1. IDENTIFICATION

Product identifier
Product Code F434-5022A
Product Name PERMA-SHIELD H2S BEIGE

Other means of identification
Common Name SERIES 434 PART A
UN/ID no. 3066

Recommended use of the chemical and restrictions on use
Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet
Manufacturer Address Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372 816-474-3400
Distributor Tnemec Company, Inc. 86 Boul, des Entreprises, Ste. 203, Boisbriand, Quebec Canada J7G 2T3

Emergency telephone number
Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1 Sub-category B</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td>Category 4</td>
</tr>
</tbody>
</table>

Label elements

EMERGENCY OVERVIEW

Danger
Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Response
Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store locked up
Store in a well-ventilated place. Keep cool
Keep away from children

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
If product is in liquid or paste form, physical or health hazards listed related to dust are not considered significant. However, product may contain substances that could be potential hazards if caused to become airborne due to grinding, sanding or other abrasive processes.

Other information
Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure). Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.

SEE SAFETY DATA SHEET

Acute Toxicity 17.4242 % of the mixture consists of ingredient(s) of unknown toxicity.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL</td>
<td>98-00-0</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (TOTAL DUST)</td>
<td>13463-67-7</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>CRystALLine SILICA (QUARTZ)</td>
<td>14808-60-7</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>MODIFIED POLYAMINE</td>
<td>-</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>BENZYL ALCOHOL</td>
<td>100-51-6</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>1,2-CYCLOHEXANEDIAMINE</td>
<td>694-83-7</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>M-XYLENEDIAMINE</td>
<td>1477-55-0</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT</td>
<td>68131-74-8</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>CRystALLine SILICA (QUARTZ)</td>
<td>14808-60-7</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>SYNTHETIC AMORPHUS PYROGENIC SILICA</td>
<td>112945-52-5</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>PHENOL (SKIN)</td>
<td>108-95-2</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>SALICYLIC ACID</td>
<td>69-72-7</td>
<td>0.1 - 1%</td>
</tr>
<tr>
<td>ALUMINUM HYDROXIDE</td>
<td>21645-51-2</td>
<td>0.1 - 1%</td>
</tr>
<tr>
<td>ZIRCONIUM OXIDE</td>
<td>1314-23-4</td>
<td>0.1 - 1%</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. FIRST AID MEASURES

**Description of first aid measures**

**General advice**
If symptoms persist, call a physician.

**Eye contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

**Skin contact**
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

**Inhalation**
Remove to fresh air. Oxygen or artificial respiration if needed.

**Ingestion**
If swallowed, do not induce vomiting. Get medical attention immediately.

**Self-protection of the first aider**
Use personal protective equipment. Avoid contact with eyes, skin and clothing.

**Most important symptoms and effects, both acute and delayed**

**Notes to physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Carbon dioxide. Foam. Dry chemical.

**Unsuitable extinguishing media**
Do not use a solid water stream as it may scatter and spread fire.

**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

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment
Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

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.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling
Close container after each use. Avoid contact with eyes, skin 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.

Conditions for safe storage, including any incompatibilities

Storage
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>TWA: 10 ppm</td>
<td>TWA: 10 ppm TWA: 40 mg/m³ STEL: 15 ppm STEL: 60 mg/m³</td>
<td>75 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin: 15 ppm</td>
<td>STEL: 60 mg/m³ Skin TWA: 50 ppm TWA: 200 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>
Appropriate engineering controls

**Engineering measures**
Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**
Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

**Skin and body protection**
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Respiratory protection**
Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.

**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

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td>Odor</td>
</tr>
<tr>
<td>Appearance</td>
<td>beige</td>
<td>amine</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td>Odor threshold</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>72 °C / 162 °F</td>
<td>Pensky Martens - Closed Cup</td>
</tr>
<tr>
<td>Flash point</td>
<td>77 °C / 170.0 °F</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>

---

**TITANIUM DIOXIDE (TOTAL DUST)**
13463-67-7

<table>
<thead>
<tr>
<th></th>
<th>TWA: 10 mg/m³</th>
<th>TWA: 15 mg/m³</th>
<th>5000 mg/m³</th>
</tr>
</thead>
</table>

**CRYSTALLINE SILICA (QUARTZ)**
14808-60-7

<table>
<thead>
<tr>
<th></th>
<th>TWA: 0.025 mg/m³</th>
<th>TWA: 0.1 mg/m³</th>
<th>50 mg/m³</th>
</tr>
</thead>
</table>

**M-XYLENEDIAMINE**
1477-55-0

<table>
<thead>
<tr>
<th></th>
<th>Skin Ceiling: 0.1 mg/m³</th>
<th>Skin Ceiling: 0.1 mg/m³</th>
</tr>
</thead>
</table>

**COAL FIRED FLY ASH BI-PRODUCT**
68131-74-8

<table>
<thead>
<tr>
<th></th>
<th>TWA: 1 mg/m³</th>
<th></th>
<th>100 mg/m³ 10 mg/m³</th>
</tr>
</thead>
</table>

**CRYSTALLINE SILICA (QUARTZ)**
14808-60-7

<table>
<thead>
<tr>
<th></th>
<th>TWA: 0.025 mg/m³</th>
<th>TWA: 0.1 mg/m³</th>
<th>50 mg/m³</th>
</tr>
</thead>
</table>

**PHENOL (SKIN)**
108-95-2

<table>
<thead>
<tr>
<th></th>
<th>TWA: 5 ppm</th>
<th>TWA: 19 mg/m³</th>
<th>250 ppm</th>
</tr>
</thead>
</table>

**ALUMINUM HYDROXIDE**
21645-51-2

<table>
<thead>
<tr>
<th></th>
<th>TWA: 1 mg/m³</th>
<th></th>
</tr>
</thead>
</table>

**ZIRCONIUM OXIDE**
1314-23-4

<table>
<thead>
<tr>
<th></th>
<th>TWA: 5 mg/m³</th>
<th></th>
<th>25 mg/m³</th>
</tr>
</thead>
</table>

F434-5022A PERMA-SHIELD H2S BEIGE
Revision Date 09-Aug-2016

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Other Information

Density 11.66354 lbs/gal
Volatile organic compounds (VOC) content 2.13093 lbs/gal
Total volatiles weight percent 18.27 %
Total volatiles volume percent 22.87 %

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
None under normal processing.

Conditions to avoid
Heat, flames and sparks. Epoxy constituents.

Incompatible materials
Strong oxidizing agents, Bases, Acids

Hazardous decomposition products

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.

Eye contact Causes serious eye damage.

Skin contact Causes severe skin burns. May cause sensitization by skin contact.

Ingestion Harmful if swallowed.

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>= 110 mg/kg (Rat) = 177 mg/kg (Rat)</td>
<td>= 3825 mg/kg (Rat) = 400 mg/kg (Rabbit)</td>
<td>= 233 ppm (Rat) 4 h</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7</td>
<td>&gt; 10000 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model 364-2000 PERMA-SHIELD H2S BEIGE

Revision Date 09-Aug-2016
CRYS\2\2L\2 IN SILICA (QUARTZ) 14808-60-7 = 500 mg/kg ( Rat )
BENZYL ALCOHOL 100-51-6 = 1230 mg/kg ( Rat ) = 2 g/kg ( Rabbit ) = 8.8 mg/L ( Rat ) 4 h
1,2-CYCLOHEXANEDIAMINE 694-83-7 = 4556 mg/kg ( Rat )
M-XYLENEDIAMINE 1477-55-0 = 660 mg/kg ( Rat ) = 2 g/kg ( Rabbit ) = 700 ppm ( Rat ) 1 h
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8 > 2000 mg/kg ( Rat )
CRYS\2\2L\2 IN SILICA (QUARTZ) 14808-60-7 = 500 mg/kg ( Rat )
SYNTHETIC AMORPHUS PYROGENIC SILICA 112945-52-5 = 3160 mg/kg ( Rat )
PHENOL (SKIN) 108-95-2 = 317 mg/kg ( Rat ) = 340 mg/kg ( Rat ) = 630 mg/kg ( Rabbit ) = 316 mg/m$^3$ ( Rat ) 4 h
SALICYLIC ACID 69-72-7 = 891 mg/kg ( Rat ) > 2 g/kg ( Rat ) > 900 mg/m$^3$ ( Rat ) 1 h
ALUMINUM HYDROXIDE 21645-51-2 > 5000 mg/kg ( Rat )

Information on toxicological effects

Symptoms
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin disorders. Irritating to eyes and skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Corrosivity
Causes severe damage to eyes and skin. May be corrosive to metals.

Chronic Toxicity
Causes damage to organs through prolonged or repeated exposure

Sensitization
May cause sensitization of susceptible persons.

Reproductive effects
Suspected of damaging fertility or the unborn child.

STOT - single exposure
Eyes, Skin, Central Nervous System (CNS)

STOT - repeated exposure
Central nervous system, Eyes, kidney, liver, Lungs, respiratory system, Skin, Nasal Cavities.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7</td>
<td></td>
<td>Group 2B</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) 14808-60-7</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT 68131-74-8</td>
<td></td>
<td>Group 1</td>
<td>Known</td>
<td></td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) 14808-60-7</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>SYNTHETIC AMORPHUS PYROGENIC SILICA 112945-52-5</td>
<td></td>
<td>Group 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHENOL (SKIN) 108-95-2</td>
<td></td>
<td>Group 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproductive effects
Suspected of damaging fertility or the unborn child.

STOT - single exposure
Eyes, Skin, Central Nervous System (CNS)

STOT - repeated exposure
Central nervous system, Eyes, kidney, liver, Lungs, respiratory system, Skin, Nasal Cavities.

Aspiration hazard
No information available.
12. ECOLOGICAL INFORMATION

Ecotoxicity

38.2268 % of the mixture consists of components(s) of unknown hazards to the aquatic environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>32: 96 h Pimephales promelas mg/L LC50 static</td>
<td>328: 24 h Daphnia magna mg/L EC50</td>
<td></td>
</tr>
<tr>
<td>BENZYL ALCOHOL 100-51-6</td>
<td>35: 3 h Anabaena variabilis mg/L EC50</td>
<td>10: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>23: 48 h water flea mg/L EC50</td>
</tr>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT 68131-74-8</td>
<td></td>
<td></td>
<td>140 - 2000: 24 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>PHENOL (SKIN) 108-95-2</td>
<td>0.0188 - 0.1044: 96 h Pseudokirchneriella subcapitata mg/L EC50</td>
<td>11.9 - 25.3: 96 h Lepomis macrochirus mg/L LC50 flow-through 11.9 - 50.5: 96 h Pimephales promelas mg/L LC50 flow-through 20.5 - 25.6: 96 h Pimephales promelas mg/L LC50 static 23.4 - 36.6: 96 h Orzias latipes mg/L LC50 static 33.9 - 43.3: 96 h Orzias latipes mg/L LC50 flow-through 34.09 - 47.64: 96 h Poecilia reticulata mg/L LC50 static 4.23 - 7.49: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 5.0 - 12.0: 96 h Oncorhynchus mykiss mg/L LC50 static 5.449 - 6.789: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 7.5 - 14: 96 h Oncorhynchus mykiss mg/L LC50 static 0.00175: 96 h Cyprinus carpio mg/L LC50 semi-static 11.5: 96 h Lepomis macrochirus mg/L LC50 semi-static 13.5: 96 h Lepomis macrochirus mg/L LC50 static 27.8: 96 h Brachydanio rerio mg/L LC50 31: 96 h Poecilia reticulata mg/L LC50 semi-static 32: 96 h Pimephales promelas mg/L LC50</td>
<td></td>
</tr>
<tr>
<td>SALICYLIC ACID 69-72-7</td>
<td>90: 48 h Leuciscus idus mg/L LC50 static</td>
<td></td>
<td>105: 24 h Daphnia magna mg/L EC50 870: 48 h Daphnia magna mg/L EC50 Static</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENZYL ALCOHOL 100-51-6</td>
<td>1.1</td>
</tr>
<tr>
<td>1,2-CYCLOHEXANEDIAMINE 694-83-7</td>
<td>0.09</td>
</tr>
<tr>
<td>M-XYLENEDIAMINE 1477-55-0</td>
<td>0.18</td>
</tr>
<tr>
<td>PHENOL (SKIN) 108-95-2</td>
<td>1.47</td>
</tr>
<tr>
<td>SALICYLIC ACID 69-72-7</td>
<td>2.26</td>
</tr>
</tbody>
</table>
Other Adverse Effects: No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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 to an approved waste handling site for recycling or disposal.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHENOL (SKIN) 108-95-2</td>
<td>U188</td>
<td>Included in waste streams: F039, K001, K022, K087</td>
<td>U188</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>CAWAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT 68131-74-8</td>
<td>Toxic Corrosive</td>
</tr>
<tr>
<td>PHENOL (SKIN) 108-95-2</td>
<td>Toxic Corrosive</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
- UN/ID no.: 3066
- Proper Shipping Name: paint
- Hazard Class: 8
- Packing Group: III
- Emergency Response Guide Number: 153

IATA

Additional information: Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories
- TSCA: Complies
- DSL/NDSL: Complies
- EINECS/ELINCS: Does not comply
- ENCS: Does not comply
- IECSC: Complies
- KECL: Does not comply
- PICCS: Does not comply
- AICS: Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

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

Component | HAPS Data
--- | ---
COAL FIRED FLY ASH BI-PRODUCT | 
PHENOL (SKIN) | 

**United States of America**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Component</th>
<th>SARA 313 - Threshold Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT - 68131-74-8</td>
<td>0.1</td>
</tr>
<tr>
<td>PHENOL (SKIN) - 108-95-2</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazardous**

**Categorization**

- Acute Health Hazard
- Chronic Health Hazard
- Fire Hazard
- Sudden Release of Pressure Hazard
- Reactive Hazard

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT - 68131-74-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHENOL (SKIN) - 108-95-2</td>
<td>1000 lb</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**CERCLA**

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHENOL (SKIN) - 108-95-2</td>
<td>1000 lb</td>
<td>1000 lb</td>
<td>RQ 1000 lb final RQ</td>
</tr>
</tbody>
</table>

**United States of America**

**California Prop. 65**
WARNING! This product contains a chemical known in the State of California to cause cancer

<table>
<thead>
<tr>
<th>Component</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL - 98-00-0</td>
<td>*</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) - 14808-60-7</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT - 68131-74-8</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) - 14808-60-7</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

**California SCAQMD Rule 443**
Contains Photochemically Reactive Solvent

**State Right-to-Know**

<table>
<thead>
<tr>
<th>Component</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL - 98-00-0</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) - 14808-60-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BENZYL ALCOHOL - 100-51-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>NFPA Health</td>
<td>NFPA Flammability</td>
<td>NFPA Reactivity</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>M-XYLENEDIAMINE</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1477-55-0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COAL FIRED FLY ASH BI-PRODUCT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68131-74-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRYSSTALLINE SILICA (QUARTZ)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14808-60-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHENOL (SKIN)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>108-95-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZIRCONIUM OXIDE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1314-23-4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**16. OTHER INFORMATION**

Prepared By: Tnemec Regulatory Dept: 816-474-3400
Revision Date: 09-Aug-2016
Revision Summary: 9 4 5 7 10 8 11 14

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 SDS
1. IDENTIFICATION

Product identifier
Product Code F434-0434B
Product Name PERMA-SHIELD H2S EPOXY

Other means of identification
Common Name SERIES 434, PART B
Synonyms None

Recommended use of the chemical and restrictions on use.
Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet
Manufacturer Address Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372 816-474-3400
Distributor Tnemec Company, Inc. 86 Boul, des Entreprises, Ste. 203, Boisbriand, Quebec Canada J7G 2T3
Emergency telephone number
Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification
OSHA Regulatory Status This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Dermal | Category 4 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2A |
| Skin sensitization | Category 1 |
| Carcinogenicity | Category 2 |
| Specific target organ toxicity (repeated exposure) | Category 2 |

Label elements

WARNING

Hazard statements
Harmful if swallowed
Harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray

Response
IF exposed or concerned: Get medical advice/attention
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
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Storage
Store locked up
Keep away from children

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Other information
Toxic to aquatic life with long lasting effects
SEE SAFETY DATA SHEET

Acute Toxicity
91.6287 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPOXY RESIN (LER)</td>
<td>25085-99-8</td>
<td>60 - 100%</td>
</tr>
<tr>
<td>FURFURYL ALCOHOL</td>
<td>98-00-0</td>
<td>1 - &lt;10%</td>
</tr>
<tr>
<td>SYNTHETIC AMORPHUS PYROGENIC SILICA</td>
<td>112945-52-5</td>
<td>1 - &lt;10%</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice
If symptoms persist, call a physician.
Eye contact  Rinse thoroughly with plenty of water for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact  Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Inhalation  Remove to fresh air. Oxygen or artificial respiration if needed.

Ingestion  If swallowed, do not induce vomiting. Get medical attention immediately.

Self-protection of the first aider  Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician  Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media  Carbon dioxide. Foam. Dry chemical.

Unsuitable extinguishing media  Do not use a solid water stream as it may scatter and spread fire.

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

Personal precautions, protective equipment and emergency procedures

Personal precautions  Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions  Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment  Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

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.

7. HANDLING AND STORAGE
Precautions for safe handling

Handling
Close container after each use. Avoid contact with eyes, skin 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.

Conditions for safe storage, including any incompatibilities

Storage
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL</td>
<td>TWA: 0.2 ppm</td>
<td>TWA: 10 ppm</td>
<td>75 ppm</td>
</tr>
<tr>
<td>98-00-0</td>
<td>Skin</td>
<td>TWA: 40 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 15 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 60 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td>TWA: 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 200 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures
Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection
Use chemical resistant splash type goggles. If splashes are likely to occur, wear face-shield.

Skin and body protection
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection
Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA 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

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>amber</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
<td>pungent</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
</tbody>
</table>
### Property

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>72 °C / 162 °F</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>77 °C / 170.0 °F</td>
<td>Pensky Martens - Closed Cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.1687</td>
<td>g/cm³</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Insoluble in cold water</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td></td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>1100 centipoises</td>
<td>approx</td>
</tr>
</tbody>
</table>

### Other Information

- **Density**: 9.74694 lbs/gal
- **Volatile organic compounds (VOC) content**: 0.58092 lbs/gal
- **Total volatiles weight percent**: 5.96 %
- **Total volatiles volume percent**: 6.17 %
- **Bulk density**: No information available

### 10. STABILITY AND REACTIVITY

**Reactivity**

No data available

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

None under normal processing.

**Conditions to avoid**

Heat, flames and sparks. Amines.

**Incompatible materials**

Strong oxidizing agents, Acids, Bases, Amines

**Hazardous decomposition products**


### 11. TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure**

- **Inhalation**: May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
- **Eye contact**: Causes serious eye irritation.
- **Skin contact**: Irritating to skin. May cause sensitization by skin contact.
Ingestion

Harmful if swallowed.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>= 110 mg/kg (Rat) = 177 mg/kg (Rat)</td>
<td>= 3825 mg/kg (Rat) = 400 mg/kg (Rabbit)</td>
<td>= 233 ppm (Rat) 4 h</td>
</tr>
<tr>
<td>SYNTHETIC AMORPHUS PYROGENIC SILICA 112945-52-5</td>
<td>= 3160 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin disorders. Irritating to eyes and skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity
Substances known to be carcinogenic to man. Skin sensitizer.

Sensitization
May cause sensitization of susceptible persons.

Mutagenicity
No information available.

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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>*</td>
<td>Group 2B</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>SYNTHETIC AMORPHUS PYROGENIC SILICA 112945-52-5</td>
<td>Group 3</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproductive effects
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
Causes damage to organs through prolonged or repeated exposure

Target organ effects
Central nervous system, Eyes, respiratory system, Skin.

Aspiration hazard
Based on product level data, this product does not meet the requirement to be classified as an aspiration hazard. However, this product contains an ingredient that may cause aspiration if swallowed.

Acute Toxicity
91.6287 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Toxic to aquatic life with long lasting effects

2.4112 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPOXY RESIN (LER) 25085-99-8</td>
<td>11 mg/L 72 hr</td>
<td>2 mg/L 96 hr Oncorhynchus mykiss</td>
<td>1.8 mg/L 48h</td>
</tr>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>32: 96 h Pimephales promelas mg/L LC50 static</td>
<td>328: 24 h Daphnia magna mg/L EC50</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPOXY RESIN (LER) 25085-99-8</td>
<td>3</td>
</tr>
</tbody>
</table>

Other Adverse Effects
No information available.
13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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 to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name  PAINT & RELATED MATERIAL - NOT REGULATED

IATA

Proper Shipping Name  NOT REGULATED

IMDG/IMO

UN/ID no.  3082
Proper Shipping Name  Environmentally hazardous substance, liquid, n.o.s, (Epoxy Resin)
Hazard Class  9
Packing Group  III
EmS No.  F-A, S-F
Marine Pollutant  This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

Additional information  Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA  Complies
DSL/NDSL  Complies
EINECS/ELINCS  Does Not Comply
ENCS  Complies
IECSC  Complies
KECL  Complies
PICCS  Complies
AICS  Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
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SARA 313
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SARA 311/312 Hazardous Categorization

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Fire Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

California Prop. 65
None of the ingredients are listed with California Proposition 65.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL - 98-00-0</td>
<td>*</td>
</tr>
</tbody>
</table>

California SCAQMD Rule 443
Contains Photochemically Reactive Solvent

State Right-to-Know

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURFURYL ALCOHOL 98-00-0</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

NFPA  Health 2  Flammability 1  Instability 1  Physical hazard *
HMIS (Hazardous Material Information System) Health 2*  Flammability 1  Reactivity 1

Prepared By Tnemec Regulatory Dept: 816-474-3400
Revision Date 06-Jul-2018
Revision Summary 9 1 4 5 7 10 8 11 14 15

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 SDS
1. IDENTIFICATION

Product identifier
Product Code    F434-0301C
Product Name    PERMA-SHIELD H2S AGGREGATE

Other means of identification
Common Name    SERIES 434-0301, PART C
Synonyms        None

Recommended use of the chemical and restrictions on use
Recommended Use industrial paint.
Uses advised against Consumer use, For professional use only. Not for residential use.

Details of the supplier of the safety data sheet
Manufacturer Address Tnemec Company, Inc. 6800 Corporate Drive, Kansas City, MO 64120-1372 816-474-3400
Distributor Tnemec Company, Inc. 86 Boul, des Entreprises, Ste. 203, Boisbriand, Quebec Canada J7G 2T3
Emergency telephone number Company Phone Number Tnemec Regulatory Dept: 816-474-3400
24 Hour Emergency Phone Number 800-535-5053 (Infotrac)

2. HAZARDS IDENTIFICATION

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th></th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation (Dusts/Mists)</td>
<td>Category 4</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1A</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements
Harmful if swallowed
Harmful if inhaled
Causes serious eye irritation
May cause cancer
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure
Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Response
If exposed: Call a POISON CENTER or doctor/physician
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
If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Storage
Store locked up
Keep away from children

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Causes mild skin irritation
Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure).
Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs
SEE SAFETY DATA SHEET
Acute Toxicity 7.00780201 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ)</td>
<td>14808-60-7</td>
<td>30 - &lt;60%</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ)</td>
<td>14808-60-7</td>
<td>10 - &lt;30%</td>
</tr>
<tr>
<td>MICA (RESPIRABLE DUST)</td>
<td>12001-26-2</td>
<td>1 - &lt;10%</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ)</td>
<td>14808-60-7</td>
<td>0.1 - &lt;1%</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice
If symptoms persist, call a physician.
Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact
Wash affected area with soap and water. Remove contaminated clothing. Dispose of or launder accordingly. Consult a physician if skin irritation persists.

Inhalation
Remove to fresh air. Oxygen or artificial respiration if needed.

Ingestion
If swallowed, do not induce vomiting. Get medical attention immediately.

Self-protection of the first aider
Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Most important symptoms and effects, both acute and delayed

Notes to physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
No information available.

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.

Hazardous combustion products
No information available.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with eyes, skin and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental Precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment
Remove all sources of ignition. Spills may be collected with inert, absorbent material for proper disposal. Use non-sparking tools, protective gloves, goggles and clothing, adequate ventilation, avoid the breathing of vapors and use respiratory protective devices. Transfer absorbent material to suitable containers for proper disposal.

Methods for cleaning up
Shovel or sweep up.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling
Close container after each use. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. Tightly fitting safety goggles. Wear protective
gloves/clothing. When used in a mixture, read the labels and safety data sheets of all components. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage
Keep away from heat, sparks and flame. Keep container tightly closed. Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
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</thead>
<tbody>
<tr>
<td>CRystalline silica (quartz) 14808-60-7</td>
<td>TWA: 0.025 mg/m³</td>
<td>TWA: 0.1 mg/m³</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 µg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRystalline silica (quartz) 14808-60-7</td>
<td>TWA: 0.025 mg/m³</td>
<td>TWA: 0.1 mg/m³</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 µg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mica (respirable dust) 12001-26-2</td>
<td>TWA: 3 mg/m³</td>
<td>TWA: 3 mg/m³</td>
<td>1500 mg/m³</td>
</tr>
<tr>
<td>CRystalline silica (quartz) 14808-60-7</td>
<td>TWA: 0.025 mg/m³</td>
<td>TWA: 0.1 mg/m³</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 µg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures
Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH’s Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product.

Individual protection measures, such as personal protective equipment

Eye/face protection
Tightly fitting safety goggles

Skin and body protection
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection
Use only with adequate ventilation. Do not breathe vapors, spray mist, or dust. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist or dust levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer’s directions for respirator use. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.

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

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>powder</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>beige</td>
<td></td>
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<tr>
<td>Color</td>
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<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
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<tr>
<td>Odor threshold</td>
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<td>pH</td>
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<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
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<td>No data available</td>
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<tr>
<td>Flash point</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
None under normal processing.

Conditions to avoid
Heat, flames and sparks.

Incompatible materials
Strong bases, Acids, Reducing agents

Hazardous decomposition products
No information available.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
HARMFUL BY INHALATION. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs.

Eye contact
Causes serious eye irritation.

Skin contact
Irritating to skin. May cause sensitization by skin contact.

Ingestion
Harmful if swallowed.

Information on toxicological effects

Symptoms
Skin disorders. Irritating to eyes and skin. Respiratory disorders.
Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Chronic Toxicity**
Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure). Skin sensitizer.

**Sensitization**
May cause sensitization of susceptible persons.

**Mutagenicity**
No information available.

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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) 14808-60-7</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ) 14808-60-7</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
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<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
</tbody>
</table>

**Reproductive effects**
No information available.

**STOT - single exposure**
Eyes, Skin, Respiratory system

**STOT - repeated exposure**
Causes damage to organs through prolonged or repeated exposure blood, Central nervous system, Central Vascular System (CVS), Eyes, kidney, liver, Lungs, Nasal Cavities, prostate, respiratory system, Skin.

**Aspiration hazard**
No information available.

**Acute Toxicity**
7.00780201 % of the mixture consists of ingredient(s) of unknown toxicity.

---

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**
Toxic to aquatic life with long lasting effects

100 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

**Persistence and degradability**
No information available.

**Bioaccumulation**
No information available.

**Mobility in Environmental Media**

**Other Adverse Effects**
No information available

---

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**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 to an approved waste handling site for recycling or disposal.

---

**14. TRANSPORT INFORMATION**

---
**DOT**

**Proper Shipping Name**  SILICA, N.O.I.-20-P.C.F., GREATER (ITEM 176370, SUB 3)

**Additional information**  Call TNEMEC Traffic Department - 816-474-3400 for additional information or other modes of Transportation.

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### 15. REGULATORY INFORMATION

#### International Inventories

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Does Not Comply</td>
</tr>
<tr>
<td>ENCS</td>
<td>Does Not Comply</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

#### SARA 311/312 Hazardous

**Categorization**

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
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<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

#### California Prop. 65

**WARNING:** This product can expose you to the following chemicals which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRystalline Silica (Quartz) - 14808-60-7</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>CRystalline Silica (Quartz) - 14808-60-7</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>CRystalline Silica (Quartz) - 14808-60-7</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>Titanium Dioxide - 13463-67-7</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

#### California SCAQMD Rule 443

Does Not Contain Photochemically Reactive Solvent

#### State Right-to-Know

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
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<tr>
<td>CRystalline Silica (Quartz) 14808-60-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
16. OTHER INFORMATION

NFPA
Health 1

HMIS (Hazardous Material Information System)
Health 1*

Prepared By
Tnemec Regulatory Dept: 816-474-3400

Revision Date
22-Mar-2018

Revision Summary
9 1 4 5 7 10 8 11 14 15

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