SAFETY DATA SHEET

1. Identification

Firestable™ Insulation Company
36 Plains Road
Essex, CT 06426
860-767-8773
www.Firestable.com

EMERGENCY PHONE (24H)
CHEMTREC: 1-800-424-9300

Product Name:	FS 2.0 ISOCYANATE
Product Code:	FS 2.0 ISO
Synonyms:	"A" COMPONENT, "A" SIDE, POLYMERIC MDI
Product Form:	Mixture
Intended use of the product:	Substance for use in conjunction with resin Component.

2. Hazards Identification

Classification of the substance or mixture

GHS-US Classification

Acute Toxicity	4	Harmful if inhaled.
Skin Irritation	2	Causes skin irritation.
Eye Irritation	2A	Causes serious eye irritation.
Respiratory Sensitization	1	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sensitization	1	May cause an allergic skin reaction.
Carcinogenicity	2	Suspected of causing cancer.
STOT RE	2	Specific target organ toxicity (repeated exposure)
STOT SE	3	Specific target organ toxicity (single exposure

Label Elements

GHS-US Labeling
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.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure

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 vapors, mist, or spray.
	P264	Wash hands, forearms, and other exposed areas thoroughly after handling.
	P271	Use only outdoors or in well-ventilated area.
	P272	Contaminated work clothing must not be allowed out of the workplace.
	P280	Wear protective gloves, protective clothing, and eye protection.
	P284	In case of inadequate ventilation wear respiratory protection.
	P302+P352	If on skin: Wash with plenty of water.
	P304+P340	If inhaled: Remove person to fresh air and keep comfortable for breathing.
	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
	P312	Call a Poison Center/doctor if you feel unwell.
	P314	Get medical advice/attention if you feel unwell.
	P321	Specific treatment (see section 4 on this SDS).
	P332+P313	If skin irritation occurs: 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.
	P342+P311	If experiencing respiratory symptoms: Call a poison center/doctor/physician/first aider.
	P362-P364	Take off contaminated clothing and wash it before reuse.
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
	P405	Store locked up.
	P501	Dispose of contents/container in accordance with local, regional, national, and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Unknown Acute Toxicity

No Available Data

3. Composition/Information on Ingredients

Substance

Not Applicable

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Mixture

Name	Product Identifier	%	GHS US Classification
Polymeric diphenylmethane diisocyanate	(CAS no: 9016-87-9)	25-75	Acute toxicity, inhalation, Cat 4; Skin corrosion/irritation, Cat 2; Serious eye damage/irritation, Cat 2; Sensitization, skin, Cat 1; Sensitization, respiratory, Cat 1; Specific target organ toxicity (single exposure), Cat 3; Specific target organ toxicity (repeated exposure), Cat 2; Carcinogenicity, Cat 2.
4,4'-diphenylmethane diisocyanate	(CAS no: 101-68-8)	25-75	Acute toxicity, inhalation, Cat 4; Skin corrosion/irritation, Cat 2; Serious eye damage/irritation, Cat 2; Sensitization, skin, Cat 1; Sensitization, respiratory, Cat 1; Specific target organ toxicity (single exposure), Cat 3; Specific target organ toxicity (repeated exposure), Cat 2; Carcinogenicity, Cat 2.

* The exact percentage of composition has been withheld as a trade secret [29 CFR 1910, 1200].

4. First Aid Measures

Description of First Aid Measure

General measures
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Eye Contact
Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention without delay.

Skin Contact
Rinse with water for at least 15 minutes. Call a doctor if irritation develops or persist.

Inhalation
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Call a poison center/doctor or transport to a medical facility.

Ingestion
Call a poison center or doctor if you feel unwell. If vomiting occurs naturally, have a victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects both Acute and Delayed

The most known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any Immediate Medical Attention and Special Treatment needed

Treat symptomatically.

5. Firefighting Measures

Suitable Extinguishing Media: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Do not use direct water stream.

Special Hazards arising from the Substance or Mixture
Combustion products may include and are not limited to Nitrogen oxides, Isocyanate, Hydrogen cyanide, Carbon monoxide, Carbon dioxide. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers.

Advice for Firefighters
Wear self-contained breathing apparatus for firefighting if necessary. Avoid contact with this material during firefighting operations. If contact is likely, change the full chemical resistant firefighting clothing with self-contained breathing apparatus.

Further Information
Use water spray to cool unopened containers.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures
Use personal protective equipment as described in Section 8. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Evacuate personal to safe areas. Spilled material may cause a slipping hazard.

Environmental precautions
Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Materials for Containment and Cleaning up
Immediately shut off the leak if it is safe to do so. Contain the spill with suitable non-combustible absorbent material (e.g. sand, silica gel, acid binder, universal binder). Use clean tools to collect absorbed material. Shovel into open-top drums or plastic bags for further decontamination, if necessary. Do not seal drums or containers. Neutralize small spills with decontamination solution. Never return spills in original containers for re-use.
Wash area with one of the following decontamination solutions:
Formulation A: Liquid surfactant 0.2% to 2%; sodium carbonate 5% to 10%; water to make up to 100%.
Formula B: Liquid surfactant 0.2% to 2%; Concentrated ammonia 3% to 8%; Water to make up to 100%.
Formulation C: Ethanol, isopropanol or butanol 50%; concentrated ammonia 5%; Water to make up to 100%.
Formulation B reacts faster than Formulation A.
Formulation C is especially suitable for cleaning of equipment from unreacted isocyanate and neutralizing under freezing conditions.

Reference to Other Sections
See section 8 for exposure controls and personal protection and section 13 for disposal considerations.

7. Handling and Storage

Precaution for safe handling
Ensure adequate ventilation. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes, and clothing. Avoid ingestion and inhalation. Use personal protective equipment as described in Section 8. For precautions see Section 2.2. Handle in accordance with good industrial hygiene and safety practice.

Conditions for Safe Storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Protect from atmospheric moisture.
Do not store product contaminated with water to prevent potential hazardous reaction.

Specific End Use(s)
Apart from the uses mentioned in section 1 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limit:
Consult local authorities for acceptable exposure limits.

Methylene Bisphenyl Isocyanate (MDI) (CAS: 101-68-8)

Ingredient	ACGIH® TLV®	U.S. OSHA PEL	Alberta (Canada) TWA
Polymeric MDI	Not established	Not established	0.07 mg/m^3
Methylene diphenyl diisocyanate (MDI)	0.051 mg/m^3 (0.005 ppm)	0.2 mg/m^3 (0.02 ppm)	0.005 ppm 0.02 ppm Ceiling Designated Substance

Other exposure guidelines: IDLH*=75 mg/m3 (*Immediately Dangerous to life or Health, NIOSH)

Some jurisdictions have specific regulations for isocyanates. These regulations may include requirements for medical surveillance programs, including pre-employment and pre-placement examinations, clinical tests, health education and record keeping. Obtain detailed information from the appropriate government agency in relevant jurisdictions.

Engineering Controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual Protection Measures, such us Personal Protective Equipment (PPE)

Materials for Protective Clothing
Chemically resistant materials and fabrics.

Respiratory Protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such us NIOSH (US) or CEN (EU).

Hand Protection
Wear protective gloves (rubber, chemical resistant). Consult manufacturer specifications for further information.

Eye and Face Protection
Safety glasses. If splash hazards, wear faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such us NIOSH (US) or EN 166 (EU). Ensure that eyewash stations and/or safety showers are close to the workstation location if working with concentrated product.

Skin and Body Protection
Wear protective clothing. The type protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Environmental Exposure Controls
Do not let product enter drains.

9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Brown Liquid
Odor	Slight amine
Initial Boiling Point	>204 °C
Flash Point	> 230 °C
Auto-ignition Temperature	Not available
Viscosity	150 - 800 mPa.s at 25 °C
Relative density	1.22-1.25
Decomposition temperature	> 300 °C

10. Stability and Reactivity

Reactivity
Isocyanates are reactive. The rate of reactions increases with temperatures as well as increased contact; these reactions can become violent. Reaction with water will generate carbon dioxide.

Chemical Stability
Stable under normal storage conditions.

Possibility of Hazardous Reactions
Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure buildup and/or rupture of closed containers. Polymerization can be catalyzed by strong bases and water.

Conditions to Avoid
Avoid exposure to elevated temperature and incompatible materials. Avoid exposure to moisture.

Incompatible Materials
Acids, Alcohols, Amines, Water, Ammonia, Bases, metal compounds, Strong oxidizers. Avoid contact with metals such us Aluminum, Zinc, Brass, Tin, Copper, Galvanizes metals.

Hazardous Decomposition Products
Nitrogen oxides, Isocyanates, Hydrogen cyanide, Carbon monoxide, Carbon dioxide.

11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity

Likely Routes of exposure: Eye contact. Skin contact. Inhalation. Ingestion. Harmful if inhaled. At room temperature, vapors are minimal due to low volatility. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema. Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

Toxicity Data for Polymeric diphenylmethane diisocyanate (CAS no: 9016-87-9)

Acute Oral Toxicity
LD50: >2000 mg/kg (rat)

Acute Dermal Toxicity
LD50: > 9000 mg/kg (rabbit)

Acute Inhalation Toxicity
LC50: > 490 mg/m^3/4h (rat)

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Toxicity Data for Methyl diphenyl diisocyanate (CAS no: 101-68-8)

Acute Oral Toxicity
LD50: 2200 mg/kg (mouse)

Acute Dermal Toxicity
LD50: > 1000 mg/kg (rabbit)

Acute Inhalation Toxicity
LC50: > 490 mg/m^3/4h (rat)

Skin Corrosion/Irritation: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Serious Eye Damage/Irritation: Causes serious eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Respiratory or Skin Sensitization: May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ Cell Mutagenicity: Not classified.

Carcinogenicity: Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI. Tumors occurred concurrently with respiratory irritation and lung injury.

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

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.

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

Reproductive Toxicity: No Data Available.

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure - Oral): May cause damage to organs through prolonged or repeated exposure. Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/Polymeric MDI aerosols.

Aspiration Hazard: No Data Available.

Additional Information: No Data Available.

12. Ecological Information

Toxicity

Data for polymeric MDI
LC50: Zebra fish > 1000 mg/ml.
EC50: Daphnia Magna (24 h) > 1000 mg/ml.
EC20: E. Coli > 100 mg/l.

Persistence and Degradability

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No data available on product

Bioaccumulative Potential

No data available on product

Mobility on Soil

No data available on product

Results of PBT and VPVB Assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other Adverse Effects

Other Information: Avoid release to the environment.

13. Disposal Considerations

Waste Treatment Methods

Disposal of the Product
Disposal should be in accordance with applicable Federal and local laws and regulations. Local regulations may be more stringent than State or Federal requirements.

Disposal of Contaminated packaging
Dispose of any unused product.

14. Transportation Information

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

Land Transport (DOT)

Not regulated for shipping when shipped in quantities <8333 lb (based on maximum concentration of 4,4'-DIPHENYLMETHANE DIISOCYANATE with CERCLA RQ = 5000 lb)
Proper Shipping Name: Other regulated substances, liquid, n.o.s. (4,4'-DIPHENYLMETHANE DIISOCYANATE).
Hazard Class: 9 Identification Number: NA3082
Label Codes: 9
Packing Groups: III
ERG Number: 171

Sea Transport (IMDG)

Not Dangerous Goods.

Air Transport (IATA)

Not Dangerous Goods.

15. Regulatory Information

Safety, Health and Environmental Regulations Specific for the Product in Question

California Proposition 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts Right to Know Components
4,4'-DIPHENYLMETHANE DIISOCYANATE (CAS no.: 101-68-8).

New Jersey Right to Know Components
Polymeric diphenylmethane diisocyanate (CAS no.: 9016-87-9).
4,4'-DIPHENYLMETHANE DIISOCYANATE (CAS no.: 101-68-8).

Pennsylvania Right to Know Components
4,4'-DIPHENYLMETHANE DIISOCYANATE (CAS no.: 101-68-8).

CERCLA
4,4'-DIPHENYLMETHANE DIISOCYANATE (CAS no.: 101-68-8) (RQ = 5000 lb).

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

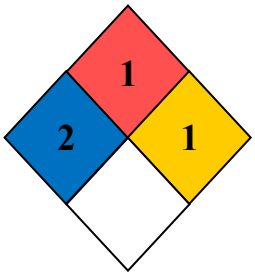
SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard.

SARA 313 Components
Polymeric diphenylmethane diisocyanate (CAS no.: 9016-87-9).
4,4'-DIPHENYLMETHANE DIISOCYANATE (CAS no.: 101-68-8).

HMIS Rating

Isocyanate	
Health	2
Flammability	1
Physical Hazard	1
Personal Protection	

NFPA Rating



16. Other Information

Further Information/Disclaimer

Date of issue: September 12, 2023

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of information for their particular purpose. All materials may present unknown hazards and should be used with caution. In no event shall we be held liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, whatsoever arising, even if we have been advised of the possibility of such damages.

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