TNEMEC

INNOVATION IN EVERY COAT™

SUBMITTAL PACKAGE

Project	Ocean Pines WWTP
Location	Ocean Pines, MD
Section	Overhead Pipe Corrosion Protection
Date	2.5.2026

PREPARED BY

Travis Gold

Atlantic Coating Consultants

Independent Representative of Tnemec Company, Inc.

t. 410-608-2900 **e.** travis@acconsultants.com **w.** www.tnemec.com

TNEMEC COMPANY, INC.

Coating System Submittal

PIPE COATINGS

Surface Preparation	Uniformly clean with 4,000 PSI, Apply Chlor-Rid, Power Tool Clean per SSPC SP-3
Primer	Series 132 Pro-Tuff Mastic 4.0-8.0 mils DFT
Intermediate	Series 1095 EnduraShield at 2.0-3.0 mils DFT
Finish	Series 1095 EnduraShield at 2.0-3.0 mils DFT

PRODUCT DATA SHEETS

484-644-5303 atlantic@tnemec.com

Independent Representative of Tnemec Company, Inc.

TNEMEC

PRODUCT DATA SHEET

PROTUFF MASTIC SERIES 132

PRODUCT PROFILE

GENERIC DESCRIPTION Phenalkamine Epoxy Mastic

COMMON USAGE Series 132 is a versatile, high-build, surface tolerant epoxy mastic designed for application over tightly adhered light corrosion and marginally prepared or previously coated steel, or as a primer/intermediate coat under weather-able finishes. Series 132 may be applied at low-temperatures, over dew point conditions and on damp surfaces.

COLORS A11417 Light Gray, 1211 Red, 1252 Beige. **Note:** Epoxies chalk with extended exposure to sunlight. Lack of ventilation, incomplete mixing, miscatalyzation or the use of heaters that emit carbon dioxide and carbon monoxide during application and initial stages of curing may cause yellowing to occur. Due to product's curing chemistry, color change or variation may occur. These changes are aesthetic only and will not affect performance.

FINISH Semi-gloss

SPECIAL QUALIFICATIONS This product is part of a coating system tested in accordance with ISO 12944-6 (2018). Contact your Tnemec representative for coating system test results.

COATING SYSTEM

PRIMERS Self-priming. **Note:** Excessive humidity or condensation on the coated surface may cause discoloration or surface haze. If any surface haze or blush occurs, it must be removed with an isopropyl alcohol (IPA) wipe before recoating.

TOPCOATS **Exterior:** Series 66, 115, 138, 700, 701, 1070, 1071, 1072, 1074, 1074U, 1075, 1075U, 1094, 1095, 1096. Refer to COLORS on applicable topcoat data sheets for additional information. **Note:** The following maximum recoat times apply: Series 66; one (1) day, Series 700, 701, 1070, 1071, 1072; five (5) days, Series 138, 1074, 1074U, 1075 or 1075U; fourteen (14) days, Series 115, 1094, 1095 or 1096; thirty (30) days. If this time limit is exceeded, Series 132 must be uniformly scarified prior to topcoating.

SURFACE PREPARATION

STEEL Minimum surface preparation of bare steel or previously painted steel requires a cleanliness level as defined by SSPC-SPWJ-4/NACE WJ-4 Light Cleaning by use of Low Pressure Water Cleaning (LP WC) between 3,500 and 5,000 psi using a 0 degree rotating nozzle. If all visible contaminants, loose mill scale, loose rust and other corrosion products, and loose paint have not been removed, SSPC-SP2 Hand Tool Cleaning or SSPC-SP3 Power Tool Cleaning should be employed until the surface cleanliness definition is met.

GALVANIZED STEEL & NON-FERROUS METAL Surface preparation recommendations will vary depending on substrate and exposure conditions. Contact your Tnemec representative or Tnemec Technical Services.

PAINTED SURFACES Test patch is recommended.

ALL SURFACES Must be clean and free of oil, grease and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS 81% ± 2.0% (mixed)

RECOMMENDED DFT 4.0 to 18.0 mils (100 to 455 microns) in one coat. **Note:** Number of coats and thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative.

CURING TIME

Temperature	To Handle/To Recoat	Max Recoat
90°F (32°C)	3 hours	14 days
75°F (24°C)	4 hours	14 days
65°F (18°C)	7 hours	14 days
55°F (11°C)	13 hours	14 days
45°F (7°C)	20 hours	14 days
35°F (2°C)	48 hours	14 days
20°F (-6°C)†	N/A	14 days

† Substrate temperature should not be below 35°F (2°C) during application. However, Series 132 will continue to cure below freezing temperatures. Curing time varies with surface temperature, air movement, humidity and film thickness.

VOLATILE ORGANIC COMPOUNDS **Unthinned:** 1.30 lbs/gal (156 g/l)
Thinned 5% (No. 4 Thinner): 1.57 lbs/gal (188 g/l)

HAPS **Unthinned:** 1.26 lbs/gal solids
Thinned 5% (No. 4 Thinner): 1.61 lbs/gal solids

THEORETICAL COVERAGE 1,299 mil sq ft/gal (31.5 m²/L at 25 microns). See APPLICATION for coverage rates.

NUMBER OF COMPONENTS Two: Part A and Part B

MIXING RATIO By volume: Four (Part A) epoxy to one (Part B) amine.

PACKAGING

	Part A	Part B	When Mixed
Large Kit	1-6 gallon pail (partially filled)	1-1 gallon pail	5 gallons (18.9 L)
Small Kit	1-1 gallon can (partially filled)	1-quart can (partially filled)	1 gallon (3.79 L)

NET WEIGHT PER GALLON 12.47 ± 0.25 lbs (5.66 ± 0.11 kg) (mixed)

PROTUFF MASTIC | SERIES 132

STORAGE TEMPERATURE Minimum 50°F (10°C) Maximum 110°F (43°C)
Prior to application, the material temperature should be above 60°F (16°). It is suggested the material be stored at this temperature at least 48 hours prior to use.

TEMPERATURE RESISTANCE (Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE 12 months at recommended storage temperature.

FLASH POINT - SETA Part A: 87°F (30°C) Part B: 185°F (85°C)

HEALTH & SAFETY This product contains chemical ingredients which are considered hazardous. Read container label warning and Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry Mils (microns)	Wet Mils (microns)	Sq Ft/Gal (m²/gal)
Minimum	4.0 (100)	5.0 (125)	325 (6.7)
Maximum	18.0 (455)	22.0 (565)	72 (6.7)

Note: Roller or brush application requires multiple coats to obtain recommended film thickness. Allow for overspray and surface irregularities. Wet film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thickness may adversely affect coating performance.

MIXING Mix the entire contents of Part A and Part B separately. Scrape all of the Part B into the Part A pail by using a flexible spatula. Use a variable speed drill with a PS Jiffy blade and mix the blended components for a minimum of two minutes. Apply the mixed material within pot life limits after agitation. Both components must be above 50°F (10°C) prior to mixing. For optimum application properties, the material temperature should be above 60°F (16°C). For applications to surfaces between 35°F to 50°F (2°C to 10°C) allow mixed material to stand 30 minutes and restir before use. **Note:** A large volume of material will set up quickly if not applied or lessened in mass. **Caution: Do not reseal mixed material. An explosion hazard may be created.**

THINNING **Caution: Do not add thinner to Part A prior to mixing with Part B.** Thin up to 5% or 6.4 ounces (189 mL) per gallon with No. 4 Thinner.

POT LIFE 1 1/2 hours at 77°F (21°C) 1 hour at 90°F (32°C)

SPRAY LIFE 45 minutes at 77°F (21°C)

SUBSTRATE CONDITIONING Do not apply over puddles, ponding, or standing water. All standing and heavy accumulations of water must be removed before application. In the case of sweating pipes, accumulated water must be removed. Brush, roll, or spray/backroll to displace water and create a monolithic film in direct contact with substrate.

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss IGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm}	1/4" (6.35 mm)	60-80 psi (4.1-5.5 bar)	25-35 psi (1.7-2.4 bar)

Low temperature or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.017"-0.021" (430-535 microns)	3400-4760 psi (234-328 bar)	3/8" (9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.
Roller: Roller application optional when environmental restrictions do not allow spraying. Use 3/8" or 1/2" (9.5 mm to 12.7 mm) synthetic nap covers.
Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

SURFACE TEMPERATURE Minimum 35°F (2°C) Maximum 135°F (57°C)

CLEANUP Flush and clean all equipment immediately after use with the recommended thinner or MEK.

TNEMEC

PRODUCT DATA SHEET

ENDURA-SHIELD® SERIES 1095

PRODUCT PROFILE

GENERIC DESCRIPTION Aliphatic Acrylic Polyurethane

COMMON USAGE A user friendly, low VOC, aliphatic polyurethane coating that provides excellent color and gloss retention for exterior applications to steel, concrete and other substrates in commercial, industrial, and marine environments. Direct-to-Metal capability allows for a labor-saving, high-build, single coat application.

COLORS Refer to Tnemec Color Guide. **Note:** Certain colors may require multiple coats depending on method of application and finish coat color. When feasible, the preceding coat should be in the same color family, but noticeably different.

FINISH Semi-gloss

SPECIAL QUALIFICATIONS Series 1095 meets the requirements of LEED-Low-Emitting Materials, Collaborative for High-Performance Schools-Paints & Coatings, WELL Building Standard-VOC Restrictions, and Living Building Challenge–Healthy Interior Performance. Contact your Tnemec representative for more information.

This product is part of a coating system tested in accordance with ISO 12944-6 (2018). Contact your Tnemec representative for coating system test results.

COATING SYSTEM

PRIMERS **Steel:** Self-priming or Series 1, 27, 66, L69, L69F, N69, N69F, V69, V69F, 90-75, 90-97, 90G-1K97, 91-H_2O, 93-H_2O, 94-H_2O, 98-H_2O, 104, 132, 133, 135, 138, L140, L140F, N140, N140F, 141, 161, 394, 1220, 1224
Galvanized Steel & Non-Ferrous Metal: Series 66, L69, N69, V69, 161, 1224. **Note:** For special galvanized surface preparation instructions, consult the latest version of Tnemec Technical Bulletin 10-78.
Concrete: Series 66, L69, L69F, N69, N69F, V69, V69F, L140, L140F, N140, N140F, 141, 161, 1224, 1254
CMU: Series 1254
Note: The following maximum recoat times apply; Series 141, 7 days; Series L69F, N69F, V69F, L140F, or N140F, 14 days; Series L69, N69, V69, L140, or N140, 21 days; Series 1, 27, 66, 104, 132, 135, 161, 1254, 30 days; Series 394, 1220, 1224, 12 months. Series 90-75, 90-97, 90G-1K97, 91-H_2O, 93-H_2O, 94-H_2O, 98-H_2O, 133 or 138 unlimited. Contact your Tnemec representative for specific recommendations.

TOPCOATS Series 700, V700, 701, V701

SURFACE PREPARATION

STEEL SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 2.0 mils.

ALL SURFACES Must be clean, dry and free of oil, grease, chalk and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS 66.0 ± 2.0% (mixed) †

RECOMMENDED DFT **Topcoat Service:** 2.0 to 5.0 mils (51 to 127 microns) per coat.
Direct-to-Metal; over Zinc or MIO-Zinc: 3.0 to 6.0 mils (76 to 154 microns)
Note: Number of coats and thickness requirements will vary with substrate, application method and exposure. For DTM or applications over zinc or MIO-zinc, consult the latest version of Tnemec Technical Bulletin 13-100 or contact your Tnemec representative.

CURING TIME

Temperature	To Touch	To Handle	To Recoat
75°F (24°C)	1-2 hours	9 hours	10-12 hours

To resist moisture: 8 hours. Curing time varies with surface temperature, air movement, humidity and film thickness.
Note: For faster cure in temperatures down to 35°F (2°C), add No. 44-456 Urethane Accelerator, see separate product data sheet for cure information. **Note:** The use of Series 44-456 accelerator is not recommended when temperatures exceed 75°F (24°C).

VOLATILE ORGANIC COMPOUNDS
Unthinned: 0.73 lbs/gallon (88 grams/litre) (TBAc exempt)
Unthinned: 1.93 lbs/gallon (232 grams/litre)
Thinned 15% (No. 10 Thinner): 1.96 lbs/gallon (234 grams/litre) (TBAc exempt)
Thinned 15% (No. 10 Thinner): 2.79 lbs/gallon (335 grams/litre)
Thinned 15% (No. 46 Thinner): 0.81 lbs/gallon (97 grams/litre) (TBAc exempt)
Thinned 15% (No. 46 Thinner): 1.99 lbs/gallon (238 grams/litre)
Thinned 15% (No. 49 Thinner): 0.73 lbs/gallon (88 grams/litre) (TBAc exempt)
Thinned 15% (No. 49 Thinner): 1.93 lbs/gallon (232 grams/litre)

HAPS
Unthinned: 0.00 lbs/gal solids
Thinned 15% (No. 10 Thinner): 0.04 lbs/gal solids
Thinned 15% (No. 46 Thinner): 0.09 lbs/gal solids

THEORETICAL COVERAGE 1,059 mil sq ft/gal (26.0 m²/L at 25 microns). See APPLICATION for coverage rates. †

NUMBER OF COMPONENTS Two: Part A and Part B

MIXING RATIO By volume: four (Part A) to one (Part B)

PACKAGING

	Part A (Partially filled)	Part B (Partially filled)	Yield (Mixed)
Large Kit	6 gallon pail	1 gallon can	5 gallons (18.9 L)
Small Kit	1 gallon can	1 quart can	1 gallon (3.79 L)

NET WEIGHT PER GALLON 12.73 ± 0.25 lbs (5.77 ± 0.11 kg) †

STORAGE TEMPERATURE Minimum 40°F (4°C) Maximum 110°F (43°C)

TEMPERATURE RESISTANCE (Dry) Continuous 250°F (121°C) Intermittent 275°F (135°C)

SHELF LIFE Part A: 12 months; Part B: 12 months at recommended storage temperature.

FLASH POINT - SETA Part A: 73°F (23°C) Part B: 40°F (4°C)

HEALTH & SAFETY Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Safety Data Sheet for important health and safety information prior to the use of this product.
Keep out of the reach of children.

APPLICATION

COVERAGE RATES

Topcoat Service

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m²/Gal)
Suggested	2.5 (65)	4.0 (100)	423 (39.3)
Minimum	2.0 (50)	3.0 (75)	529 (49.2)
Maximum	5.0 (125)	7.5 (190)	212 (19.7)

Direct-to-Metal; over Zinc or MIO-Zinc

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m²/Gal)
Suggested	4.0 (100)	6.0 (150)	265 (24.6)
Minimum	3.0 (75)	4.5 (115)	353 (32.7)
Maximum	6.0 (150)	9.0 (230)	176 (16.4)

Note: Coverage rates based on unthinned material. Allow for overspray and surface irregularities. Film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. †

MIXING Stir contents of the container marked Part A, making sure no pigment remains on the bottom. If using Series 44-456 accelerator, slowly add four (4) ounces of Series 44-456 per mixed gallon of Series 1095 while under agitation. **Note:** The use of more than the recommended amount of Series 44-456 accelerator will adversely affect performance.

Add the contents of the container marked Part B to Part A while under mechanical agitation. Continue agitation until the two components are thoroughly mixed. Do not use mixed material beyond pot life limits. **Caution: Part B is moisture-sensitive and will react with atmospheric moisture. Keep unused material tightly closed at all times. Do not reseal mixed material. An explosion hazard may be created.**

THINNING Thinning is required for proper application. Use No. 10 Thinner. For air spray, airless spray, brush, or roller, thin up to 15% or 19 ounces (562 mL) per gallon. **Note:** In areas that require lower VOC, use No. 46 or 49 Thinner.

POT LIFE Without 44-456: 4 hours at 75°F (24°C)

With 44-456: 5 hours at 35°F (2°C) 4 hours at 55°F (13°C) 3 hours at 75°F (24°C)

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	50-80 psi (3.4-5.5 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.013"-0.017" (330-430 microns)	3000-3500 psi (206-241 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.
Roller: Use 1/4" or 3/8" (6.4 mm or 9.5 mm) high quality synthetic woven nap roller cover. Do not use medium or long nap roller covers. Two coats are required to obtain dry film thickness above 3.0 mils (75 microns).
Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes. Two coats are required to obtain recommended film thickness.

SURFACE TEMPERATURE Minimum 40°F (4°C) Maximum 120°F (49°C)
The surface should be dry and at least 5°F (3°C) above the dew point.
Cure time necessary to resist direct contact with moisture at a surface temperature of 75°F (24°C) is 8 hours.

CLEANUP Flush and clean all equipment immediately after use with xylene or MEK. Use Tnemec No. 74 Thinner when needed to comply with VOC regulations.

† Values may vary with color.

SAFETY DATA SHEETS

484-644-5303 atlantic@tnemec.com

Independent Representative of Tnemec Company, Inc.

Safety Data Sheet

Issue Date 03-Nov-2023 **Revision Date** 03-Nov-2023 **Revision Number** 4

1. IDENTIFICATION

Product identifier

Product Code F132-1252A
Product Name PROTUFF MASTIC BEIGE

Other means of identification

Common Name SERIES 132, PART A
UN/ID no. UN1263
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. 123 W. 23rd Avenue, North Kansas City, MO 64116-3094 (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)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

WARNING

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
May cause respiratory irritation. May cause drowsiness or dizziness

May cause damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

Appearance No information available **Physical state** liquid **Odor** No information available

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
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Keep cool

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 skin irritation or rash occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Keep away from children

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

Hazards not otherwise classified (HNOC)
Other information
May be harmful if swallowed
Toxic to aquatic life with long lasting effects
SEE SAFETY DATA SHEET
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
Acute Toxicity 26.19538 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	10 - <30%
EPOXY RESIN (LER)	25085-99-8	10 - <30%
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - <30%
XYLENE	1330-20-7	1 - <10%
SOLID EPOXY RESIN	-	1 - <10%
CRYSTALLINE SILICA (QUARTZ)	14808-60-7	1 - <10%
METHYL ISOBUTYL KETONE	108-10-1	1 - <10%
PROPRIETARY	-	1 - <10%
COAL FIRED FLY ASH BI-PRODUCT	68131-74-8	1 - <10%
BENZYL ALCOHOL	100-51-6	1 - <10%
N-BUTANOL (SKIN)	71-36-3	1 - <10%
ETHYL BENZENE	100-41-4	1 - <10%

*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 symptoms persist, call a physician.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician. May cause sensitization by skin contact.

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

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

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Phenolics. Aldehydes. Sulfur oxides.

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 Use personal protective equipment. Avoid contact with eyes, skin and clothing. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

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 Pick up and transfer to properly labelled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with eyes, skin and clothing. Remove and wash contaminated clothing before re-use. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapours or spray mist. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Keep tightly closed in a dry and cool place. Keep locked-up. Keep out of the reach of children.

Incompatible products Strong oxidizing agents. Acids. Bases. Amines. Halogenated compounds. Reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m³ respirable particulate matter	TWA: 50 µg/m³	50 mg/m³ respirable dust
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	TWA: 0.2 mg/m³ nanoscale respirable particulate matter TWA: 2.5 mg/m³ finescale respirable particulate matter	TWA: 15 mg/m³ total dust	5000 mg/m³
XYLENE 1330-20-7	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m³	
CRYSTALLINE SILICA (QUARTZ)	TWA: 0.025 mg/m³ respirable	TWA: 50 µg/m³	50 mg/m³ respirable dust

14808-60-7	particulate matter		
METHYL ISOBUTYL KETONE 108-10-1	TWA: 20 ppm STEL: 75 ppm	TWA: 100 ppm TWA: 410 mg/m³	500 ppm
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8	TWA: 1 mg/m³ dust and mist	-	100 mg/m³ dust and mist 10 mg/m³
N-BUTANOL (SKIN) 71-36-3	TWA: 20 ppm	TWA: 100 ppm TWA: 300 mg/m³	1400 ppm
ETHYL BENZENE 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m³	800 ppm

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

Physical state	liquid		
Appearance	No information available	**Odor**	No information available
Color	No information available	**Odor threshold**	No information available

Property	**Values**	**Remarks**
pH		No data available
Melting point / freezing point	No data available	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	31 °C / 87 °F	Pensky Martens - Closed Cup
Evaporation rate		No data available
Flammability (solid, gas)	No data available	
Flammability Limit in Air		No data available
Upper flammability limit	NA	
Lower flammability limit	NA	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.64551	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature	No data available	No data available
Decomposition temperature	No information available	

Kinematic viscosity	No information available
Dynamic viscosity	No data available

Other Information

Molecular weight	No information available
Density	13.72356 lbs/gal
Volatile organic compounds (VOC) content	1.57135 lbs/gal
Total volatiles weight percent	11.45 %
Total volatiles volume percent	22.32 %
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.

Incompatible materials
Strong oxidizing agents, Acids, Bases, Amines, Halogenated compounds, Reducing agents

Hazardous decomposition products
Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Phenolics. Aldehydes. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation	May cause irritation of respiratory tract. 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.

Information on toxicological effects

Symptoms	May cause skin and eye irritation. May cause respiratory irritation. Skin disorders. VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.

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

Chronic Toxicity	Avoid repeated exposure. Prolonged exposure may cause chronic effects. Skin sensitizer. Cancer hazard.
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.

Chemical name	ACGIH	IARC	NTP	OSHA
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	A3	Group 2B	-	X
XYLENE 1330-20-7		Group 3	-	
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
METHYL ISOBUTYL KETONE 108-10-1	A3	Group 2B	-	X
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8		Group 1	Known	
ETHYL BENZENE 100-41-4	A3	Group 2B	-	X

Reproductive effects No information available.

STOT - single exposure Causes damage to organs

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

Aspiration hazard No information available.

Acute Toxicity 26.19538 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

40.38335 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
EPOXY RESIN (LER) 25085-99-8	11 mg/L 72 hr	2 mg/L 96 hr Oncorhynchus mykiss	1.8 mg/L 48h
XYLENE 1330-20-7	-	LC50= 13.4 mg/L Pimephales promelas 96 h LC50 2.661 - 4.093 mg/L Oncorhynchus mykiss 96 h LC50 13.5 - 17.3 mg/L Oncorhynchus mykiss 96 h LC50 13.1 - 16.5 mg/L Lepomis macrochirus 96 h LC50= 19 mg/L Lepomis macrochirus 96 h LC50 7.711 - 9.591 mg/L Lepomis macrochirus 96 h LC50 23.53 - 29.97 mg/L Pimephales promelas 96 h LC50= 780 mg/L Cyprinus carpio 96 h LC50> 780 mg/L Cyprinus carpio 96 h LC50 30.26 - 40.75 mg/L Poecilia reticulata 96 h	EC50 = 3.82 mg/L 48 h LC50 = 0.6 mg/L 48 h
METHYL ISOBUTYL KETONE 108-10-1	EC50: 400 mg/L Pseudokirchneriella subcapitata 96 h	LC50: 496 - 514 mg/L Pimephales promelas 96 h flow-through	EC50: 170 mg/L Daphnia magna 48 h
BENZYL ALCOHOL 100-51-6	-	LC50: 460 mg/L Pimephales promelas 96 h static LC50: 10 mg/L Lepomis macrochirus 96 h static	EC50: 23 mg/L water flea 48 h
N-BUTANOL (SKIN) 71-36-3	EC50: >500 mg/L Desmodesmus subspicatus 96 h EC50: >500 mg/L Desmodesmus subspicatus 72 h	LC50: 1730 - 1910 mg/L Pimephales promelas 96 h static LC50: 1740 mg/L Pimephales promelas 96 h flow-through	EC50: 1983 mg/L Daphnia magna 48 h EC50: 1897 - 2072 mg/L Daphnia magna 48 h Static

		LC50: 100000 - 500000 µg/L Lepomis macrochirus 96 h static LC50: 1910000 µg/L Pimephales promelas 96 h static	
ETHYL BENZENE 100-41-4	EC50: 4.6 mg/L Pseudokirchneriella subcapitata 72 h EC50: >438 mg/L Pseudokirchneriella subcapitata 96 h EC50: 2.6 - 11.3 mg/L Pseudokirchneriella subcapitata 72 h static EC50: 1.7 - 7.6 mg/L Pseudokirchneriella subcapitata 96 h static	LC50: 11.0 - 18.0 mg/L Oncorhynchus mykiss 96 h static LC50: 4.2 mg/L Oncorhynchus mykiss 96 h semi-static LC50: 7.55 - 11 mg/L Pimephales promelas 96 h flow-through LC50: 32 mg/L Lepomis macrochirus 96 h static LC50: 9.1 - 15.6 mg/L Pimephales promelas 96 h static LC50: 9.6 mg/L Poecilia reticulata 96 h static	EC50: 1.8 - 2.4 mg/L Daphnia magna 48 h

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

Chemical name	log Pow
EPOXY RESIN (LER) 25085-99-8	3
XYLENE 1330-20-7	2.77
METHYL ISOBUTYL KETONE 108-10-1	1.19
BENZYL ALCOHOL 100-51-6	1.1
N-BUTANOL (SKIN) 71-36-3	0.785
ETHYL BENZENE 100-41-4	3.118

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Methods It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

US EPA Waste Number

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
XYLENE 1330-20-7		Included in waste stream: F039		U239
METHYL ISOBUTYL KETONE 108-10-1		Included in waste stream: F039		U161
N-BUTANOL (SKIN) 71-36-3		Included in waste stream: F039		U031
ETHYL BENZENE 100-41-4		Included in waste stream: F039		
TOLUENE	U220	Included in waste streams:		U220

108-88-3		F005, F024, F025, F039, K015, K036, K037, K149, K151		
METHYL ALCOHOL		Included in waste stream: F039		U154
CUMENE (SKIN) 98-82-8				U055
BENZENE 71-43-2	U019	Included in waste streams: F005, F024, F025, F037, F038, F039, K085, K104, K105, K141, K142, K143, K144, K145, K147, K151, K159, K169, K171, K172	0.5 mg/L regulatory level	U019

California Hazardous Waste Status

Chemical name	CAWAST
XYLENE 1330-20-7	Toxic Ignitable
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8	Toxic Corrosive
N-BUTANOL (SKIN) 71-36-3	Toxic
ETHYL BENZENE 100-41-4	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT

UN/ID no.	UN1263
Proper Shipping Name	PAINT
Hazard Class	3
Packing Group	III
Emergency Response Guide Number	128

IATA

UN/ID no.	UN1263
Proper Shipping Name	PAINT, (Epoxy Resin)
Hazard Class	3
Packing Group	III
ERG Code	128

IMDG/IMO

UN/ID no.	UN1263
Proper Shipping Name	PAINT, (Epoxy Resin)
Hazard Class	3
Packing Group	III
EmS No.	F-E,S-E
Marine Pollutant	Yes

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	Does Not Comply
KECL	Does Not Comply
PICCS	Does Not Comply
AICS	Does Not Comply

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

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

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

Chemical name	**HAPS Data**
XYLENE	
METHYL ISOBUTYL KETONE	
COAL FIRED FLY ASH BI-PRODUCT	
ETHYL BENZENE	

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:

Chemical name	SARA 313 - Threshold Values
XYLENE - 1330-20-7	1.0
METHYL ISOBUTYL KETONE - 108-10-1	0.1
COAL FIRED FLY ASH BI-PRODUCT - 68131-74-8	1.0 0.1
N-BUTANOL (SKIN) - 71-36-3	1.0
ETHYL BENZENE - 100-41-4	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
XYLENE 1330-20-7	100 lb			X
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8		X		
ETHYL BENZENE 100-41-4	1000 lb	X	X	X

CERCLA

Chemical name	Hazardous Substances RQs	CERCLA EHS RQs	RQ
XYLENE 1330-20-7	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
METHYL ISOBUTYL KETONE	5000 lb		RQ 5000 lb final RQ

108-10-1			RQ 2270 kg final RQ
N-BUTANOL (SKIN) 71-36-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
ETHYL BENZENE 100-41-4	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

California Prop. 65

WARNING: This product can expose you to the following chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Chemical name	California Prop. 65
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7	Carcinogen
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
METHYL ISOBUTYL KETONE - 108-10-1	Carcinogen Developmental
COAL FIRED FLY ASH BI-PRODUCT - 68131-74-8	Carcinogen
ETHYL BENZENE - 100-41-4	Carcinogen
AMORPHOUS SILICA - 7631-86-9	Carcinogen
TOLUENE - 108-88-3	Developmental
METHYL ALCOHOL -	Developmental
CUMENE (SKIN) - 98-82-8	Carcinogen
BENZENE - 71-43-2	Carcinogen Developmental Male Reproductive

California SCAQMD Rule 443
Contains Photochemically Reactive Solvent

State Right-to-Know

Chemical name	New Jersey	Massachusetts	Pennsylvania
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	X	X	X
XYLENE 1330-20-7	X	X	X
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
METHYL ISOBUTYL KETONE 108-10-1	X	X	X
COAL FIRED FLY ASH BI-PRODUCT 68131-74-8	X		X
BENZYL ALCOHOL 100-51-6		X	X
N-BUTANOL (SKIN) 71-36-3	X	X	X
ETHYL BENZENE 100-41-4	X	X	X

16. OTHER INFORMATION

NFPA	**Health** 2	**Flammability** 3	**Instability** 1	**Physical hazard** -
HMIS (Hazardous Material Information System)	**Health** 2*	**Flammability** 3	**Reactivity** 1	

Prepared By Tnemec Regulatory Dept: 816-474-3400
Revision Date 03-Nov-2023
Revision Summary
1 9 4 5 6 7 10 8 11 13 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

Safety Data Sheet

Issue Date 03-Nov-2023 **Revision Date** 03-Nov-2023 **Revision Number** 4

1. IDENTIFICATION

Product identifier

Product Code F132-0132B
Product Name PROTUFF MASTIC AMINE

Other means of identification

Common Name SERIES 132, PART B
UN/ID no. 3066
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. 123 W. 23rd Avenue, North Kansas City, MO 64116-3094 (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 2
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Flammable Liquids	Category 4

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements
Harmful if swallowed
Harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction
Combustible liquid

Appearance No information available **Physical state** liquid **Odor** amine

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace

Response
Call a POISON CENTER or doctor/physician if you feel unwell
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 INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Storage
Keep away from children

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

Hazards not otherwise classified (HNOC)
Other information
Harmful to aquatic life
SEE SAFETY DATA SHEET
Acute Toxicity 86.63516615 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%
ALKYLATED PHENOLIC POLYAMINE	68413-28-5	60 - 100%
MODIFIED ALIPHATIC AMINE	90-72-2	10 - <30%
BIS(DIMETHYLAMINOMETHYL)PHENOL	71074-89-0	1 - <10%
ETHYLENEDIAMINE	107-15-3	1 - <10%

*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 symptoms persist, call a physician.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician. May cause sensitization by skin contact.

Inhalation May cause sensitization by inhalation. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

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

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Oxides of nitrogen. Ammonia.

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 Use personal protective equipment. Avoid contact with eyes, skin and clothing. Ensure adequate ventilation. 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 Pick up and transfer to properly labelled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with eyes, skin and clothing. Remove and wash contaminated clothing before re-use. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapours or spray mist. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not ingest. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

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

Incompatible products Halogenated compounds. Reducing agents. Acids. Oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
ETHYLENEDIAMINE 107-15-3	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 25 mg/m^3	1000 ppm

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

Physical state liquid

Appearance	No information available	**Odor**	amine
Color	No information available	**Odor threshold**	No information available

Property	**Values**	**Remarks**
pH		No data available
Melting point / freezing point	No data available	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	85 °C / 185 °F	Pensky Martens - Closed Cup
Evaporation rate		No data available
Flammability (solid, gas)	No data available	
Flammability Limit in Air		No data available
Upper flammability limit	NA	
Lower flammability limit	NA	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	0.98064	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature	No data available	No data available
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity		No data available

Other Information

Molecular weight	No information available
Density	8.17857 lbs/gal
Volatile organic compounds (VOC) content	0.20692 lbs/gal
Total volatiles weight percent	2.53 %
Total volatiles volume percent	2.86 %
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.

Incompatible materials
Halogenated compounds, Reducing agents, Acids, Oxidizing materials

Hazardous decomposition products
Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Oxides of nitrogen. Ammonia. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation HARMFUL BY INHALATION. May cause sensitization by inhalation.

Eye contact Causes serious eye irritation.

Skin contact Irritating to skin. May cause sensitization by skin contact. Harmful in contact with skin.

Ingestion Harmful if swallowed.

Information on toxicological effects

Symptoms Irritating to eyes and skin. May cause respiratory irritation. Skin disorders. Respiratory disorders. Harmful if swallowed. Harmful in contact with skin.

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

Chronic Toxicity Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause sensitization by inhalation and skin contact.
Sensitization May cause sensitization of susceptible persons.
Mutagenicity No information available.
Carcinogenicity Not classifiable as a human carcinogen.
Reproductive effects No information available.
STOT - single exposure Causes damage to organs
STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure
Aspiration hazard No information available.

Acute Toxicity 86.63516615 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life

86.63518 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
ETHYLENEDIAMINE 107-15-3	EC50: 645 mg/L Pseudokirchneriella subcapitata 72 h EC50: 151 mg/L Pseudokirchneriella subcapitata 96 h	LC50: 98.6 - 131.6 mg/L Pimephales promelas 96 h static LC50: 191 - 254 mg/L Pimephales promelas 96 h flow-through LC50: 115.7 mg/L Pimephales promelas 96 h semi-static LC50: 180 - 560 mg/L Poecilia reticulata 96 h semi-static	EC50: 17 mg/L Daphnia magna 48 h

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

Chemical name	log Pow
MODIFIED ALIPHATIC AMINE 90-72-2	0.219
ETHYLENEDIAMINE 107-15-3	-1.221

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Methods It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

US EPA Waste Number

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
N-BUTANOL (SKIN) 71-36-3		Included in waste stream: F039		U031

California Hazardous Waste Status

Chemical name	CAWAST
ETHYLENEDIAMINE 107-15-3	Toxic

14. TRANSPORT INFORMATION

DOT

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

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	Does Not Comply
PICCS	Complies
AICS	Does Not Comply

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

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
ETHYLENEDIAMINE 107-15-3	5000 lb			X

CERCLA

Chemical name	Hazardous Substances RQs	CERCLA EHS RQs	RQ
ETHYLENEDIAMINE 107-15-3	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

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

California SCAQMD Rule 443
Contains Photochemically Reactive Solvent

State Right-to-Know

Chemical name	New Jersey	Massachusetts	Pennsylvania
ETHYLENEDIAMINE 107-15-3	X	X	X

16. OTHER INFORMATION

NFPA	**Health** 2	**Flammability** 2	**Instability** 0	**Physical hazard** -
HMIS (Hazardous Material Information System)	**Health** 2*	**Flammability** 2	**Reactivity** 0	

Prepared By Tnemec Regulatory Dept: 816-474-3400
Revision Date 03-Nov-2023
Revision Summary
1 9 4 5 6 7 10 8 11 13 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

Safety Data Sheet

Issue Date 28-Sep-2016 **Revision Date** 28-Sep-2016 **Revision Number** 4

1. IDENTIFICATION

Product identifier

Product Code 1095-00WHA
Product Name ENDURA-SHIELD TNEMEC WHITE

Other means of identification

Common Name SERIES 1095, PART A
UN/ID no. 1263

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 - Inhalation (Vapors)	Category 4
Serious eye damage/eye irritation	Category 2B
Skin sensitization	Not classified
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 3

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements
Harmful if inhaled
Causes eye irritation
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May cause respiratory irritation. May cause drowsiness or dizziness
Causes damage to organs through prolonged or repeated exposure

Flammable liquid and vapor

Appearance opaque **Physical state** liquid **Odor** aromatic

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
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

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 skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Keep away from children

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

Hazards not otherwise classified (HNOC)
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 27.0654 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight-%

CRYSTALLINE SILICA (QUARTZ)	14808-60-7	30 - 60%
TITANIUM DIOXIDE (TOTAL DUST)	13463-67-7	10 - 30%
ACRYLIC RESIN SOLUTION	M310	10 - 30%
tert-BUTYL ACETATE	540-88-5	1 - 10%
NON-HAZARDOUS MATERIAL	M191	1 - 10%
NON-HAZARDOUS RESIN	M331	1 - 10%
P-CHLOROBENZOTRIFLUORIDE	98-56-6	1 - 10%
TERT-BUTYL ACETATE	540-88-5	1 - 10%
METHYL N-AMYL KETONE	110-43-0	1 - 10%
AMORPHOUS SILICA	7631-86-9	1 - 10%
N-BUTYL ACETATE	123-86-4	0.1 - 1%
PROPRIETARY AMIDE	-	0.1 - 1%
FATTY ACID ESTER	-	0.1 - 1%
ALUMINUM OXIDES	1344-28-1	0.1 - 1%
ALUMINUM HYDROXIDE	21645-51-2	0.1 - 1%
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE	108-65-6	0.1 - 1%
ACRYLIC POLYMER	C173	0.1 - 1%
PETROLEUM SOLVENT (NAPTHA)	64742-95-6	0.1 - 1%
BIS (PENTAMETHYLPIPERIDYL) SEBACATE	41556-26-7	0.1 - 1%
DEFOAMER	C125	0.1 - 1%
PROPRIETARY	C434	0.1 - 1%
OLEYL ALCOHOL ETHOXYLATED, PHOSPHATED, FATTY AMINE ETHOXYLATED SALT	120968-16-3	0.1 - 1%
NON-HAZARDOUS RESIN	C629	0.1 - 1%
ZIRCONIUM OXIDE	1314-23-4	0.1 - 1%
DIPROPYLENE GLYCOL	25265-71-8	0.1 - 1%
PROPRIETARY	82919-37-7	0.1 - 1%
2,4-PENTANEDIONE	123-54-6	0 - 0.1%
AMINE COMPOUNDS	280-57-9	0 - 0.1%
ORGANIC ACID	-	0 - 0.1%
ALIPHATIC ALCOHOL	-	0 - 0.1%
@NAME	67784-80-9	0 - 0.1%
NON-HAZARDOUS RESIN	R396	0 - 0.1%
2-METHOXY-2-PROPANOL ACETATE (IMPURITY)	70657-70-4	0 - 0.1%
PROPYLENE GLYCOL MONOMETHYL ET	108-65-6	0 - 0.1%
CHROMA-CHEM 846-0451	-	0 - 0.1%
PROPYLENE GLYCOL MONOMETHYL ET	108-65-6	0 - 0.1%
PROPRIETARY	G150	0 - 0.1%
PROPRIETARY	C434	0 - 0.1%
DIBUTYLTIN DILAURYLMERCAPTIDE	1185-81-5	0 - 0.1%
INDUSTRIAL COLORANT	G150	0 - 0.1%
CHROMA-CHEM 846-9451	-	0 - 0.1%
PHOSPHORIC ESTER SALT	-	0 - 0.1%
PHOSPHORIC ESTER SALT	R395	0 - 0.1%
MAGNESIUM SILICATE	-	0 - 0.1%

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

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion Drink 1 or 2 glasses of water to dilute. Do not induce vomiting. Consult a physician or poison control center IMMEDIATELY. Treat symptomatically. Never give anything by mouth to an unconscious person.

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

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Oxides of nitrogen. Chlorine. Fluorine. Sulfur oxides.

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 Ensure adequate ventilation. Remove all sources of ignition. Use personal protective equipment. Avoid contact with eyes, skin and clothing.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water 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 Avoid contact with eyes, skin and clothing. Do not breathe vapours or spray mist. Close container after each use. Do not eat, drink or smoke when using this product. Wear personal protective equipment. Do not breathe vapours/dust. Do not ingest. Ensure adequate ventilation.

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 Acids. Bases. Strong oxidizing agents. caustic.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines .

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	TWA: 0.025 mg/m³	TWA: 0.1 mg/m³	50 mg/m³
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	TWA: 10 mg/m³	TWA: 10 mg/m³ TWA: 15 mg/m³	5000 mg/m³
tert-BUTYL ACETATE 540-88-5	TWA: 50 ppm STEL: 150 ppm	TWA: 200 ppm TWA: 950 mg/m³	1500 ppm
P-CHLOROBENZOTRIFLUORIDE 98-56-6	TWA: 2.5 mg/m³	-	
TERT-BUTYL ACETATE 540-88-5	TWA: 50 ppm STEL: 150 ppm	TWA: 200 ppm TWA: 950 mg/m³	1500 ppm
METHYL N-AMYL KETONE 110-43-0	TWA: 50 ppm	TWA: 100 ppm TWA: 465 mg/m³	800 ppm
AMORPHOUS SILICA 7631-86-9	-	TWA: 6 mg/m³	3000 mg/m³
N-BUTYL ACETATE 123-86-4	TWA: 50 ppm STEL: 150 ppm	TWA: 150 ppm TWA: 710 mg/m³ STEL: 200 ppm STEL: 950 mg/m³	1700 ppm
ALUMINUM OXIDES 1344-28-1	TWA: 1 mg/m³	TWA: 10 mg/m³ TWA: 5 mg/m³ TWA: 15 mg/m³	
ALUMINUM HYDROXIDE 21645-51-2	TWA: 1 mg/m³	-	
ZIRCONIUM OXIDE 1314-23-4	TWA: 5 mg/m³	-	25 mg/m³
2,4-PENTANEDIONE 123-54-6	TWA: 25 ppm Skin	-	
DIBUTYLTIN DILAURYLMERCAPTIDE 1185-81-5	TWA: 0.1 mg/m³	-	25 mg/m³
MAGNESIUM SILICATE	TWA: 2 mg/m³	TWA: 2 mg/m³	1000 mg/m³

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

Physical state	liquid		
Appearance	opaque	**Odor**	aromatic
Color	No information available	**Odor threshold**	No information available

Property	**Values**	**Remarks**
pH		No data available
Melting point / freezing point		No data available
Boiling point / boiling range	98 °C / 208.0 °F	
Flash point	26 °C / 78 °F	Pensky Martens - Closed Cup
Evaporation rate		No data available
Flammability (solid, gas)		No information available
Flammability Limit in Air		No data available
Upper flammability limit	N/A	
Lower flammability limit	1.1	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.63144	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity	4500 centipoises	approx

Other Information

Density	13.60621 lbs/gal
Volatile organic compounds (VOC) content	0.87078 lbs/gal
Total volatiles weight percent	17.88 %
Total volatiles volume percent	31.68 %

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. Reacts with air to form peroxides.

Incompatible materials
Acids, Bases, Strong oxidizing agents, caustic

Hazardous decomposition products
Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Chlorine. Fluorine. Sulfur oxides. Oxides of nitrogen. Hydrocarbons. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. May cause irritation. 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.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	= 500 mg/kg (Rat)		
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	> 10000 mg/kg (Rat)		
tert-BUTYL ACETATE 540-88-5	= 4100 mg/kg (Rat)	> 2000 mg/kg (Rabbit) > 2 g/kg (Rabbit)	= 13300 mg/m³ (Rat) 4 h > 2230 mg/m³ (Rat) 4 h
P-CHLOROBENZOTRIFLUORIDE 98-56-6	= 13 g/kg (Rat)	> 2 mL/kg (Rabbit)	= 33 mg/L (Rat) 4 h
TERT-BUTYL ACETATE 540-88-5	= 4100 mg/kg (Rat)	> 2000 mg/kg (Rabbit) > 2 g/kg (Rabbit)	= 13300 mg/m³ (Rat) 4 h > 2230 mg/m³ (Rat) 4 h
METHYL N-AMYL KETONE 110-43-0	= 1600 mg/kg (Rat) = 1670 mg/kg (Rat)	= 12.6 mL/kg (Rabbit) = 12600 µL/kg (Rabbit)	> 2000 ppm (Rat) 4 h
AMORPHOUS SILICA 7631-86-9	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h
N-BUTYL ACETATE 123-86-4	= 10768 mg/kg (Rat)	> 17600 mg/kg (Rabbit)	= 390 ppm (Rat) 4 h
ALUMINUM OXIDES 1344-28-1	> 5000 mg/kg (Rat)		
ALUMINUM HYDROXIDE 21645-51-2	> 5000 mg/kg (Rat)		
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6	= 8532 mg/kg (Rat)	> 5 g/kg (Rabbit)	
PETROLEUM SOLVENT (NAPTHA) 64742-95-6	= 8400 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 3400 ppm (Rat) 4 h

BIS (PENTAMETHYLPIPERIDYL) SEBACATE 41556-26-7	= 2615 mg/kg (Rat)		
DIPROPYLENE GLYCOL 25265-71-8	= 14850 mg/kg (Rat)	> 20 mL/kg (Rabbit)	
2,4-PENTANEDIONE 123-54-6	= 570 mg/kg (Rat) = 55 mg/kg (Rat) = 760 mg/kg (Rat)	= 1370 mg/kg (Rabbit) = 790 mg/kg (Rabbit) = 810 µL/kg (Rabbit)	= 1224 ppm (Rat) 4 h
AMINE COMPOUNDS 280-57-9	= 1700 mg/kg (Rat)	= 3200 mg/kg (Rabbit)	
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6	= 8532 mg/kg (Rat)	> 5 g/kg (Rabbit)	
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6	= 8532 mg/kg (Rat)	> 5 g/kg (Rabbit)	

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 Cancer hazard. Contains crystalline silica which can cause cancer. (Risk of cancer depends on duration and level of exposure). Skin sensitizer. Substances known to be mutagenic to man.

Sensitization May cause sensitization of susceptible persons.

Mutagenicity May cause genetic defects.

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

Component	ACGIH	IARC	NTP	OSHA
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	A2	Group 1	Known	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7		Group 2B		X
AMORPHOUS SILICA 7631-86-9		Group 3		
PETROLEUM SOLVENT (NAPTHA) 64742-95-6	.			
MAGNESIUM SILICATE		Group 2B Group 3		

Reproductive effects No information available.

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

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

Target organ effects Central nervous system, Eyes, Peripheral Nervous System (PNS), respiratory system, Skin.

Aspiration hazard No information available.

Acute Toxicity 27.0654 % of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

61.3752 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
tert-BUTYL ACETATE 540-88-5		296 - 362: 96 h Pimephales promelas mg/L LC50 flow-through	
P-CHLOROBENZOTRIFLUORIDE 98-56-6		11.5 - 15.8: 48 h Lepomis macrochirus mg/L LC50 static	3.68: 48 h Daphnia magna mg/L EC50
TERT-BUTYL ACETATE 540-88-5		296 - 362: 96 h Pimephales promelas mg/L LC50 flow-through	

METHYL N-AMYL KETONE 110-43-0		126 - 137: 96 h Pimephales promelas mg/L LC50 flow-through	
AMORPHOUS SILICA 7631-86-9	440: 72 h Pseudokirchneriella subcapitata mg/L EC50	5000: 96 h Brachydanio rerio mg/L LC50 static	7600: 48 h Ceriodaphnia dubia mg/L EC50
N-BUTYL ACETATE 123-86-4	674.7: 72 h Desmodesmus subspicatus mg/L EC50	17 - 19: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Lepomis macrochirus mg/L LC50 static 62: 96 h Leuciscus idus mg/L LC50 static	72.8: 24 h Daphnia magna mg/L EC50
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6		161: 96 h Pimephales promelas mg/L LC50 static	500: 48 h Daphnia magna mg/L EC50
PETROLEUM SOLVENT (NAPTHA) 64742-95-6		9.22: 96 h Oncorhynchus mykiss mg/L LC50	6.14: 48 h Daphnia magna mg/L EC50
BIS (PENTAMETHYLPIPERIDYL) SEBACATE 41556-26-7		0.97: 96 h Lepomis macrochirus mg/L LC50 static	20: 24 h Daphnia magna mg/L EC50
DIPROPYLENE GLYCOL 25265-71-8		5000: 24 h Carassius auratus mg/L LC50 static	
2,4-PENTANEDIONE 123-54-6		50.3 - 71.8: 96 h Lepomis macrochirus mg/L LC50 flow-through 64.1 - 80.1: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 98.3 - 110: 96 h Pimephales promelas mg/L LC50 flow-through	34.4: 48 h Daphnia magna mg/L EC50
AMINE COMPOUNDS 280-57-9		1510 - 1980: 96 h Pimephales promelas mg/L LC50 flow-through	
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6		161: 96 h Pimephales promelas mg/L LC50 static	500: 48 h Daphnia magna mg/L EC50
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6		161: 96 h Pimephales promelas mg/L LC50 static	500: 48 h Daphnia magna mg/L EC50
MAGNESIUM SILICATE		100: 96 h Brachydanio rerio g/L LC50 semi-static	

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

Component	log Pow
tert-BUTYL ACETATE 540-88-5	1.38
P-CHLOROBENZOTRIFLUORIDE 98-56-6	3.7
TERT-BUTYL ACETATE 540-88-5	1.38
METHYL N-AMYL KETONE 110-43-0	1.98
N-BUTYL ACETATE 123-86-4	1.81
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE 108-65-6	0.43
BIS (PENTAMETHYLPIPERIDYL) SEBACATE 41556-26-7	0.37
2,4-PENTANEDIONE 123-54-6	0.34
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6	0.43
PROPYLENE GLYCOL MONOMETHYL ET 108-65-6	0.43

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Methods It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Component	CAWAST
N-BUTYL ACETATE 123-86-4	Toxic
DIBUTYLTIN DILAURYLMERCAPTIDE 1185-81-5	Toxic

14. TRANSPORT INFORMATION

DOT

UN/ID no.	1263
Proper Shipping Name	paint
Hazard Class	3
Packing Group	III
Emergency Response Guide Number	128

IATA

UN/ID no.	1263
Proper Shipping Name	paint
Hazard Class	3
Packing Group	III
ERG Code	366

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	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

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):

United States of America

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.

Component	SARA 313 - Threshold Values
ALUMINUM OXIDES - 1344-28-1	1.0
INDUSTRIAL COLORANT - G150	1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic 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
tert-BUTYL ACETATE 540-88-5				X
TERT-BUTYL ACETATE 540-88-5				X
N-BUTYL ACETATE 123-86-4	5000 lb			X

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs	RQ
tert-BUTYL ACETATE 540-88-5	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
TERT-BUTYL ACETATE 540-88-5	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
N-BUTYL ACETATE 123-86-4	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

United States of America

California Prop. 65

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

Component	California Prop. 65
CRYSTALLINE SILICA (QUARTZ) - 14808-60-7	Carcinogen
TITANIUM DIOXIDE (TOTAL DUST) - 13463-67-7	Carcinogen
PETROLEUM SOLVENT (NAPTHA) - 64742-95-6	.

California SCAQMD Rule 443

Contains Photochemically Reactive Solvent

State Right-to-Know

Component	New Jersey	Massachusetts	Pennsylvania
CRYSTALLINE SILICA (QUARTZ) 14808-60-7	X	X	X
TITANIUM DIOXIDE (TOTAL DUST) 13463-67-7	X	X	X
tert-BUTYL ACETATE 540-88-5	X	X	X
P-CHLOROBENZOTRIFLUORIDE 98-56-6	X		

TERT-BUTYL ACETATE 540-88-5	X	X	X
METHYL N-AMYL KETONE 110-43-0	X	X	X
AMORPHOUS SILICA 7631-86-9	X	X	X
N-BUTYL ACETATE 123-86-4	X	X	X
ALUMINUM OXIDES 1344-28-1	X	X	X
ZIRCONIUM OXIDE 1314-23-4		X	
DIPROPYLENE GLYCOL 25265-71-8			X
2,4-PENTANEDIONE 123-54-6	X	X	X
MAGNESIUM SILICATE	X	X	X

16. OTHER INFORMATION

NFPA	**Health** 2	**Flammability** 3	**Instability** 1	**Physical hazard** *
HMIS (Hazardous Material Information System)	**Health** 2*	**Flammability** 3	**Reactivity** 1	

Prepared By Tnemec Regulatory Dept: 816-474-3400
Revision Date 28-Sep-2016
Revision Summary
9 1 2 4 5 6 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

Safety Data Sheet

Issue Date 04-Aug-2017 **Revision Date** 04-Aug-2017 **Revision Number** 8

1. IDENTIFICATION

Product identifier

Product Code 1095-1095B
Product Name ENDURA-SHIELD ISO

Other means of identification

Common Name SERIES 1095, PART B
UN/ID no. 1263
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 - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Flammable Liquids	Category 2

Label elements

EMERGENCY OVERVIEW

Danger

Hazard statements
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause respiratory irritation. May cause drowsiness or dizziness
Highly flammable liquid and vapor

Appearance clear **Physical state** liquid **Odor** aromatic

Precautionary Statements
Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/mixing/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Response
Get medical advice/attention if you feel unwell
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 skin irritation or rash occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
In case of fire: Use CO2, dry chemical, or foam for extinction

Storage
Store in a well-ventilated place. Keep container tightly closed
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
Acute Toxicity 0.0001038 % of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No	Weight-%
HEXAMETHYLENE DIISOCYANATE HOMOPOLYMER	28182-81-2	60 - 100%
tert-BUTYL ACETATE	540-88-5	30 - <60%
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER	822-06-0	0.1 - <1%

*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 Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.

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

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center 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

Hazardous combustion products Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Carbon oxides. Hydrocarbons. Oxides of nitrogen. Chlorine. Fluorine. Hydrogen cyanide.

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. Evacuate personnel to safe areas.

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. Wear personal protective equipment. 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 Water, alcohols, amines, strong bases, metal components, surface active materials. Bases. Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
tert-BUTYL ACETATE 540-88-5	TWA: 50 ppm STEL: 150 ppm	TWA: 200 ppm TWA: 950 mg/m^3	1500 ppm
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	TWA: 0.005 ppm	-	

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 INDIVIDUALS WITH LUNG OR BREATHING PROBLEMS OR PRIOR REACTION TO ISOCYANATES MUST NOT BE EXPOSED TO VAPOR OR SPRAY MIST. Do not breathe vapor or spray mist. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates vapor/mist levels are below applicable limits. An airline respirator (TC 19C NIOSH/MSHA) is recommended. A vapor-particulate respirator (TC 23C NIOSH/MSHA) may be appropriate where air monitoring demonstrates vapors are less than ten times the applicable exposure limits and the isocyanate concentration is less than its applicable exposure limit. The use of an

air-supplied respirator is mandatory whenever the airborne concentration of isocyanate monomer is unknown.

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

Physical state	liquid		
Appearance	clear	**Odor**	aromatic
Color	No information available	**Odor threshold**	No information available

Property	**Values**	**Remarks**
pH		No data available
Melting point / freezing point	No data available	No data available
Boiling point / boiling range	72 °C / 162 °F	
Flash point	8 °C / 47.0 °F	Pensky Martens - Closed Cup
Evaporation rate		No data available
Flammability (solid, gas)	No data available	No information available
Flammability Limit in Air		No data available
Upper flammability limit	N/A	
Lower flammability limit	N/A	
Vapor pressure		No data available
Vapor density		No data available
Specific gravity	1.02497	g/cm3
Water solubility	Insoluble in cold water	
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition temperature	No data available	No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available

Other Information

Density	8.54823 lbs/gal
Volatile organic compounds (VOC) content	0 lbs/gal
Total volatiles weight percent	39.27 %
Total volatiles volume percent	46.76 %
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. Protect from water. Amines.

Incompatible materials
Water, alcohols, amines, strong bases, metal components, surface active materials, Bases, Strong oxidizing agents, Acids

Hazardous decomposition products

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Oxides of nitrogen. Carbon oxides. Hydrocarbons. Chlorine. Fluorine. Hydrogen cyanide.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. May cause sensitization by inhalation.

Eye contact Causes serious eye irritation.

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

Ingestion Harmful if swallowed.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
HEXAMETHYLENE DIISOCYANATE HOMOPOLYMER 28182-81-2	-	-	= 18500 mg/m³ (Rat) 1 h
tert-BUTYL ACETATE 540-88-5	= 4100 mg/kg (Rat)	> 2 g/kg (Rabbit) > 2000 mg/kg (Rabbit)	= 13300 mg/m³ (Rat) 4 h > 2230 mg/m³ (Rat) 4 h
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	= 710 µL/kg (Rat)	= 593 mg/kg (Rabbit)	= 0.06 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms Skin disorders. Respiratory disorders. Irritating to eyes and skin.

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

Chronic Toxicity Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory. May cause sensitization by inhalation and skin contact.

Sensitization May cause sensitization of susceptible persons.

Mutagenicity No information available.

Carcinogenicity There are no known carcinogenic chemicals in this product.

Reproductive effects No information available.

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

STOT - repeated exposure No information available

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

Aspiration hazard No information available.

Acute Toxicity 0.0001038 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document .

12. ECOLOGICAL INFORMATION

Ecotoxicity

60.7282 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia
tert-BUTYL ACETATE 540-88-5		296 - 362: 96 h Pimephales promelas mg/L LC50 flow-through	
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER		26.1: 96 h Brachydanio rerio mg/L LC50 static	

822-06-0			

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility in Environmental Media

Chemical name	log Pow
tert-BUTYL ACETATE 540-88-5	1.38

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

UN/ID no.	1263
Proper Shipping Name	paint
Hazard Class	3
Packing Group	II
Emergency Response Guide Number	128

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	Complies
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
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):

Chemical name	HAPS Data
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER	

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:

Chemical name	SARA 313 - Threshold Values
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER - 822-06-0	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
tert-BUTYL ACETATE 540-88-5				X

Chemical name	Hazardous Substances RQs	CERCLA EHS RQs	RQ
tert-BUTYL ACETATE 540-88-5	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

California Prop. 65

This product does not contain any Proposition 65 chemicals

California SCAQMD Rule 443

Does Not Contain Photochemically Reactive Solvent

State Right-to-Know

Chemical name	New Jersey	Massachusetts	Pennsylvania
tert-BUTYL ACETATE 540-88-5	X	X	X
HEXAMETHYLENE DIISOCYANATE (HDI) MONOMER 822-06-0	X	X	

16. OTHER INFORMATION

NFPA	**Health** 2	**Flammability** 3	**Instability** 0	**Physical hazard** *
HMIS (Hazardous Material Information System)	**Health** 2*	**Flammability** 3	**Reactivity** 0	

Prepared By Tnemec Regulatory Dept: 816-474-3400
Revision Date 04-Aug-2017
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

TNEMEC

Independent Representative of Tnemec Company, Inc. 484-644-5303 atlantic@tnemec.com