EFFECTS MAY BE PERMANENT.

#### Potential health effects

**Principle Routes of Exposure** Eye contact, Inhalation, Skin contact.

#### Acute effects

<b>Eyes</b>	Causes burns.
<b>Skin</b>	Causes burns. May cause sensitization by skin contact.
<b>Inhalation</b>	Irritating to respiratory system. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.
<b>Ingestion</b>	May be harmful if swallowed.

#### Chronic effects

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** Central nervous system. Kidney disorders. Liver disorders. Skin disorders. Respiratory disorders.

**Interactive effects** Use of alcoholic beverages may enhance toxic effects.

**Potential environmental effects** See Section 12 for additional Ecological Information

**Target Organ Effects** Blood, Central nervous system, Central Vascular System (CVS), Eyes, Kidney, Liver, Lungs, Nasal Cavities, Prostate, Respiratory system, Skin

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Hazardous Components

Component	CAS-No	Weight %
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - 30
MODIFIED POLYAMINE		10 - 30
FURFURYL ALCOHOL	98-00-0	10 - 30
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	10 - 30
BENZYL ALCOHOL	100-51-6	10 - 30
M-XYLENEDIAMINE	1477-55-0	5 - 10
SILICON DIOXIDE/ALUMINUM OXIDE	66402-68-4	1 - 5
FIBROUS GLASS	65997-17-3	1 - 5
AMORPHOUS SILICA	7631-86-9	1 - 5
AMORPHOUS SILICA	7631-86-9	1 - 5
ALUMINUM OXIDES	1344-28-1	1 - 5
PHENOL (SKIN)	108-95-2	1 - 5
EPOXY RESIN (LER)	25036-25-3	1 - 5
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	0.1 - 1

### 4. FIRST AID MEASURES

<b>Eye contact:</b>	Rinse thoroughly with plenty of water for at least 15 minutes.
<b>Skin contact:</b>	Wash off immediately with soap and plenty of water.
<b>Ingestion:</b>	If swallowed, do not induce vomiting. Get medical attention immediately.
<b>Inhalation:</b>	Move to fresh air. Oxygen or artificial respiration if needed.

### 5. FIRE-FIGHTING MEASURES

<b>Flammable properties</b>	Combustible material.
<b>Suitable extinguishing media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Contact with water may cause violent frothing. Use: Carbon dioxide (CO <sub>2</sub> ) - Foam - Dry chemical
<b>Hazardous decomposition products</b>	Oxides of carbon, hydrocarbons. Ammonia.

#### Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours. In the event of fire and/or explosion do not breathe fumes.

#### Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. May cause heat and pressure build-up in closed containers. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up**

If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

**Other information**

Not applicable

**7. HANDLING AND STORAGE**

**Handling**

Close container after each use. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

**Storage**

Prevent build-up of vapors by opening all windows and doors to achieve cross ventilation.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	Quebec TWAEV	Ontario TWAEV	Mexico OEL (TWA)
TITANIUM DIOXIDE (TOTAL DUST)	: 10 mg/m <sup>3</sup> TWA	: 10 mg/m <sup>3</sup> TWA (total dust) : 15 mg/m <sup>3</sup> TWA (total dust)	TWA: 10 mg/m <sup>3</sup> TWAEV (total dust, containing no asbestos and less than 1% crystalline silica)	TWA: 10 mg/m <sup>3</sup> TWA (total dust)	: 10 mg/m <sup>3</sup> TWA (as Ti) : 20 mg/m <sup>3</sup> STEL (as Ti)
FURFURYL ALCOHOL	: 10 ppm TWA Skin : 15 ppm STEL	: 10 ppm TWA; 40 mg/m <sup>3</sup> TWA : 15 ppm STEL; 60 mg/m <sup>3</sup> STEL Skin : 50 ppm TWA; 200 mg/m <sup>3</sup> TWA	TWA: 10 ppm TWAEV; 40 mg/m <sup>3</sup> TWAEV STEL: 15 ppm STEV; 60 mg/m <sup>3</sup> STEV Skin	TWA: 10 ppm TWA STEL: 15 ppm STEL Skin	: 10 ppm TWA; 40 mg/m <sup>3</sup> TWA : 15 ppm STEL; 60 mg/m <sup>3</sup> STEL
CRYSTALLINE SILICA (QUARTZ)	: 0.025 mg/m <sup>3</sup> TWA (respirable fraction)	: 0.1 mg/m <sup>3</sup> TWA (respirable dust)	TWA: 0.1 mg/m <sup>3</sup> TWAEV (respirable dust)	TWA: 0.10 mg/m <sup>3</sup> TWA (designated substance regulation, respirable)	: 0.1 mg/m <sup>3</sup> TWA (respirable fraction)
M-XYLENEDIAMINE	Skin : 0.1 mg/m <sup>3</sup> Ceiling	Skin : 0.1 mg/m <sup>3</sup> Ceiling	Ceiling: 0.1 mg/m <sup>3</sup> Ceiling Skin	CEV: 0.1 mg/m <sup>3</sup> Ceiling Skin	: 0.1 mg/m <sup>3</sup> Peak
SILICON DIOXIDE/ALUMINUM OXIDE	: 5 mg/m <sup>3</sup> TWA (as Zr) : 0.2 mg/m <sup>3</sup> TWA (as Mn)		TWA: 5 mg/m <sup>3</sup> TWAEV (as Zr) STEL: 10 mg/m <sup>3</sup> STEV (as Zr)	TWA: 5 mg/m <sup>3</sup> TWA (as Zr) TWA: 0.5 fibre/cm <sup>3</sup> TWA (length>5 microns, aspect ratio>= 3.1, respirable) TWA: 0.2 mg/m <sup>3</sup> TWA (as Mn) STEL: 10 mg/m <sup>3</sup> STEL (as Zr)	: 5 mg/m <sup>3</sup> TWA (as Zr) : 0.2 mg/m <sup>3</sup> TWA (as Mn) : 10 mg/m <sup>3</sup> STEL (as Zr)
FIBROUS GLASS	: 1 fiber/cm <sup>3</sup> TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers); 5 mg/m <sup>3</sup> TWA (inhalable fraction, listed under Synthetic vitreous fibers)	Ceiling: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWAEV (total dust, respirable, containing no asbestos and less than 1% crystalline silica, listed under Fibres - Artificial vitreous mineral fibres)	TWA: 1 fibre/cm <sup>3</sup> TWA (length>5 microns, aspect ratio>= 3.1, respirable); 5 mg/m <sup>3</sup> TWA (inhalable)	TWA: 0.15 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>

ALUMINUM OXIDES	TWA: 1 mg/m <sup>3</sup>	: 10 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction) : 15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)	TWA: 10 mg/m <sup>3</sup> TWAEV (total dust, containing no asbestos and less than 1% crystalline silica, as Al)	TWA: 10 mg/m <sup>3</sup>	: 10 mg/m <sup>3</sup> TWA
PHENOL (SKIN)	: 5 ppm TWA Skin	: 5 ppm TWA; 19 mg/m <sup>3</sup> TWA Skin	TWA: 5 ppm TWAEV; 19 mg/m <sup>3</sup> TWAEV Skin	TWA: 5 ppm TWA Skin	: 5 ppm TWA; 19 mg/m <sup>3</sup> TWA : 10 ppm STEL; 38 mg/m <sup>3</sup> STEL
CRYSTALLINE SILICA (QUARTZ)	: 0.025 mg/m <sup>3</sup> TWA (respirable fraction)	: 0.1 mg/m <sup>3</sup> TWA (respirable dust)	TWA: 0.1 mg/m <sup>3</sup> TWAEV (respirable dust)	TWA: 0.10 mg/m <sup>3</sup> TWA (designated substance regulation, respirable)	: 0.1 mg/m <sup>3</sup> TWA (respirable fraction)

**Engineering measures**

Ensure adequate ventilation, especially in confined areas

**Personal Protective Equipment**

**Skin protection**

Lightweight protective clothing, Apron, Impervious gloves

**Eye/face protection**

Goggles. If splashes are likely to occur, wear face-shield.

**Respiratory protection**

**Use only with adequate ventilation.** Do not breathe dust, vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use.

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Flash point	°C / 170.0°F
Boiling range	No information available
Upper explosion limit	No information available
Lower explosion limit	No information available
Evaporation rate	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific Gravity	1.46958 g/cm <sup>3</sup>
Density	12.22911 lbs/gal
Volatile organic compounds (VOC) content	2.100 lbs/gal
Volatile by weight	17.1730 %
Volatile by volume	22.5535 %

**10. STABILITY AND REACTIVITY**

<b>Chemical stability</b>	Stable.	<b>Conditions to avoid</b>	Heat, flames and sparks. Epoxy constituents.
<b>Incompatible products</b>	Strong oxidizing agents. Bases. Acids. Reducing agents.	<b>Possibility of hazardous reactions</b>	None under normal processing

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Component Information**

## 11. TOXICOLOGICAL INFORMATION

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
TITANIUM DIOXIDE (TOTAL DUST)	10000 mg/kg ( Rat )		
FURFURYL ALCOHOL	177 mg/kg ( Rat )	3825 mg/kg ( Rat ) 400 mg/kg ( Rabbit )	233 ppm ( Rat ) 4 h
CRYSTALLINE SILICA (QUARTZ)	500 mg/kg ( Rat )		
BENZYL ALCOHOL	1230 mg/kg ( Rat )	2000 mg/kg ( Rabbit )	8.8 mg/L ( Rat ) 4 h
M-XYLENEDIAMINE	930 mg/kg ( Rat )	2000 mg/kg ( Rabbit )	700 ppm ( Rat ) 1 h
AMORPHOUS SILICA	5000 mg/kg ( Rat )	2000 mg/kg ( Rabbit )	2.2 mg/L ( Rat ) 1 h
AMORPHOUS SILICA	5000 mg/kg ( Rat )	2000 mg/kg ( Rabbit )	2.2 mg/L ( Rat ) 1 h
ALUMINUM OXIDES	5000 mg/kg ( Rat )		
PHENOL (SKIN)	317 mg/kg ( Rat )	525 mg/kg ( Rat ) 630 mg/kg ( Rabbit )	316 mg/m <sup>3</sup> ( Rat ) 4 h
CRYSTALLINE SILICA (QUARTZ)	500 mg/kg ( Rat )		

**Irritation** No information available  
**Corrosivity** No information available  
**Sensitization** No information available

### Chronic toxicity

#### Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	ACGIH	IARC	NTP	OSHA	Mexico
TITANIUM DIOXIDE (TOTAL DUST)		Group 2B		X	
CRYSTALLINE SILICA (QUARTZ)	A2	Group 1	Known	X	
FIBROUS GLASS		Group 1 Group 2A			
CRYSTALLINE SILICA (QUARTZ)	A2	Group 1	Known	X	

**Mutagenicity** No information available  
**Reproductive effects** No information available  
**Developmental effects** No information available  
**Teratogenicity** No information available  
**Target Organ Effects** Blood, Central nervous system, Central Vascular System (CVS), Eyes, Kidney, Liver, Lungs, Nasal Cavities, Prostate, Respiratory system, Skin.

#### Endocrine Disruptor Information

No information available

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
FURFURYL ALCOHOL	Group III Chemical		
EPOXY RESIN (LER)	Group III Chemical		

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Component	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia
FURFURYL ALCOHOL		LC50= 32 mg/L Pimephales promelas 96 h		EC50 = 328 mg/L 24 h
BENZYL ALCOHOL	EC50 = 35 mg/L 3 h	LC50= 10 mg/L Lepomis macrochirus 96 h LC50= 460 mg/L Pimephales promelas 96 h	EC50 = 63.7 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 71.4 mg/L 30 min EC50 = 50 mg/L 5 min	EC50 = 23 mg/L 48 h

Component	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia
FIBROUS GLASS		LC50 5.6 - 7.4 µg/L Pimephales promelas 96 h LC50 9.4 - 9.7 µg/L Pimephales promelas 96 h LC50 24.2 - 48.4 µg/L Lepomis macrochirus 96 h		EC50 = 0.9 µg/L 48 h LC50 = 5 µg/L 96 h LC50 1.4 - 2.3 µg/L 96 h
AMORPHOUS SILICA	EC50 = 440 mg/L 72 h	LC50= 5000 mg/L Brachydanio rerio 96 h		EC50 = 7600 mg/L 48 h
AMORPHOUS SILICA	EC50 = 440 mg/L 72 h	LC50= 5000 mg/L Brachydanio rerio 96 h		EC50 = 7600 mg/L 48 h
PHENOL (SKIN)	EC50 = 46.42 mg/L 96 h EC50 0.0188 - 0.1044 mg/L 96 h EC50 187 - 279 mg/L 72 h	LC50 11.9-25.3 mg/L Lepomis macrochirus 96 h LC50 11.9-50.5 mg/L Pimephales promelas 96 h LC50 20.5-25.6 mg/L Pimephales promelas 96 h LC50 23.4-36.6 mg/L Oryzias latipes 96 h LC50 33.9-43.3 mg/L Oryzias latipes 96 h LC50 34.09-47.64 mg/L Poecilia reticulata 96 h LC50 4.23-7.49 mg/L Oncorhynchus mykiss 96 h LC50 5.0-12.0 mg/L Oncorhynchus mykiss 96 h LC50 5.449-6.789 mg/L Oncorhynchus mykiss 96 h LC50 7.5-14 mg/L Oncorhynchus mykiss 96 h LC50= 0.00175 mg/L Cyprinus carpio 96 h LC50= 11.5 mg/L Lepomis macrochirus 96 h LC50= 13.5 mg/L Lepomis macrochirus 96 h LC50= 27.8 mg/L Brachydanio rerio 96 h LC50= 31 mg/L Poecilia reticulata 96 h LC50= 32 mg/L Pimephales promelas 96 h	EC50 = 28.8 mg/L 5 min EC50 = 31.6 mg/L 15 min EC50 = 23.28 mg/L 5 min EC50 = 25.61 mg/L 15 min EC50 21 - 36 mg/L 30 min	EC50 10.2 - 15.5 mg/L 48 h EC50 4.24 - 10.7 mg/L 48 h

13. DISPOSAL CONSIDERATIONS

<b>Waste disposal methods</b>	Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.
<b>Contaminated packaging</b>	Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

<b>DOT</b>	Ground Transportation Only. Call TNEMEC Traffic Department - 816-474-3400 for other modes of Transportation.
<b>Proper shipping name</b>	UN3066, PAINT, 8, PGIII, ERG 153

15. REGULATORY INFORMATION

**International Inventories**

TSCA	Complies
DSL/NDL	Complies
EINECS/ELINCS	Does not Comply
CHINA	Complies

ENCS Does not Comply  
 KECL Does not Comply  
 PICCS Does not Comply  
 AICS Complies

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Component  
 PHENOL (SKIN)

**United States of America Federal Regulations**

**SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values
SILICON DIOXIDE/ALUMINUM OXIDE	66402-68-4	1 - 5	1.0 % de minimis concentration (does not include Barium sulfate CAS 7727-43-7, Chemical Category N040)
ALUMINUM OXIDES	1344-28-1	1 - 5	1.0 % de minimis concentration (Chemical Category N982)
PHENOL (SKIN)	108-95-2	1 - 5	1.0 % de minimis concentration (fibrous forms)
			1.0 % de minimis concentration

**SARA 311/312 Hazardous Categorization**

Chronic Health Hazard yes  
 Acute Health Hazard yes  
 Fire Hazard yes  
 Sudden Release of Pressure Hazard no  
 Reactive Hazard no

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
SILICON DIOXIDE/ALUMINUM OXIDE		X		
FIBROUS GLASS		X		
PHENOL (SKIN)	1000 lb RQ	X	X	X

**CERCLA**

Component	Hazardous Substances RQs	CERCLA EHS RQs
PHENOL (SKIN)		1000 lb EPCRA RQ

**United States of America State Regulations**

**California Prop. 65**

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	Carcinogen
FIBROUS GLASS	65997-17-3	Carcinogen
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	Carcinogen

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
TITANIUM DIOXIDE (TOTAL DUST)	X	X	X		X
FURFURYL ALCOHOL	X	X	X		X
CRYSTALLINE SILICA (QUARTZ)	X	X	X		X
BENZYL ALCOHOL	X		X		
M-XYLENEDIAMINE	X	X	X		X
SILICON DIOXIDE/ALUMINUM OXIDE		X	X		X
FIBROUS GLASS	X	X	X	X	X
AMORPHOUS SILICA	X		X		
AMORPHOUS SILICA	X		X		
ALUMINUM OXIDES	X	X	X		X
PHENOL (SKIN)	X	X	X	X	X
CRYSTALLINE SILICA (QUARTZ)	X	X	X		X

**Other international regulations**

**Canada**

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**WHMIS Classification**

- B3 Combustible liquid
- D2B Toxic materials
- E Corrosive material



Component	NPRI
FURFURYL ALCOHOL	Part 5 Substance
ALUMINUM OXIDES	Part 1, Group 1 Substance (fibrous form)
PHENOL (SKIN)	Part 1, Group 1 Substance

**Legend**

NPRI - National Pollutant Release Inventory

**16. OTHER INFORMATION**

Revision Date 01-Jun-2011

Revision Note No information available

HMIS (Hazardous Material Information System) Health 2 Flammability 2 Reactivity 1

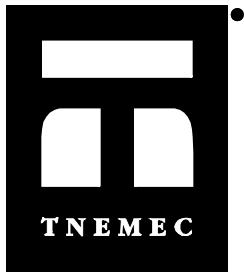
**Disclaimer**

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

**End of MSDS**





# Material Safety Data Sheet

Print Date 15-Apr-2011

Revision Date 15-Apr-2011

Revision Number 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Common name</b>	SERIES 436 PART B
<b>Product code</b>	F436-0436B
<b>Trade name</b>	PERMA-SHIELD FR EPOXY
<b>Product Class</b>	EPOXY PAINT
<b>Manufacturer</b>	Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372
<b>Emergency telephone</b>	800-535-5053 (INFOTRAC) - TNE MEC REGULATORY DEPT: 816-474-3400

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

#### WARNING!

COMBUSTIBLE LIQUID AND VAPOR.  
HARMFUL IF INHALED.  
HARMFUL OR FATAL IF SWALLOWED.  
MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA.  
MAY CAUSE EYE, SKIN, NOSE, THROAT AND RESPIRATORY TRACT IRRITATION.  
MAY CAUSE ALLERGIC SKIN REACTION; EFFECTS MAY BE PERMANENT.

#### Potential health effects

**Principle Routes of Exposure** Eye contact, Inhalation, Skin contact.

#### Acute effects

<b>Eyes</b>	Irritating to eyes.
<b>Skin</b>	Irritating to skin. May cause sensitization by skin contact.
<b>Inhalation</b>	Irritating to respiratory system.
<b>Ingestion</b>	May be harmful if swallowed.

#### Chronic effects

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** Central nervous system. Kidney disorders. Liver disorders. Skin disorders. Respiratory disorders.

**Interactive effects** Use of alcoholic beverages may enhance toxic effects.

**Potential environmental effects** See Section 12 for additional Ecological Information

**Target Organ Effects** Blood, Central nervous system, Central Vascular System (CVS), Eyes, Kidney, Liver, Lungs, Nasal Cavities, Prostate, Respiratory system, Skin

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Hazardous Components

Component	CAS-No	Weight %
EPOXY RESIN (LER)	25085-99-8	60 - 100
FURFURYL ALCOHOL	98-00-0	5 - 10
AMORPHOUS SILICA	7631-86-9	1 - 5
MINERAL FIBER	65997-17-3	1 - 5

### 4. FIRST AID MEASURES

<b>Eye contact:</b>	Rinse thoroughly with plenty of water for at least 15 minutes.
<b>Skin contact:</b>	Wash off immediately with soap and plenty of water.
<b>Ingestion:</b>	If swallowed, do not induce vomiting. Get medical attention immediately.
<b>Inhalation:</b>	Move to fresh air. Oxygen or artificial respiration if needed.

### 5. FIRE-FIGHTING MEASURES

<b>Flammable properties</b>	Combustible material.
<b>Suitable extinguishing media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Contact with water may cause violent frothing. Use: Carbon dioxide (CO <sub>2</sub> ) - Foam - Dry chemical
<b>Hazardous decomposition products</b>	Oxides of carbon, hydrocarbons. Aldehydes.

#### Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapours. In the event of fire and/or explosion do not breathe fumes.

#### Protective equipment and precautions for firefighters

Use water spray to cool unopened containers. In the event of fire, wear self-contained breathing apparatus. Keep away from heat/sparks/open flames/hot surfaces. May cause heat and pressure build-up in closed containers. Solvent vapors are heavier than air and may spread along floors. Flash back possible over considerable distance.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.
<b>Methods for cleaning up</b>	If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.
<b>Other information</b>	Not applicable

7. HANDLING AND STORAGE

**Handling**

Close container after each use. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. If splashes are likely to occur, wear goggles. Wear protective gloves/clothing. Do not burn, or use a cutting torch on, the empty drum. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

**Storage**

Prevent build-up of vapors by opening all windows and doors to achieve cross ventilation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	Quebec TWAEV	Ontario TWAEV	Mexico OEL (TWA)
FURFURYL ALCOHOL	: 10 ppm TWA Skin : 15 ppm STEL	: 10 ppm TWA; 40 mg/m <sup>3</sup> TWA : 15 ppm STEL; 60 mg/m <sup>3</sup> STEL Skin : 50 ppm TWA; 200 mg/m <sup>3</sup> TWA	TWA: 10 ppm TWAEV; 40 mg/m <sup>3</sup> TWAEV STEL: 15 ppm STEV; 60 mg/m <sup>3</sup> STEV Skin	TWA: 10 ppm TWA STEL: 15 ppm STEL Skin	: 10 ppm TWA; 40 mg/m <sup>3</sup> TWA : 15 ppm STEL; 60 mg/m <sup>3</sup> STEL
MINERAL FIBER	: 1 fiber/cm <sup>3</sup> TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers); 5 mg/m <sup>3</sup> TWA (inhalable fraction, listed under Synthetic vitreous fibers)	Ceiling: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWAEV (total dust, respirable, containing no asbestos and less than 1% crystalline silica, listed under Fibres - Artificial vitreous mineral fibres)	TWA: 1 fibre/cm <sup>3</sup> TWA (length>5 microns, aspect ratio>= 3.1, respirable); 5 mg/m <sup>3</sup> TWA (inhalable)	TWA: 0.15 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>

**Engineering measures**

Ensure adequate ventilation, especially in confined areas

**Personal Protective Equipment**

**Skin protection**

Lightweight protective clothing, Apron, Impervious gloves

**Eye/face protection**

If splashes are likely to occur, wear Goggles.

**Respiratory protection**

**Use only with adequate ventilation.** Do not breathe dust, vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use.

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust created by cutting, sanding, or grinding.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Flash point**

77°C / 170.0°F

**Method**

Pensky Martens - Closed Cup

**Boiling range**

No information available

**Upper explosion limit**

No information available

**Lower explosion limit**

No information available

**Evaporation rate**

No information available

**Vapor pressure**

No information available

**Vapor density**

No information available

**Specific Gravity**

1.18513 g/cm<sup>3</sup>

9. PHYSICAL AND CHEMICAL PROPERTIES

Density	9.86206 lbs/gal
Volatile organic compounds (VOC) content	.581 lbs/gal
Volatile by weight	5.8910 %
Volatile by volume	6.1735 %

10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable.	<b>Conditions to avoid</b>	Heat, flames and sparks. Amines.
<b>Incompatible products</b>	Strong oxidizing agents. Bases. Acids. Amines. Reducing agents.	<b>Possibility of hazardous reactions</b>	None under normal processing

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
FURFURYL ALCOHOL	177 mg/kg ( Rat )	3825 mg/kg ( Rat ) 400 mg/kg ( Rabbit )	233 ppm ( Rat ) 4 h
AMORPHOUS SILICA	5000 mg/kg ( Rat )	2000 mg/kg ( Rabbit )	2.2 mg/L ( Rat ) 1 h

<b>Irritation</b>	No information available
<b>Corrosivity</b>	No information available
<b>Sensitization</b>	No information available

**Chronic toxicity**

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	ACGIH	IARC	NTP	OSHA	Mexico
MINERAL FIBER		Group 1 Group 2A			

<b>Mutagenicity</b>	No information available
<b>Reproductive effects</b>	No information available
<b>Developmental effects</b>	No information available
<b>Teratogenicity</b>	No information available
<b>Target Organ Effects</b>	Blood, Central nervous system, Central Vascular System (CVS), Eyes, Kidney, Liver, Lungs, Nasal Cavities, Prostate, Respiratory system, Skin.
<b>Endocrine Disruptor Information</b>	No information available

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
EPOXY RESIN (LER)	Group III Chemical		
FURFURYL ALCOHOL	Group III Chemical		

12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Component	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia
FURFURYL ALCOHOL		LC50= 32 mg/L Pimephales promelas 96 h		EC50 = 328 mg/L 24 h
AMORPHOUS SILICA	EC50 = 440 mg/L 72 h	LC50= 5000 mg/L Brachydanio rerio 96 h		EC50 = 7600 mg/L 48 h
MINERAL FIBER		LC50 5.6 - 7.4 µg/L Pimephales promelas 96 h LC50 9.4 - 9.7 µg/L Pimephales promelas 96 h LC50 24.2 - 48.4 µg/L Lepomis macrochirus 96 h		EC50 = 0.9 µg/L 48 h LC50 = 5 µg/L 96 h LC50 1.4 - 2.3 µg/L 96 h

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods** Keep container tightly closed. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

**Contaminated packaging** Empty containers should be taken for local recycling, recovery or waste disposal

**14. TRANSPORT INFORMATION**

**DOT** Ground Transportation Only. Call TNEMEC Traffic Department - 816-474-3400 for other modes of Transportation.

**Proper shipping name** PAINT IN OIL

**15. REGULATORY INFORMATION**

**International Inventories**

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Does not Comply
CHINA	Complies
ENCS	Does not Comply
KECL	Complies
PICCS	Complies
AICS	Complies

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):  
United States of America Federal Regulations

**SARA 313**

**SARA 311/312 Hazardous Categorization**

Chronic Health Hazard	yes
Acute Health Hazard	yes
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
MINERAL FIBER		X		

**CERCLA**

**United States of America State Regulations**

**California Prop. 65**

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65
MINERAL FIBER	65997-17-3	Carcinogen

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
FURFURYL ALCOHOL	X	X	X		X
AMORPHOUS SILICA	X		X		
MINERAL FIBER	X	X	X	X	X

**Other international regulations**

**Canada**

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**WHMIS Classification**

B3 Combustible liquid

D2B Toxic materials



Component	NPRI
FURFURYL ALCOHOL	Part 5 Substance

**Legend**

NPRI - National Pollutant Release Inventory

**16. OTHER INFORMATION**

Revision Date 15-Apr-2011

Revision Note No information available

HMIS (Hazardous Material Information System)      Health 2      Flammability 2      Reactivity 1

**Disclaimer**

For specific information regarding occupational safety and health standards, please refer to the Code of Federal Regulations, Title 29, Part 1910.

To the best of our knowledge, the information contained herein is accurate. However, neither the Tnemec Company or any of its subsidiaries assume any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

**End of MSDS**