


TRIDENTSEAL OUTER WRAP
Section 1. Product and Company Identification

Product Name: TridentSeal Outer Wrap
Supplier: CSNRI | 621 Lockhaven Drive. Houston, TX 77073 | +1 281.590.8491
Emergency Phone Number: 800.424.9300 (CHEMTREC)
 +1 703.741.5970 (Outside the US)
Product Description: Fiberglass cloth impregnated with water activated resin
Product Use: Intended to repair pipes or for corrosion control.

Section 2. Hazards Identification
Classification of the substance or mixture

Acute Toxicity - Inhalation – Category 4
 Skin corrosion/irritation – Category 2
 Eye damage/irritation – Category 2A
 Sensitization / Respiratory – Category 1
 Sensitization / Skin – Category 1
 Specific target organ toxicity (Single Exposure) – Category 3 (Respiratory System)
 Specific target organ toxicity - Inhalation (Repeated Exposure) – Category 2

Hazard pictograms:


Signal word: Danger

Hazard statements:

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statements:

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well - ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P285 In case of inadequate ventilation wear respiratory protection.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.



TRIDENTSEAL OUTER WRAP

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P403 + P233 Store in a well - ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards: N/A

Section 3. Composition/Information on Ingredients

Substances: N/A

Mixture:

Chemical Name	CAS#	Weight %
Calcium Aluminium Borosilicate	65997-17-3	60 – 75
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly[oxy(methyl-1,2-ethanediy)]	53862-89-8	15 – 25
4,4'-diphenylmethane diisocyanate	101-68-8	3 – 8
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	3 – 8
Diphenylmethane-2,4' - diisocyanate	5873-54-1	1.5 – 3.5

Section 4. First Aid Measures

Description of first-aid measures:

General advice: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.

Inhalation: Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice. Keep patient warm and at rest. Keep respiratory tract clear. If breathing is difficult, give oxygen. If breathing is irregular or stopped, administer artificial respiration.

Skin contact: In case of contact, immediately flush skin with soap and plenty of water. If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes. An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-Tam™, PEG-400) or corn oil may be more effective than soap and water.

Eye contact: Immediately flush eye(s) with plenty of water. Remove contact lenses also under the eyelids, for at least 15 minutes. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

Ingestion: Gently wipe or rinse the inside of the mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Keep respiratory tract clear. Keep at rest. Do not give milk or alcoholic beverages. If a person vomits when lying on his back, place him in the recovery position. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed: None known.

**Section 5. Fire-fighting Measures**

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam carbon dioxide (CO₂). Dry powder.

Unsuitable extinguishing media: High volume water jet.

Specific hazards during firefighting: Do not allow run-off from fire fighting to enter drains or water courses. The pressure in sealed containers can increase under the influence of heat. Exposure to decomposition products may be a hazard to health.

Hazardous combustion products: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Nitrogen oxides (NO_x) Hydrogen cyanide (hydrocyanic acid).

Further information: Standard procedure for chemical fires. Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters: Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Immediately evacuate personnel to safe areas. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Only qualified personnel equipped with suitable protective equipment may intervene. Never return spills in original containers for re-use. Treat recovered material as described in the section "Disposal considerations". For disposal considerations see section 13. Make sure that there is a sufficient amount of neutralizing/ absorbent material near the storage area. The danger areas must be delimited and identified using relevant warning and safety signs.

Environmental precautions: Do not allow uncontrolled discharge of product into the environment. Do not allow material to contaminate ground water system. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and material for containment and cleaning up:

Clean-up methods - small spillage: Dilute with plenty of water. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Sweep up or vacuum up spillage and collect in suitable container for disposal. Neutralize small spillages with decontaminant. Remove and dispose of residues.

Clean-up methods - large spillage: If the product is in its solid form: Spilled MDI flakes should be picked up carefully. The area should be vacuum cleaned to remove remaining dust particles completely.

If the product is in its liquid form: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Leave to react for at least 30 minutes. Shovel into open-top drums for further decontamination. Wash the spillage area with water. Keep in suitable, closed containers for disposal.

Section 7. Handling and Storage

Advice on protection against fire and explosion: Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.


TRIDENTSEAL OUTER WRAP

Advice on safe handling: Avoid formation of respirable particles. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Section 8. Exposure Controls/Personal Protection
Components with workplace control parameters:

Component	Exposure limits	
	ACGIH	OSHA
4,4' - diphenylmethane diisocyanate (101-68-8)	0.005 ppm – TWA	0.02 ppm 0.2 mg/m ³
Fibrous glass	5 mg/m ³ (inhalable)	5 mg/m ³ (respirable)

Personal protection equipment:

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand protection: For prolonged or repeated contact use protective gloves. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended. When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended. Contaminated gloves should be decontaminated and disposed of.

Eye 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 or dusts. Chemical splash goggles. Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded. Please follow all applicable local/national requirements when selecting protective measures for a specific workplace. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection: Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the workplace.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. When using do not eat or drink. When using do not smoke. Contaminated work clothing should not be allowed out of the workplace. Wash hands and face before breaks and immediately after handling the product. Wash hands before breaks and at the end of workday.


TRIDENTSEAL OUTER WRAP
Section 9. Physical and Chemical Properties

Appearance:	Fiberglass cloth coated with viscous resin.
Colour:	Off-White
Odour:	Odorless
Odor threshold:	No data available
pH:	Not applicable
Melting Point/ Freezing Point:	No data available
Boiling point:	649 °C (1,200 °F)
Flash Point:	>110 °C (>230 °F) Method: Closed Cup
Evaporation rate (ether=1):	No data available
Flammability (solid, gas):	No data available
Lower and Upper Explosion limits/ Flammability Limits:	No data available
Vapour Pressure:	0.003 mm hg (20 °C (68°F))
Vapour Density (Air =1):	8.5
Relative Density:	2.11
Solubility:	Not soluble in water
Partition coefficient (n-octanol/water):	No data available
Auto-ignition Temperature:	No data available
Decomposition Temperature:	No data available
Viscosity:	Not applicable

Section 10. Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas. Contact with moisture, other materials which can react with isocyanates, or temperatures above 204.4°C (400°F), may cause polymerization.

Conditions to avoid: Extremes of temperature and direct sunlight. Exposure to air or moisture over prolonged periods.

Incompatible Materials / Chemicals: Avoid contact acids, bases, amines and steam.

Hazardous Decomposition Products: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, hydrocarbons, hydrogen cyanide (hydrocyanic acid), burning produces noxious and toxic fumes.

Section 11. Toxicological Information

Acute toxicity: Harmful if inhaled.

Components:

Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly [oxy(methyl-1,2-ethanediyl)]:

Acute oral toxicity: LD50 (Rat, male): > 10,000 mg/kg Method: OECD Test Guideline 401. GLP: no

4,4'-methylenediphenyl diisocyanate: Acute oral toxicity: LD50 (Rat, male): > 10,000 mg/kg Method:



TRIDENTSEAL OUTER WRAP

OECD Test Guideline 401.

Diphenylmethanediisocyanate: Acute oral toxicity: LD50 (Rat, male): > 10,000 mg/kg Method: OECD Test Guideline 401

Acute inhalation toxicity - Product : Acute toxicity estimate: 1.34 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method

Components:

Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)]: Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg Method: OECD Test Guideline 402 GLP: no

4,4'-methylenediphenyl diisocyanate: Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg Method: OECD Test Guideline 402

Diphenylmethanediisocyanate: Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg Method: OECD Test Guideline 402

Diphenylmethane-2,4'- diisocyanate: Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg

Skin corrosion/irritation: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation: Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization: Causes sensitization.

Oral: Acute toxicity estimate: > 5,000 mg/kg. Method: Calculation method

Inhalation: Acute toxicity estimate: 4.74 mg/l. Exposure time: 4 h. Test atmosphere: dust/mist.

Method: Calculation method

Acute toxicity estimate: 3.44 mg/l. Exposure time: 4 h. Test atmosphere: dust/mist. Method: Calculation method

Dermal: Acute toxicity estimate: > 5,000 mg/kg. Method: Calculation method

Germ cell mutagenicity: Not classified based on available information.

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive Toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure: The substance or mixture is classified as specific target organ toxicant, single exposure, Category 3 with respiratory tract irritation.

STOT - repeated exposure: No data available.

Aspiration Toxicity: No data available.

Section 12. Ecological Information

Toxicity:


TRIDENTSEAL OUTER WRAP

Isocyanate resin (CAS #: 53862-89-8, 101-68-8, 9016-87-9, 5873-54-1)

Toxicity to Fish	Toxicity to Daphnia and other aquatic invertebrates	Toxicity to Microorganism
LC50 (zebrafish): > 1,000 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203	EC50 (Daphnia magna): > 1,000 mg/l Exposure time: 24 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

Persistence and degradability: Not biodegradable.

Bioaccumulative potential: Bioaccumulation is unlikely.

Mobility in soil: No additional Information available.

Other adverse effects: No additional information available.

Section 13. Disposal Considerations

Disposal methods: Waste from residues: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

Uncleaned packaging: Dispose of in accordance to all local, state, and/or national regulation.

Section 14. Transport Information

IATA: Not regulated as dangerous goods

IMDG: Not regulated as dangerous goods

DOT: Not regulated as dangerous goods

Section 15. Regulatory Information
**EPCRA - Emergency Planning and Community Right - to - Know Act
CERCLA Reportable Quantity**

Component	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
4,4' - diphenylmethane diisocyanate	101-68-8	5,000	23,360

*Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards: Acute Health Hazard.

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:

Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9
Diphenylmethanediisocyanate	101-68-8


TRIDENTSEAL OUTER WRAP

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

4,4' - diphenylmethane diisocyanate 101-68-8

The components of this product are reported in the following inventories:

CH INV: The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory

TSCA (Toxic Substance Control Act): All components of this product are on US Inventory or exempt.

DSL: All components of this product are on the Canadian DSL

AICS: On the inventory, or in compliance with the inventory

NZIoC: Not in compliance with the inventory

ENCS: On the inventory, or in compliance with the inventory

KECI: On the inventory, or in compliance with the inventory

PICCS: On the inventory, or in compliance with the inventory

IECSC: On the inventory, or in compliance with the inventory

TCSI: On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals: No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D): No substances are subject to TSCA 12(b) export notification requirements.

Section 16. Other Information

The information contained herein is based on the data available to us and is believed to be accurate. The data is offered in good faith as typical values and not as product specification. The information in this data sheet was compiled from information supplied by the vendors of the components of this compound. CSNRI makes no warranty either expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. The recommended industrial hygiene and safe handling procedures are believed to be genuinely applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. CSNRI assumes no responsibility for injury from the use of the product described herein. The information is intended only to assist in the safe handling of this material. CSNRI DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR FREEDOM FROM PATENT INFRINGEMENT. CSNRI WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Date of issue: 04/26/2018

Revision date: 02/15/2024

Supersedes: 02/16/2023

Version: 11.0