

MATERIAL DATA SAFETY SHEET

"A" COMPONENT

ISSUE DATE: 04/05

Form # TFMDS-001 Last revision: 01/10

Product Brand: Tiger Foam Insulation. This sheet covers the "A" Component of a self-contained, portable two-component spray foam insulation kit comprised of an "A" and "B" side tank.

Product Description: Product is a urethane foam component that contains liquefied compressed gas blowing agent (nonflammable compressed gas). Excessive pressure build-up will occur if heated above 120°F (49°C).

Item Numbers Covered: TF600FR & TF600SR or TF200FR & TF200SR

Note identical packaging with sticker on front to designate contents as being either "A" component or "B" component. This sheet covers "A" component.

Manufacturer

COMMERCIAL THERMAL SOLUTIONS, INC.
6 Worthington Avenue
Spring Lake, New Jersey 07762

Emergency Overview and Contacts

Product Information: 1-800-664-0063. International Phone: (001) 1+732.927.2090
Transportation Emergency: CHEMTREC Phone: 1-800-424-9300

Reference: CHEMTREC ACCOUNT # 201586

International Transportation Emergency:

CHEMTREC (703) 527-3887 REF ACCOUNT # 201586

COMPOSITION

Chemical Name (common names)	CAS Number	Percentage	LD ₅₀	LC ₅₀
1,1,1,2 – Flammable Compressed Gas, HFC, Fluorocarbon) 134a	811-97-2	5-10%	NA	NA(Non-
4,4' – Diphenylmethane Diisocyanate (MDI)	101-68-8	30-60%	NA	NA
High Oligomers of MDI (Polymeric MDI)	9016-87-9	30-60%	NA	NA

EXPOSURE CONTROLS/PERSONAL PROTECTION

Read all product instructions before using. Personal protective equipment should include impervious gloves, protective eyewear and suitable work clothes. Adequate ventilation should also be employed so that vapor levels do not exceed recommended guidelines. If vapor levels are expected to exceed these guidelines, use NIOSH ap-

proved, positive pressure, supplied air respirator or a negative pressure half mask with organic vapor cartridges and dust/mist pre-filters. Exercise good personal hygiene, wash thoroughly after each use.

Exposure Guidelines

4,4'- Diphenylmethane
Diisocyanate (MDI)
Higher Oligomers of MDI
1,1,1,2 - Tetrafluoroethane
(Non-Flammable Compressed Gas
HFC Fluorocarbon 134a)

OSHA

.020 ppm ceiling
.200 mg/m³ ceiling
None Established
None Established

CGIH

.005 ppm TWA
.051 mg/m³ TWA
None Established
None Established

(None of the components in this product are listed by IARC, NTP, OSHA or ACGIH as a carcinogen).

Inhalation of MDI vapors may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Airborne overexposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. Gastrointestinal symptoms include nausea, vomiting and abdominal pains.

Irritation:

Information on Diisocyanates

Eye contact with isocyanates may result in conjunctival irritation and mild corneal opacity. Skin contact may result in dermatitis, either irritative or allergic.

Repeated dose toxicity:

Information on MDI

Results from a lifetime inhalation study in rats indicate that MDI aerosol was carcinogenic at 6 mg/m³, the highest dose tested. This is well above the recommended TLV of 5 ppb (0.05 mg/r>3). Only irritation was noted at the lower concentration of 0.2 and 1 mg/m³. No birth defects or teratogenic effects were reported in a teratology study with rats exposed to 1,4, and 12 mg/m³ polymeric MDI for 6 hr/day on days 6-15 of gestation. Embryotoxicity and fetotoxicity was reported at the top dose in the presence of maternal toxicity.

Information on Isocyanates

As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanates sensitization (chemical asthma), which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in sever cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Sensitization may either be temporary or permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapor-only exposure.

Medical conditions aggravated by overexposure:

The isocyanates component is a respiratory sensitizer. It may cause allergic reaction leading to asthmalike 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. Pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested.

An animal study indicated that MDI may induce respiratory hypersensitivity following dermal exposure. 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.

Medical conditions aggravated by overexposure:

The isocyanates 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. Pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested.

An animal study indicated that MDI may induce respiratory hypersensitivity following dermal exposure. 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.

FIRST-AID MEASURES

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Note to physician

Hazards:

Symptoms can appear later.

Antidote:

Specific antidotes or neutralizers to isocyanates do not exist.

Treatment:

Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient.

FIRE-FIGHTING MEASURES:

Flash point:

220°C

(open cup)

Autoignition:

No data available

Suitable extinguishing media:

Water, dry extinguishing media, carbon dioxide, foam

Hazards during fire fighting:

Nitrous gases, fumes/smoke, isocyanates, vapor

Protective equipment for fire fighting

Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

ACCIDENTAL RELEASE MEASURES:

Personal precautions:

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into drains/ surface waters/ groundwater.

Cleanup:
Dike spillage

For small amounts:

Absorb isocyanates with suitable absorbent material (see § 40 CFS, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90% water, 8% concentrated ammonia, 2% detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. For large amounts: If temporary control of isocyanates vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For residues:

The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

HANDLING AND STORAGE

Handling

General advice:

If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Protection against fire and explosions:

No explosion proofing necessary.

Storage

General advice:

Formation of CO₂ and build up of pressure is 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 incompatibility:

General: Segregate from bases.

Storage stability:

Storage temperature: 60-80°F

Protect against moisture.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Read all product instructions before using. Personal protective equipment should include (impervious gloves, protective eye wear and suitable work clothes). Adequate ventilation should also be employed so that vapor levels do not exceed recommended guidelines. If vapor levels are expected to exceed these guidelines, use NIOSH approved, positive pressure, supplied air respirator or a negative pressure half mask with organic vapor cartridges and dust/mist pre-filters. Exercise good personal hygiene, wash thoroughly after each use.

Exposure Guidelines

4,4' - Diphenylmethane
Diisocyanate (MDI)
Higher Oligomers of MDI
1,1,1,2 - Tetrafluoroethane
(Non-Flammable Compressed Gas
HFC Fluorocarbon 134a)

OSHA

.020 ppm ceiling
.200 mg/m³ ceiling
None Established
None Established

ACGIH

.005 ppm TWA
.051 mg/m³ TWA
None Established
None Established

(None of the components in this product are listed by IARC, NTP, OSHA or ACGIH as a carcinogen).

PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance:	Amber to dark brown liquid. Froths to an off white to yellowish color when released from container. (Note: Appearance may differ with the introduction of a dye or colorant).
Odor:	Slight musty odor
Specific Gravity:	Approximately 1.2 (H ₂ O=1)
Boiling Point:	1,1,1,2 - Tetrafluoroethane (Non-Flammable Compressed Gas, HFC Fluorocarbon 134a) boils at -15°F (-26°C). MDI boils at 406°F (199°C)
Flash Point:	1,1,1,2 - Tetrafluoroethane (HFC 134a); none. MDI; 390°F (199°C)
Vapor Pressure:	Contents under pressure have vapor pressure greater than 50 psig/ 345 kPa. For MDI liquid less than 10mm Hg at 77°F (25°C).
Solubility in Water:	Insoluble reacts slowly with water to liberating traces of CO ₂ .
Explosion Data:	Contents are not known to be sensitive to mechanical impact or static discharge.

STABILITY AND REACTIVITY

Conditions to avoid:

Avoid moisture.

Substances to avoid:

Water, alcohols, strong bases, substances/ products that react with isocyanates.

Hazardous reactions:

The product is chemically stable.

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

Decomposition products:

Hazardous decomposition products: carbon monoxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapors.

Thermal decomposition:

>260°C

No data available.

Corrosion to metals:

No corrosive effect on metal.

TOXICOLOGICAL INFORMATION

Acute toxicity

Oral:

LD50/rat: > 10,000 mg/kg

Practically nontoxic.

Inhalation:

LC50/rat: > 2.240 mg/l /1 h

Moderately toxic.

ECOLOGICAL INFORMATION

Environmental toxicity

Acute and prolonged toxicity to fish:

Static

Zebra fish/LC50 (24 h): > 500 mg/l

Practically nontoxic.

Acute toxicity to aquatic invertebrates:

Daphnia magna/EC50 (24 h): > 500 mg/l

Practically nontoxic.

DISPOSAL CONSIDERATIONS

Water disposal of substance:

Incinerate or dispose of in a licensed facility.

Do not discharge substance/product into sewer system.

Container disposal:

DRUMS:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Refer to 40 CFR § 261.7 (residues of hazardous waste in empty containers). Check with reconditioner to determine if decontamination is required. Decontaminate containers prior to disposal. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

TRANSPORT INFORMATION

Land transport
USDOT Not classified as a dangerous good under transport regulations

Sea transport
IMDG Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO Not classified as a dangerous good under transport regulations

REGULATORY INFORMATION

Federal Regulations

Registration status:

TSCA, US released / listed

TSCA 12B released / listed

OSHA hazard category: ACGIH TLV established, Highly toxic – inhalation, Chronic target organ effects reported, Skin and/or eye irritant, Acute target organ effects reported, Sensitizer, OSHA PEL established.

CERCLA RQ

5,000 LBS

CAS Number

101-68-8

Chemical name

Diphenylmethane- 4,4'- diisocyanate (MDI)

SARA hazard categories (EPCRA 311/312)

SARA 313:

CAS Number

Chemical name

Diisocyanates Compound Category

State Regulations

State RTK

CAS Number
101-68-8

Chemical name
Diphenylmethane-4,4' – diisocyanate (MDI)

State RTK
MA, NJ, PA

OTHER

The information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof. The manufacturer makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving it will make their own determination as to its suitability for their purposes prior to use. In no event will the manufacturer be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. No representations or warranties, either expressed or implied, of merchantability or fitness for a particular use are made hereunder with respect to this information or the product to which information refers.

Information contained herein is deemed to be reliable, conservative and accurate. Commercial Thermal Solutions, Inc. reserves the right to change the design, specifications or any other features at any time and without notice, while otherwise maintaining regulatory compliance.

LAST REVISION: 04/08
APPROVED BY: J. Rawlinson
TFMSDS001