Safety Data Sheet

Date Revised: 08/24/2022

Supersedes: 10/04/2019

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name(s): **Five Star® Rapid Surface Repair Easy Mix/Component A**
Five Star® RailForm™ HPG/ Component A

Synonyms: RSR Easy Mix, RailForm Hybrid Polymer Grout

Product Use: Concrete Repair when mixed with Component B

Manufacturer/Supplier: Five Star Products, Inc.
2 Enterprise Drive, Suite 303
Shelton, CT 06484 USA

Phone #: 203-336-7900

Emergency Phone #: **VelocityEHS 1-800-255-3924**
(Outside the U.S. 1-813-248-0585)

SECTION 2: HAZARD(S) IDENTIFICATION-GHS INFORMATION (Component A)

Classification:

Skin Irritation, Category 2
Eye Irritation, Category 2A
Respiratory Sensitization, Category 1
Skin Sensitization, Category 1
Carcinogenicity, Category 2
Specific Target Organ Toxicity (single exposure), (Respiratory Tract Irritation), Category 3
Specific Target Organ Toxicity (repeated exposure), Respiratory System), Category 2
Aquatic Hazard (long term), Category 3

Label Elements/Hazard Pictograms:

Signal Word: Danger

Hazard Statements:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure. (respiratory system)
H412 Harmful to aquatic life with long-lasting effects.

Precautionary Statements/Prevention:	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe vapor. P264 - Wash hands thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace. P273 - Avoid release to the environment. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P284 - Wear respiratory protection.
Response:	P314 - Get medical attention if you feel unwell. P308 + P313 - IF exposed or concerned: Get medical attention. P304 + P341 (OSHA) + P312 - IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Storage:	P405 - Store locked up.
Disposal:	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards Not Otherwise Classified:	None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (Component A)			
Chemical Name(s)	**Common Name/Synonyms**	**CAS No.**	**Content %**
Isocyanic acid, polymethylenepolyphenylene ester	n/a	9016-87-9	≥25 - ≤50
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	n/a	6846-50-0	≥25 - ≤50
4,4’ – Methylenediphenyl Diisocyanate	n/a	101-68-8	≥25 - ≤30

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: FIRST AID MEASURES (Component A)

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
Eye Contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
Skin Contact:	Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion:	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure. If sensitization occurs, future contact with the material should be avoided.

SECTION 5: FIRE-FIGHTING MEASURES (Component A)

Flash Point:	199°C (>390°F)
Flammable Limits:	N/A
Extinguishing Media:	Use dry chemical, CO_2, water spray or foam
Specific Hazards Arising From the Chemical:	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO2 formed). Use cold-water spray to cool fire-

	exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.
Hazardous Thermal Decomposition Products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides
Special Protective Actions for Fire-fighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special Protective Equipment for Fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES (Component A)

For Non-Emergency Personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For Emergency Responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel."
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
Methods and Materials for Containment and Cleaning Up Spill:	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE (Component A)

Handling:	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly

closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage:

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. Recommended storage temperature range in between 18°C and 29°C (65°F and 85°F). DO NOT EXCEED 49°C /120°F.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (Component A)

Exposure Guidelines:

Hazardous Ingredient(s)	CAS No.	OSHA PEL	TLV
Isocyanic acid, polymethylenepolyphenylene ester.	Not available	None	None
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	Not available	None	None
4,4' – Methylenediphenyl Diisocyanate	13463-67-7	.02 ppm	.005 ppm

Engineering Measures:

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental Exposure Controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Hygiene Measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin / Body Protection:

Wear suitable gloves (neoprene, nitrile rubber or PVC) and protective clothing to mitigate exposure.

Other Protective Clothing or Equipment:

Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

Respiratory Protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (Component A)	
Physical State:	Liquid (Clear)
Color:	Dark Brown
Odor:	Slightly Musty
Odor Threshold:	Not available
pH:	Not available
Melting Point:	<32°F (<0°C)
Boiling Point:	406°F (207.78°C)
Flash Point:	Closed cup: 198.89°C (390°F) [Pensky-Martens.]
Evaporation Rate:	Not available
Flammability (solid, gas)	Not available
Lower and Upper Explosive (Flammable) Limits:	Not available
Vapor Pressure:	<0.000013 kPa (<0.0001 mm Hg) @ 77°F
Vapor Density:	Not available
Relative Density:	1.24 @ 77°F
Solubility in Water:	Insoluble
Partition Coefficient: N-octanol/Water:	Not available
Auto-Ignition Temperature:	Not available
Decomposition Temperature:	Not available
Viscosity:	Not available
Flow time (ISO 2431)	Not available

SECTION 10: STABILITY AND REACTIVITY (Component A)

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical Stability: Stable

Possibility of Hazardous Reactions: Contact with moisture, other materials that react with isocyanates, or temperatures above 350°F (177 °C), may cause polymerization. Polymerization will occur when reacted with Component B.

Conditions to avoid: Water or temps above 350°F will cause polymerization. Avoid water, amines, strong bases, alcohols, copper alloys, aluminum.

Incompatibilities: Oxidizing materials

Hazardous Decomposition Products: By high heat and fire: carbon monoxide, oxides of nitrogen, hydrogen cyanide, carbon dioxide, dense black smoke, isocyanate, isocyanic acid, other undetermined compounds.

SECTION 11: TOXICOLOGICAL INFORMATION (Component A)

Acute Toxicity

Product/Ingredient Name	Result	Species	Dose	Exposure
Isocyanic acid, polymethylenepolyphenylene ester	LD50 Dermal	Rabbit	>9400 mg/kg	-
4,4'-Methylenediphenyl Diisocyanate	LD50 Oral LD50 Oral	Rat Rat	49 g/kg 9200 mg/kg	- -

Irritation/Corrosion

Product/Ingredient Name	Result	Species	Score	Exposure	Observation
Isocyanic acid, polymethylenepolyphenylene ester	Eyes – Mild irritant	Rabbit	-	100 mg	-
1-Isopropyl-2,2-dimethyltrimethylene Diisobutyrate	Skin – Mild irritant	Guinea Pig	- -	5 g	-
	Skin – Mild irritant	Human	-	504 hours 1% intermittent	-
4,4'-Methylenediphenyl Diisocyanate	Eyes – Moderate irritant	Rabbit	-	100 mg	-

Sensitization: No data available

Mutagenicity: No data available

Carcinogenicity:

Classification

Product/Ingredient Name	OSHA	IARC	NTP
Isocyanic acid, polymethylenepolyphenylene ester	-	3	-
4,4'-Methylenediphenyl Diisocyanate	-	3	-

Reproductive Toxicity: No data available

Teratogenicity: No data available

Specific Target Organ Toxicity (Single Exposure):

Name	Category	Route of Exposure	Target Organs
Isocyanic acid, polymethylenepolyphenylene ester	3	Not applicable	Respiratory tract irritation

4,4'-Methylenediphenyl Diisocyanate	3	Not applicable	Respiratory tract irritation

Specific Target Organ Toxicity (Repeated Exposure)			
Name	**Category**	**Route of Exposure**	**Target Organs**
Isocyanic acid, polymethylenepolyphenylene ester	2	Inhalation	Respiratory System
4,4'-Methylenediphenyl Diisocyanate	2	Not determined	Not determined

Aspiration Hazard No data available

Information on the Likely Routes of Exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eye Contact: Causes serious eye irritation.

Inhalation: May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: No known significant effects or critical hazards.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics

Eye Contact: Adverse symptoms may include the following: pain or irritation, watering, redness

Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing, wheezing and breathing difficulties, asthma

Skin Contact: Adverse symptoms may include the following: irritation, redness

Ingestion: No known significant effects or critical hazards.

Delayed and Immediate Effects and Also Chronic Effects From Short and Long-Term Exposure

Short-Term Exposure

Potential Immediate Effects: No known significant effects or critical hazards.

Potential Delayed Effects: No known significant effects or critical hazards.

Long-Term Exposure

Potential Immediate Effects: No known significant effects or critical hazards.

Potential Delayed Effects: No known significant effects or critical hazards.

Potential Chronic Health Effects

General: May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental Effects: No known significant effects or critical hazards.

Fertility Effects: No known significant effects or critical hazards.

Numerical Measures of Toxicity

Acute Toxicity Estimates

Route	ATE Value
Inhalation (vapors)	26.8 mg/L
Inhalation (dusts and mists)	5.395 mg/L

SECTION 12: ECOLOGICAL INFORMATION (Component A)

Toxicity No data available

Persistance and Degradability: No data available

Mobility in Soil: Considering the use of the substance, it is unlikely that significant environmental exposure in the air or water will arise.

Bioaccumulative Potential:

Product/Ingredient Name:	$LogP_{OW}$	BCF	Potential
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	-	5340	High
4,4'-Methylenediphenyl Diisocyanate	4.51	200	Low

SECTION 13: DISPOSAL CONSIDERATIONS (Component A)

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION (Component A)

US DEPARTMENT of TRANSPORTATION (DOT)

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (4,4'-Methylenediphenyl Diisocyanate) RQ (4,4'-Methylenediphenyl Diisocyanate)

Class: 9

UN #: 3082

Packing Group: III

CANADA Transportation of Dangerous Goods (TDG)

Proper Shipping Name: Not regulated

Class: None

UN #:	None
Packing Group:	None
Air Transport (ICAO-IATA/DGR) Proper Shipping Name:	Not regulated
Class:	None
UN #:	None
Packing Group:	None
Sea Transport (IMDG-Code/GGVSee) Proper Shipping Name:	Not regulated
UN #:	None
Class:	None
Packing Group:	None
Marine Pollutant:	None
Special Provision(s):	None
Additional Information:	
DOT Classification:	**Reportable quantity:** 17507 lb / 7948.2 kg [1693.3 gal / 6409.8 L]. The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.
Special Precautions for User:	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: REGULATORY INFORMATION (Component A)

U.S. Federal Regulations	**TSCA 8(a) PAIR**: 4,4'-Methylenediphenyl Diisocyanate **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined **TSCA 8(c) calls for record of SAR**: Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-Methylenediphenyl Diisocyanate **Clean Water Act** (CWA) 307: 4,4'-Methylenediphenyl Diisocyanate
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs):	Listed
Clean Air Act Section 602 Class I Substances:	Not Listed

Clean Air Act Section 602

Class II Substances:	Not Listed
DEA List I Chemicals (Precursor Chemicals):	Not Listed
DEA List II Chemicals (Essential Chemicals):	Not Listed
SARA 302/304:	No Products Found
SARA 304 RQ:	Not Applicable
SARA 311/312 Classification:	Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

Composition/Information on Ingredients

Name	Fire Hazard	Sudden Release of Pressure	Reactive	Immediate (acute) Health Hazard	Delayed (chronic) Health Hazard
Isocyanic acid, polymethylenepolyphenylene ester	No	No	No	Yes	Yes
4,4'-Methylenediphenyl Diisocyanate	No	No	No	Yes	Yes

SARA 313

	Product Name	CAS Number
Form R – Reporting Requirements	Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9
	4,4'-Methylenediphenyl Diisocyanate	101-68-8
Supplier Notification	Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9
	4,4'-Methylenediphenyl Diisocyanate	101-68-8

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State Regulations

Massachusetts:	The following components are listed: 4,4'-Methylenediphenyl Diisocyanate
New York:	The following components are listed: 4,4'-Methylenediphenyl Diisocyanate
New Jersey:	The following components are listed: Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-Methylenediphenyl Diisocyanate
Pennsylvania:	The following components are listed: 4,4'-Methylenediphenyl Diisocyanate
California Prop 65:	No products found.
Canada	
Canadian NPRI:	The following components are listed: Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-Methylenediphenyl Diisocyanate
CEPA Toxic Substances:	None of the components are listed.
Canada Inventory:	All components are listed or exempted.

SECTION 16: OTHER INFORMATION (Component A)

Procedure Used to Derive the Classification

Classification	Justification
SKIN IRRITATION - Category 2	Calculation Method
EYE IRRITATION – Category 2A	Calculation Method
RESPIRATORY SENSITIZATION - Category 1	Calculation Method
SKIN SENSITIZATION - Category 1	Calculation Method
CARCINOGENICITY - Category 2	Calculation Method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation Method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (respiratory system) - Category 2	Calculation Method
AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation Method

Hazard Communication: This SDS has been prepared in accordance with the Federal OSHA Hazard Communication Standard.

To the best of our knowledge, the information contained herein is accurate. However, Five Star Products, Inc. does not assume any liability whatsoever for the accuracy or 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 hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name(s):	**Five Star® Rapid Surface Repair Easy Mix/Component B** **Five Star® RailForm™ HPG / Component B**
Synonyms:	RSR Easy Mix, RailForm Hybrid Polymer Grout
Product Use:	Concrete Repair when mixed with Component A
Manufacturer/Supplier	Five Star Products, Inc 60 Parrott Drive Shelton, CT 06484 USA
Phone #:	203-336-7900
Emergency Phone #:	**CHEM-TEL 1-800-255-3924** **(Outside the U.S. 1-813-248-0585)**

SECTION 2: HAZARD(S) IDENTIFICATION-GHS INFORMATION (Component B)

OSHA/HCS Status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the Substance or Mixture:	Aquatic Hazard (Long Term) – Category 3
GHS Label Elements/Hazard Pictograms:	None
Signal Word:	None
Hazard Statements:	H412 - Harmful to aquatic life with long lasting effects.
Precautionary Statements:	
Prevention	P273 - Avoid release to the environment.
Response	Not applicable
Storage	Not applicable
Disposal	P501 – Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards Not Otherwise Classified	None known

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (Component B)

Substance/Mixture: Mixture

Other Means of Identification Polyurethane Grout

Ingredient Name	CAS No.	Content %
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	6846-50-0	≥25 - ≤50
Oxirane, 2-methyl-, polymer with oxirane	9003-11-6	≥5 - ≤10
2,2' -Oxybisethanol	111-46-6	≥5 - <10

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: FIRST AID MEASURES (Component B)

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin Contact: Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most Important Symptoms/Effects, Acute and Delayed

Potential Acute Health Effects

Eye Contact:	No known significant effects or critical hazards.
Inhalation:	No known significant effects or critical hazards.
Skin Contact:	No known significant effects or critical hazards.
Ingestion:	No known significant effects or critical hazards.

Over-Exposure Signs/Symptoms

Eye Contact:	No known significant effects or critical hazards.
Inhalation:	No known significant effects or critical hazards.
Skin Contact:	No known significant effects or critical hazards.
Ingestion:	No known significant effects or critical hazards.

Indication of Immediate Medical Attention and Special Treatment Needed, if Necessary

Notes to Physician:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific Treatments:	No specific treatment.
Protection of First-Aiders:	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

SECTION 5: FIRE-FIGHTING MEASURES (Component B)

Extinguishing Media

Suitable Extinguishing Media:	Dry Chemical; Carbon Dioxide; Water spray for large fires.
Unsuitable Extinguishing Media:	None known
Specific Hazards Arising from the Chemical:	In a fire or if heated, a pressure increase will occur, and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous Thermal Decomposition Products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide
Special Protective Actions for Fire-fighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special Protective Equipment for Fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES (Component B)

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For Emergency Responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel."
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and Materials for Containment and Cleaning Up

Spill:	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE (Component B)

Precautions for Safe Handling

Protective Measures:	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on General Occupational Hygiene:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.
Conditions for Safe Storage, Including Any Incompatibilities:	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers

that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (Component B)

Control Parameters

United States

Occupational Exposure Limits

Ingredient Name	Exposure Limits
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	None
Oxirane, 2-methyl-, polymer with oxirane	None
2,2' -Oxybisethanol	AIHA WEEL (United States, 10/2011). TWA: 10 mg/m³ 8 hours.

Control Parameters

Canada

Occupational Exposure Limits

Ingredient Name	Exposure Limits
2,2' -Oxybisethanol	AIHA WEEL (United States, 10/2011). TWA: 10 mg/m³ 8 hours.

Appropriate Engineering Controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side shields.

Skin Protection

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the

	parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body Protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other Skin Protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory Protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (Component B)

Appearance	
Physical State:	Liquid
Color:	Black (Light Gray – cured)
Odor:	Slight
Odor Threshold:	Not available
pH	Not available
Melting Point	Not available
Boiling Point:	Not available
Flash Point:	Closed cup: 129.44°C (265°F) [Tagliabue.]
Evaporation Rate:	Not available
Flammability (solid, gas):	Not available
Lower and Upper Explosive (flammable) Limits:	Not available
Vapor Pressure:	0.013 kPa (0.1 mm Hg) @ 77°F (25°C)
Vapor Density:	Not available
Relative Density:	0.98
Solubility:	Not available
Solubility in Water:	Not available
Partition Coefficient: n-octanol/water	Not available
Auto-Ignition Temperature	Not available
Decomposition Temperature:	Not available
Viscosity:	Kinematic: 0.6 cm^2/s (60 cSt) @ 77° (25°C)

Flow Time (ISO 2431): Not available

VOC Content: 19 g/L (tested per ASTM D2369, Method E)
9.70 g/L (0.90%) (calculated per CARB Method 310)

SECTION 10: STABILITY AND REACTIVITY (Component B)

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical Stability: The product is stable.

Possibility of Hazardous Reactions: Polymerization will occur when mixed.

Conditions to Avoid: Exposure to excessive heat and storage above 35°C (95°F) will shorten shelf life.

Incompatible Materials: Reactive or incompatible with the following materials: oxidizing materials and alkalis.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides.

SECTION 11: TOXICOLOGICAL INFORMATION (Component B)

Acute Toxicity:

Product/Ingredient Name	Result	Species	Dose	Exposure
Oxirane, 2-methyl-, polymer with Oxirane	LC50 Inhalation Vapor	Rat	320 mg/m^3	4 hours
2,2' -Oxybisethanol	LD50 Oral LD50 Dermal LD50 Oral	Rat Rabbit Rat	5700 mg/kg 11890 mg/kg 12000 mg/kg	- - -

Irritation/Corrosion

Product/Ingredient Name	Result	Species	Score	Exposure	Observation
1-Isopropyl-2,2-dimethyltrimethylene Diisobutyrate	Skin – Mild irritant	Guinea Pig	-	5 g	-
	Skin – Mild irritant	Human	-	504 hours 1% intermittent	-
2,2' -Oxybisethanol	Eyes – Mild irritant	Rabbit	- -	50 mg	-
	Skin – Mild irritant	Human	-	72 hours 112 mg intermittent	-

Sensitization: No data available

Mutagenicity: No data available

Carcinogenicity: No data available

Reproductive Toxicity: No data available.

Teratogenicity: No data available

Specific Target Organ Toxicity (single exposure) No data available.

Specific Target Organ Toxicity (repeated exposure): No data available

Aspiration Hazard: No data available

Information on the Likely Routes of Exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eye Contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin Contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics

Eye Contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin Contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Delayed and Immediate Effects and Also Chronic Effects From Short and Long-Term Exposure

Short-Term Exposure

Potential Immediate Effects: No known significant effects or critical hazards.

Potential Delayed Effects: No known significant effects or critical hazards.

Long-Term Exposure

Potential Immediate Effects: No known significant effects or critical hazards.

Potential Delayed Effects: No known significant effects or critical hazards.

Potential Chronic Health Effects

General: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental Effects: No known significant effects or critical hazards.

Fertility Effects: No known significant effects or critical hazards.

Numerical Measures of Toxicity

Acute Toxicity Estimates

Route	ATE Value
Oral	7586.8 mg/kg

SECTION 12: ECOLOGICAL INFORMATION (Component B)

Toxicity

Product/Ingredient Name:	Result	Species	Exposure
2,2' -Oxybisethanol	Acute LC50 75200000 µg/L Fresh water	Fish – Pimephales promelas	96 hours

Persistance and Degradability: No data available

Bioaccumulative Potential

Product/Ingredient Name:	$LogP_{ow}$	BCF	Potential
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	-	5340	High
2,2' -Oxybisethanol	-1.98	100	Low

Mobility in Soil:

Soil/water partition coefficient (KOC): Not available

Other Adverse Effects: No known significant effects or critical hazards.

SECTION 13: DISPOSAL CONSIDERATIONS (Component B)

Disposal Methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION (Component B)

US DEPARTMENT of TRANSPORTATION (DOT) Proper Shipping Name:	Not regulated
Class:	None
UN #:	None
Packing Group:	None
CANADA Transportation of Dangerous Goods (TDG) Proper Shipping Name:	Not regulated
Class:	None
UN #:	None
Packing Group:	None
Air Transport (ICAO-IATA/DGR) Proper Shipping Name:	Not regulated
Class:	None
UN #:	None
Packing Group:	None
Sea Transport (IMDG-Code/GGVSee) Proper Shipping Name:	Not regulated
UN #:	None
Class:	None
Packing Group:	None
Marine Pollutant:	None
Special Provision(s):	None
Special Precautions for User:	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: REGULATORY INFORMATION (Component B)

U.S. Federal regulations	**TSCA 5(a)2 final significant new use rules**: 2-Methoxyethanol **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined **Clean Water Act (CWA) 311**: Diammonium carbonate; Phosphoric acid
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	Listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed
SARA 302/304	
Composition/information on ingredients	No products found
SARA 304 RQ	Not applicable
SARA 311/312	
Classification	Not applicable
Composition/information on ingredients	

Name	Fire Hazard	Sudden Release of Pressure	Reactive	Immediate (Acute) Health Hazard	Delayed (Chronic) Health Hazard
2,2' - Oxybisethanol	No	No	No	Yes	No

SARA 313	No data available
State Regulations	
Massachusetts:	None of the components are listed.
New York:	None of the components are listed.
New Jersey:	None of the components are listed.
Pennsylvania:	The following components are listed: Oxydipropanol; 2,2' - Oxybisethanol
California Prop. 65	WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer. WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient Name	Cancer	Reproductive	No Significant Risk Level	Maximum Acceptable Dosage Level
Ethanediol	No	Yes	-	-
1,4-Dioxane	Yes	No	Yes	-
2-Methoxyethanol	No	Yes	-	Yes

Canada

Canadian Lists

Canadian NPRI None of the components are listed

CEPA Toxic Substances: None of the components are listed

Canada Inventory: Not determined

SECTION 16: OTHER INFORMATION (Component B)

Procedure Used to Derive Classification

Classification	Justification
AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method

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