

Safety Data



1. Identification of Substance:

Product Name: GreenTuff AR A-Side

Product Use: Polyurea isocyanate component

Field of Application: building and metal industry

Identified uses: Industrial/Professional use

Company Details:

Green Shield Products

Address:

40 Cypress Creek Parkway #338
Houston, Texas 77090

Telephone:

877-476-7453

24-Hr. Emergency Phone Number:

CHEMTREC (800) 424-9300

2. Hazards Identification

GHS Ratings:

Classification	Category
Carcinogenicity	2
Eye Irritation - Category 2	2
Respiratory Sensitizer (Solid/Liquid) - Category 1	1
Skin Irritation - Category 2	2
Skin Sensitizer - Category 1	1
Specific Target Organ Toxicity - Repeated Exposure - Category 2	2
Specific Target Organ Toxicity -Single Exposure (Respiratory Tract Irritation) - Category 3	3

Signal Word: Danger



GHS Hazards

H351 - Suspected of causing cancer.

H319 - Causes serious eye irritation

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H373 - May cause damage to organs through prolonged or repeated exposure.

H335 - May cause respiratory irritation



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



GHS Precautions General

- P101 - If medical advice is needed, have product container or label at hand.
- P102 - Keep out of reach of children.
- P103 - Read label before use.

GHS Precautions Prevention

- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P264 - Wash thoroughly after handling.
- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
- P284 - [In case of inadequate ventilation] wear respiratory protection.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
- P271 - Use only outdoors or in a well-ventilated area.
- P233 - Keep container tightly closed.

GHS Precautions Prevention

- P308 + P313 - IF exposed or concerned: Get medical advice/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 advice/attention.
- P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P321 - Specific treatment (see section 4 on this SDS).
- P332 + P313 - If skin irritation occurs: Get medical advice/attention.
- P362 + P364 - Take off contaminated clothing. And wash it before reuse.
- P333 + P313 - If skin irritation or a rash occurs: Get medical advice/attention.**
- P314 - Get Medical advice/attention if you feel unwell.**
- P312 - Call a POISON CENTER/doctor if you feel unwell.**

GHS Precautions Storage

- P405 - Store locked up.
- P403 + P405 - Store in a well-ventilated place. Store locked up.
- Precautionary Statements - Disposal
- P501 - Dispose of contents/ container to an approved waste disposal plant.



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



3. Composition/information on ingredients:

Chemical Name	CAS number	Weight Concentration %
POLYURETHANE PREPOLYMER	0068092-58-0	40% - 73%
4,4'-METHYLENEDIPHENYL DIISOCYANATE	0000101-68-8	22% - 41%
4-METHYL-1,3-DIOXOLAN-2-ONE	0000108-32-7	4% - 7%
Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.		

4. First Aid Measures:

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

If exposed/feel unwell/concerned: Call a POISON CENTER/doctor.

Eliminate all ignition sources if safe to do so.

Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Gently blot or brush away excess product. Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing before re-use or discard.

IF exposed or concerned: Get medical advice/attention.

Eye Contact

Avoid direct contact. Wear chemical protective gloves, if necessary.

Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face.

If eye irritation persists: Get medical advice/attention.

Ingestion

Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

IF exposed or concerned: Get medical advice/attention.



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



5. Firefighting measures

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide is recommended. Water spray is recommended to cool or protect exposed materials or structures.

Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

If water is used, use very large quantities of cold water. The reaction between water and hot isocyanate may be vigorous.

Specific Hazards in Case of Fire

Vapors may accumulate and travel to ignition sources distant from the handling site; flash fire can occur.

Excessive pressure or temperature may cause explosive rupture of containers.

Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece.

Boots, gloves (neoprene), goggles, and full protective clothing are also required.

Care should always be exercised in dust/mist areas.

6. Accidental release measures

Emergency Procedure

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Do not touch or walk through spilled material. Isolate hazard area and keep unnecessary people away.

Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment

Appropriate dust or face mask to eliminate breathing foam dust particulates.

Personal Precautions

Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



Methods and Materials for Containment and Cleaning up

Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Follow the precautions on the supplier's safety data sheets.

Treat the spill area with the decontamination solution, using about 10 parts of the solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste.

Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

7. Handling and Storage

General

Wash hands after use.

Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Use good personal hygiene practices.

Eating, drinking and smoking in work areas is prohibited.

Remove contaminated clothing and protective equipment before entering eating areas.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight, strong oxidizers and any incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty container retain residue and may be dangerous.

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

Ground and bond containers and receiving equipment. Avoid static electricity by grounding.

Do not cut, drill, grind, weld, or perform similar operations on or near containers. Do not pressurize containers to empty them. Ground all structures, transfer containers and equipment to conform to the national electrical code. Use procedures that prevent static electrical sparks. Static electricity may accumulate and create a fire hazard.



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



8. Exposure Controls and Personal Protection:

Eye Protection

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Depending on conditions of use, additional protection may be required such as apron, arm covers, or full body suit. Wash contaminated clothing before re-wearing.

Respiratory Protection

If airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied pressure supplied air respiratory with a full face piece or an air supplied hood. For emergencies, use a positive pressure self-contained breathing apparatus. Air purifying (cartridge type) respirators are not approved for protection against isocyanates.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name / CAS No.	TWA (mg/m3)	TWA (mg/m3)	Tables (Z1, Z2, Z3)	TWA (ppm)	TWA (mg/m3)	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)
4,4'- METHYLENEDIPHENYL DIISOCYANATE	0.02 ceiling	0.2 ceiling	1	0.005	0.050	0.005	0.051



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



9. Physical and Chemical Properties:

Physical properties listed where known.

Density 9.29 lb/gal Specific Gravity 1.11 VOC Regulatory 0.00 lb/gal VOC Part A & B Combined N.A. Appearance Thin Clear Liquid Odor Threshold N.A. Odor Description Negligible pH N.A. Water Solubility Reacts with Water Flammability N/A Flash Point Symbol N.A. Flash Point 253 °F Viscosity 600-800 cps	Lower Explosion Level N.A. Upper Explosion Level N.A. Vapor Pressure N.A. Vapor Density Heavier than air Freezing Point N.A. Melting Point N.A. Low Boiling Point 446 °F High Boiling Point N.A. Auto Ignition Temp N.A. Decomposition Pt N.A. Evaporation Rate Slower than ether Coefficient Water/Oil N.A.
---	---

10. Stability and Reactivity:

Stability

Material is stable at standard temperature and pressure.

Conditions to Avoid

Heat, high temperature, open flame, sparks, and moisture. Contact with incompatible materials in a closed system will cause liberation of carbon dioxide and buildup of pressure.

Hazardous Reactions/Polymerization

Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



Incompatible Materials

This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Material can react with strong oxidizing agents.

Hazardous Decomposition Products

Carbon dioxide, carbon monoxide, nitrogen oxides, trace amounts of hydrogen cyanide and unidentified organic compounds may be formed during combustion.

11. Toxicological Information:

Skin Corrosion/Irritation

Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause red- dening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have devel- oped a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

Causes skin irritation

Serious Eye Damage/Irritation

Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. Pro- longed vapor contact may cause conjunctivitis. Any level of contact should not be left untreated.

Causes serious eye irritation

Respiratory/Skin Sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

Carcinogenicity

Suspected of causing cancer.

Germ Cell Mutagenicity

No data available

Reproductive Toxicity

No data available

Specific Target Organ Toxicity - Single Exposure

May cause respiratory irritation

Specific Target Organ Toxicity - Repeated Exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

No data available

Acute Toxicity

No data available

0000101-68-8 4,4'-METHYLENEDIPHENYL DIISOCYANATE
 LC50 (rat): 369-490 mg/m3 (aerosol) (4-hour exposure) (1)
 LC50 (rat): 178 mg/m3 (17.4 ppm) (duration of exposure not reported) (2)
 LD50 (oral, rat): greater than 10,000 mg/kg (1,2)
 LD50 (dermal, rabbit): greater than 10,000 mg/kg (1)
 LD50 (oral, mouse): 2,200 mg/kg (3)



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



12. Ecological Information:

Toxicity

No data available.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Soil

No data available.

Other Adverse Effects

No data available.

13. Disposal considerations

Waste Disposal

Under RCRA, it is the responsibility of the user of the product, to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws.

Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

14. Transport Information

U.S. DOT Information

Not regulated

IMDG Information

Not regulated.

IATA Information

Not regulated.

15. Regulatory Information:

CAS	Chemical Name	% By Weight	Regulation List
0068092-58-0	POLYURETHANE PREPOLYMER	40% - 73%	DSL,SARA312,TSCA
0000101-68-8	4,4'- METHYLENEDIPHENYL DIISOCYANATE	22% - 41%	SARA313, DSL,CER- CLA,HAPS,SARA312,VHAPS,VOC,TSCA
0000108-32-7	4-METHYL-1,3-DIOXOLAN -2-ONE	4% - 7%	DSL,SARA312,TSCA



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com



Safety Data



16. Other Information:

OTHER INFORMATION

Note: As per GHS, category 1 is the greatest level of hazard within each class.

GLOSSARY

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; CA Prop65- California Proposition 65; Canadian TDG- Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center (US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL- Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self-Contained Breathing Apparatus; STEL- Short Term Exposure Limit; TCEQ- Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA Toxic Substances Control Act Public Law 94-469; TWA- Time Weighted Value; US DOT- US Department of Transportation; WHMIS Workplace

Hazardous Materials Information System.

Safety Data Sheet issued by Product Safety Department

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Green Shield Products. The data on these sheets relates only to the specific material designated herein. Green Shield Products assumes no legal responsibility for use or reliance upon this data. It is the user's responsibility to ensure that their activities comply with federal, state, or local laws

Date revised: 2024-13-05

SAFETY DATA SHEET



Energy Efficient Building Product Solutions

877-476-7453

greenshieldproducts.com

