PHANTOM 3.80™ PROTECTIVE COATING

PHOENIX PROTECTIVE COATINGS

SAFETY DATA SHEET

Section 1: Identifcation

Product Name: PHANTOM 3.80™ (A-Side)
PHOENIX PROTECTIVE COATINGS
804 Summer Park, Suite 450
Stafford, TX 77477
888-492-3339

Spill, leak, fire, exposure, or accident, call CHEMTREC day or night
Domestic North America: **800-424-9300**
email: info@phoenixliners.com

Section 2: Hazards Identifcation

GHS Ratings:

Acute Toxicity - Inhalation	Category 4
Skin Irritation / corrosion	Category 2
Eye Irritation / damage	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Specific Target Organ Toxicity - *Single Exposure*	Category 3
Specific Target Organ Toxicity - *Repeated Exposure*	Category 2

Danger

This product is hazardous under the criteria of the Hazardous Products Regulation (HPR) as implemented under the Workplace Hazardous Materials Information System (WHMIS 2015).

GHS Hazards:

- Causes serious eye damage
- May cause an allergic skin reaction
- May cause respiratory irritation
- Harmful if inhaled
- Causes skin irritation
- May cause allergy or asthma symptoms or breathing difficulties if inhaled
- May cause damage to organs (olfactory organs) through prolonged or repeated exposure

GHS Precautions:

- Use only outdoors or in well-ventilated area
- Wash hands / skin thoroughly after handling
- Use respiratory protection
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink, or smoke while using this product
- Wear protective gloves/protective clothing/eye protection/face protection
- Contaminated work clothing should not be allowed out of the workplace

GHS Response:

- Take off contaminated clothing & wash before reuse
- Call a POISON CENTER or doctor if you feel unwell
- If skin irritation or rash occurs: Get medical attention.
- If eye irritation persists: Get medical attention.
- If experiencing respiratory symptoms: Call a POISON CENTER / doctor.
- IF ON SKIN: Wash with plenty of soap & water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

GHS Storage & Disposal:

Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.	Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Section 3: Component / Hazards Identification

Chemical Name	CAS number	Weight Concentration %
Diphenylmethane-4, 4'-diisocyanate (MDI)	101-68-8	>= 20.0 - < 25.0 %
Methylenediphenyl diisocyanate	26447-40-5	>= 20.0 - < 25.0 %
Gamma-butyrolactone	96-48-0	>= 5.0 - < 7.0 %

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 26447-40-5.

Section 4: First-aid Measures

General Advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Keep paitient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteriod from a controlled/metered dose inhaler.

Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Immediately rinse mouth and then drink 200-300 ml of water, and seek medical attention. If swallowed, do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed: Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., Eye irritation, skin irritation, allergic symptoms

Information on: *Gamma-butyro/actone*
Symptoms: Overexposure may cause: weakness, chest discomfort, anxiety, nausea, diarrhea, headache
Hazards: Symptoms can appear later.

Information on: *Diphenylmethane-4,4'-diisocyanate (MDI)*
Hazards: Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

Notes to Physician: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Section 5: Fire-fighting Measures

Suitable Extinguishing Media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable Extinguishing Media: Do not use direct water stream / jet. May spread fire.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen cyanide. Carbon monoxide. Carbon dioxide.

Unusual Fire & Explosion Hazards: Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.. Dense smoke is produced when product burns.. Electrically ground and bond all equipment..

Firefighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out. Contain fire water run-off if possible. Fire water run-off may cause environmental damage.. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with selfcontained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. If available, use foam to smother or suppress. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods & materials for containment and clean up: Contain spilled material if possible. Absorb with materials such as: Dirt. Vermiculite. Sand. Clay. Sawdust. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums. Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 - 8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

For residues: The following measures should be taken for final cleanup: Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 5-8 % household ammonia, 2-5 % detergent. Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes. Pick up with suitable absorbent material. Place into appropriately labeled waste containers. Do not make container pressure tight. Move container to a well-ventilated area (outside). Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. Dispose of absorbed material in accordance with regulations.

Section 7: Handling and Storage

Precautions for safe handling: Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. Avoid inhalation of dusts/mists/vapours. When handling heated product, vapours of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Use suitable chemically resistant gloves. Danger of bursting when sealed gastight. Protect against moisture. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Precautions against fire & explosion: No special precautions necessary.

Conditions for safe storage, including any incompatibilities: Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases.

Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

Further information on storage conditions: Formation of CO2 and build up of pressure possible. Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture.

Storage Requirements: Store in a dry place. Protect from atmospheric moisture. Do not store product contaminated with water to prevent potential hazardous reaction. See Section 10 for more specific information.

Storage Stability:

Storage Temperature Range: 60 - 77 °F (15 - 25 °C) **Storage Length/Period:** 12 months

Section 8: Exposure Controls / Personal Protection

Control Parameters *Exposure limits are listed below, if they exist:*

Chemical Name	Regulation	Type of listing	Value / Notation
Diphenylmethane-4, 4'-diisocyanate (MDI)	OSHA PEL ACGIH	CLV TWA	0.02 ppm / 0.2 mg/m^3 0.005 ppm

Advice on system design: Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory Protection: When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place. For emergency or non-routine, high exposure situations, including confined space entry, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand Protection: Chemical resistant protective gloves should be worn to prevent all skin contact., Suitable materials may include, chloroprene rubber (Neoprene), nitrile rubber (Buna N), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, depending upon conditions of use.

Eye / Face Protection: Use chemical goggles. Wear face shield if splashing hazard exists.

Body Protection: Cover as much of the exposed skin as possible to prevent all skin contact., Suitable materials may include: saran-coated material, depending upon conditions of use.

General Protective and Hygienic Measures: Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL or TLV value. Wash soiled clothing immediately. Remove contaminated clothing immediately and clean before re-use or dispose it if necessary.

Engineering Controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Section 9: Physical and Chemical Properties

Appearance: Amber liquid
Relative Density (water = 1): 1 .1260 g/cm3 at 20 ˚C
pH: No Data
Freezing point: -13.00 ˚C
Evaporation rate: No Data
Explosive Limits: No Data
Vapor Density: No Data
Water Solubility: reacts with water
Boiling Range: > 200.00 ˚C
Autoignition Temperature: > 470.00 ˚C

Oxidizing Properties: No Data
Odor: Faintly aromatic
Odor threshold: not applicable
Melting point: No Data
Flash point: > 200.00 ˚C
Flammability: Not expected
Specific Gravity: No Data
Kinematic Viscosity: No applicable data
Dynamic Viscosity: 330.000 mPa.s
Vapor Pressure: < 0.001 mmHg @25 ˚C

[1] = *Based on Literature for MDI. Odor is inadequate warning of excessive exposure.*

Section 10: Stability and Reactivity

Reactivity: Not corrosive to metal, and not an oxidizing agent.

Chemical Stability: Stable under recommended storage conditions. See Storage, Section 7.

Hazardous Reactions: Can occur. Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalies. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to Avoid: Moisture.

Incompatible Materials: Acids, amines, alcohols, water, Alkalines, strong bases, Substances/products that react with isocyanates.

Dangerous decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapours

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

Section 11: Toxicological Information

Likely Routes of Exposure: Ingestion, Inhalation, Skin contact, Eye contact.

Acute Toxicity / Effects
Assessment of acute toxicity: Of moderate toxicity after short-term inhalation.

Mixture Toxicity
Single dose LC50: Not determined; based on components, LC50: > 2000mg/kg. Estimated.

Component Toxicity

Diphenylmethane-4,4'-diisocyanate (MDI)

Oral LD50: > 2000 mg/kg (est.) *Dermal LD50:* > 9400 mg/kg (Rabbit)
Inhalation LC50, 1-hr aerosol: > 2.24 mg/l

Prolonged contact may cause skin irritation with local redness. Material may stick to skin causing irritation upon removal. May stain skin. May cause eye irritation. May cause slight temporary corneal injury. Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization. May cause allergic respiratory reaction. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols. Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m^3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI. In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Gamma-butyrolactone

Overexposure may cause weakness, chest discomfort, anxiety, nausea, diarrhea, and headache.

Medical conditions aggravated by overexposure: The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing. Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

Section 12: Ecological Information

General Information: Based on experience, no adverse effects are to be expected if correct disposal procedures have been followed as indicated in section 13.

Individual ecotoxicity is listed below, if known:

Component Ecotoxicity

Diphenylmethane-4,4'-diisocyanate (MDI)

96 Hr LC50 Brachydanio rerio: > 1000 mg/l
72 Hr NOEC Green Algae: 1640 mg/l
14 day EC50 Eisenia fetida: > 1000 mg/kg
28 day Biodegradation: 0%
24 Hr EC50 Daphnia magna: > 1000 mg/l
3 Hr EC50 Activated sludge: > 100 mg/l
EC50 Lactuca sativa (lettuce): 1000 mg/l

Not expected to be acutely toxic to aquatic organisms
Biodegradability: Expected to degrade slowly in the environment
Bioaccumulation: In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.
Mobility in Soil: In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas. Partition coefficient (Koc): > 5000 Estimated.
Partition coefficient: n-octanol/water(log Pow): 20.05

Section 13: Disposal Considerations

Recommendations: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, Section 7; Stability & Reactivity Information, Section 10; Regulatory Information, Section 15.

Empty Container Precautions: Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed and container is empty prior to disposal. Contact the Reusable Industrial Packaging Association (RIPA) at 301-577-3786 to find a drum re-conditioner in North America (www.reusablepackaging.org).

Section 14: Transport Information

USDOT: Not classified as a dangerous good under transport regulations.

TDG: Not regulated for transport.

Classification for SEA transport (IMO-IMDG): Not classified as a dangerous good under transport regulations.

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code

Classification for AIR transport (IATA/ICAO): Not classified as a dangerous good under transport regulations.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this SOS for the RQ for this product.

Section 15: Regulatory Information

United States TSCA Inventory (TSCA):
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

EPCRA 313

Chemical Name	CAS Number	CERCLA RQ
Diphenylmethane-4,4'-diisocyanate (MDI)	101-68-8	5000 LBS

State Regulations

State RTK	CAS Number	Chemical Name
New Jersey	101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)
Pennsylvania	101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)

NPFA Hazard Codes:

Health: 3 **Fire:** 1 **Reactivity:** 1 **Special:**

HMIS III Rating:

Health: 30 **Flammability:** **Physical Hazard:** 1

Section 16: Other Information

The customer is responsible for determining the proper PPE code for this material within their respective business / application process.

Date Prepared: 03/13/2024
Date Revised: 2023-03-13

Reviewer Revision 0

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