

1. Identification of Substance:

ProductName: FORTIMAX-FR A SIDE

Supplier Identification:

FortiSystems

Telephone:

833-840-2777

Address:

16601 Central Green Blvd., Ste. 100

Houston, TX 77032

Product Use: Polyurethane isocyanate component

24-Hr. Emergency Phone Number:

832-922-2926

2. Hazards Identification

GHS Ratings:

Inhalation Toxicity	Acute Tox. 4	Gases>2500+<=5000ppm, Vapors>10+<=20mg/l, Dusts&mists>1+<=5mg/l
Skin corrosive	2	Reversible adverse effects in dermal tissue, Draize score: >= 2.3 < 4.0 or persistent inflammation
Eye corrosive	2A	Eye irritant: Subcategory 2A, Reversible in 21 days
Respiratory sensitizer	1	Respiratory sensitizer
Skin sensitizer	1	Skin sensitizer
Carcinogen	2	Limited evidence of human or animal carcinogenicity
Organ toxin single exposure	3	Transient target organ effects- Narcotic effects- Respiratory tract irritation
Organ toxin repeated exposure	1	Significant toxicity in humans; Reliable, good quality human case studies or epidemiological studies Presumed significant toxicity in humans- Animal studies with significant and/or severe toxic effects relevant to humans at generally low exposure

GHS Hazards

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
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

GHS Precautions

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
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P264	Wash hands thoroughly after handling
P270	Do not eat, drink or smoke when using this product
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
P281	Use personal protective equipment as required
P285	In case of inadequate ventilation wear respiratory protection
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P314	Get Medical advice/attention if you feel unwell
P321	Specific treatment is urgent (see Section 4 First Aid measures)
P362	Take off contaminated clothing and wash before reuse
P363	Wash contaminated clothing before reuse
P302+P352	IF ON SKIN: Wash with soap and water
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse continuously 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
P332+P313	If skin irritation occurs: Get medical advice/attention
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention
P337+P313	Get medical advice/attention
P342+P311	Call a POISON CENTER or doctor/physician
P405	Store locked up
P403+P233	Store in a well ventilated place. Keep container tightly closed
P501	Dispose of contents/container in accordance with Section 13

Signal Word: Danger



Acute Health Effects:

Eyes: Severe irritation, tearing, swelling, and possible damage to cornea.

Skin: Irritation, redness, swelling, skin sensitization, rash, scaling, and blistering.

Inhalation: Mucous membrane and respiratory tract irritation, tightness of chest, isocyanate sensitization.

Ingestion: Irritating and corrosive to mouth, stomach, and digestive tract.

Conditions Aggravated by Exposure: Asthma, respiratory disorders, skin

Chronic Health Effects: Isocyanates may cause skin and respiratory sensitivity in some individuals. Sensitized individuals may react to very low levels diisocyanates below the PEL. Sensitized people who continue to work with diisocyanates may develop symptoms sooner after each exposure. Limited evidence of possible carcinogenic effects.

3. Composition/Data on Components:

Chemical Name	CAS number	Weight Concentration %
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	50.00-60.00%
4,4'-Methylenediphenyl diisocyanate	101-68-8	30.00-40.00%
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	5.00-10.00%

4. First Aid Measures:

After Inhalation: May cause severe irritation to upper respiratory tract and lungs, respiratory sensitization, decreased lung capacity.

Remove from exposure area to fresh air. Administer oxygen or artificial respiration as needed. Obtain medical attention.

After Eye Contact: Rinse opened eye for at least 15 minutes under running water.

Remove contact lenses if present and easy to do so, and continue rinsing. If irritation persists contact physician

After Skin Contact: Remove contaminated clothing. Clean affected area with soap and plenty of water. Call a physician if irritation or rash develops.

After Swallowing: Do not induce vomiting. If conscious, give 1 to 2 cups of milk or water to drink. Consult a physician at once.

Notes to Physician: Treat symptomatically. Following severe exposure the patient should be kept under medical observation for a least 48 hours.

5. Fire Fighting Measures:

Flash Point: 230 C (446 F)

LEL:

UEL:

Upper and Lower Explosive Limits listed if known.

Suitable Extinguishing Agents: Water spray, CO2, Foam, Dry chemical

Information about Protection against Explosions and Fires: Closed containers may rupture when exposed to extreme heat.

Dangerous Products of Decomposition: Oxides of carbon, oxides of nitrogen, and traces of HCN.

Protective Equipment: Full emergency equipment with self contained breathing apparatus and full protective clothing should be worn by firefighters.

6. Accidental Release Measures:

Person-Related Safety Precautions: Use appropriate personal protective equipment during clean up. Evacuate and keep unnecessary people out of spill area. Avoid contact with skin and eyes. Do not breathe aerosols or vapors.

Measures for Environmental Protection: Cover and contain spill with absorbent material. Place waste in open container. Remove to well ventilated area and dilute with ammonia solution (water 90%, concentrated ammonia 8%, detergent 2%). Collect for proper disposal according to local, state, and federal regulations.

Large Spills: Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management. Call CHEMTREC at 1-800-424-9300 for assistance and advice.

7. Handling and Storage:

Information for Safe Handling: Do not breathe fumes, vapors or mists. Use only with adequate ventilation. Avoid contact with skin or eyes. Immediately report spills or leaks.

Storage Requirements: Store in dry, well ventilated area. Keep containers tightly closed. Store

between 60°F-100°F.

Regulatory Requirements: Store according to all local, state, and federal regulations.

8. Exposure Controls and Personal Protection:

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Isocyanic acid, polymethylenepolyphenylene ester 9016-87-9	Not Established	Not Established	Not Established
4,4'-Methylenediphenyl diisocyanate 101-68-8	0.005 ppm TWA 0.02 ppm STEL	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	NIOSH: 0.005 ppm TWA (listed under Methylene bisphenyl isocyanate); 0.05 mg/m ³ TWA 0.020 ppm Ceiling (10 min); 0.2 mg/m ³ Ceiling (10 min)
Benzene, 1-isocyanato-2-[[4-isocyanatophenyl)methyl]- 5873-54-1	Not Established	Not Established	Not Established

Engineering Controls: Use local exhaust ventilation to maintain airborne concentrations below the TLV, especially if heating or spraying. Use only in a well ventilated area to keep vapors below exposure limits. Use local exhaust ventilation if necessary.

General Protective and Hygienic Measures: Usual precautionary measures should be adhered to when handling chemicals.

Personal Protective Equipment:

Respiratory Protection: Do not inhale vapors. Use NIOSH approved respiratory protection if TLV/PEL is exceeded. Do not enter storage area unless adequately ventilated.

Hand Protection: Protective butyl rubber or nitrile rubber gloves.

Eye Protection: Chemical safety goggles.

Body Protection: Impervious protective work clothing. Launder separately.

9. Physical and Chemical Properties:

Physical properties listed where known.

Appearance: Amber liquid Vapor Pressure: N/A Vapor Density: N/A Density: 1.23 Freezing point: N/A Boiling range: N/A Evaporation rate: N/A Explosive Limits: N/A Autoignition temperature: 240°C	Odor: Mild Odor threshold: N/A pH: N/A Melting point: N/A Solubility: N/A Flash point: 446°F, 230°C Flammability: N/A Partition coefficient (n-octanol/water): N/A Decomposition temperature: N/A
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10. Stability and Reactivity:

Chemical Incompatible Materials: Avoid contact with water, amines, strong bases, and alcohols

Hazardous Polymerization: Not expected to occur under normal conditions.

Dangerous Products of Decomposition: Oxides of carbon, oxides of nitrogen, hydrocarbons, isocyanates, and traces of HCN.

11. Toxicological Information:

Mixture Toxicity

Inhalation Toxicity LC50: 1mg/L

Component Toxicity

9016-87-9	Isocyanic acid, polymethylenepolyphenylene ester Dermal LD50: 490 mg/L (Rat) Inhalation LC50: 490 mg/m3 (Rat)
101-68-8	4,4'-Methylenediphenyl diisocyanate Dermal LD50: 1 mg/L (Rat) Inhalation LC50: 369 mg/m3 (Rat)

Individual Toxicity Values Listed if Known

Acute Toxicity:

Eyes: Irritating to eyes

Skin: Harmful in contact with skin

Inhalation: Not expected to be a route of exposure

Ingestion: Harmful if swallowed. Consult physician

Chronic Effects: Possible harmful target organ effects

Routes of Entry: Ingestion, skin contact, eye contact.

Target Organs: Respiratory tract, eyes, skin.

Chemicals with Known or Possible Carcinogenic Effects:

CAS Number	Description	% Weight	Carcinogen Rating
101-68-8	4,4'-Methylenediphenyl diisocyanate	30.00-40.00%	4,4'-Methylenediphenyl diisocyanate:
5873-54-1	Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5.00-10.00%	Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-:

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 component ecotoxicity listed if known.

Component Ecotoxicity

4,4'-Methylenediphenyl diisocyanate	24 Hr LC50 Brachydanio rerio: >500 mg/L
	24 Hr EC50 Daphnia magna: >500 mg/L

13. Disposal Considerations:

Recommendation: Observe local requirements. Dispose of in accordance with local/state/federal regulations.

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).

14. Transport Information:

DOT Regulated Components:

4,4' Methylene Diphenyl Diisocyanate

Reportable Quantity: 5000 lbs

When in individual containers of less than the substance RQ, this material ships as non-regulated. Containers above RQ ship as:

<u>Agency</u>	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Packing Group</u>	<u>Hazard Class</u>
DOT	Environmentally Hazardous Substance, N.O.S. (Contains Diphenylmethane Diisocyanate)	3082	III	9

15. Regulatory Information:

OSHA HAZARD COMMUNICATION STANDARD: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

SARA 311/312 Hazard Categories: Acute health hazard, chronic health hazard

California Proposition 65

(Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute unless otherwise listed:

Warning: This product contains chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm:

- None

Massachusetts Right To Know List:

4,4'-Methylenediphenyl diisocyanate 101-68-8 30.00-40.00 %

New Jersey Right To Know List:

Isocyanic acid, polymethylenepolyphenylene ester 9016-87-9 50.00-60.00 %

Pennsylvania Right To Know List:

4,4'-Methylenediphenyl diisocyanate 101-68-8 30.00-40.00 %

SARA 302 Extremely Hazardous Substances:

- None

Chemicals subject to SARA 313 Reporting:

4,4'-Methylenediphenyl diisocyanate 101-68-8 30.00-40.00 %

Isocyanic acid, polymethylenepolyphenylene ester 9016-87-9 50.00-60.00% %

This product contains the following REACH listed Substances of Very High Concern (SVHC):

- None

Country

Canada

US

Regulation

Canada DSL

Toxic Substances Control Act

All Components Listed

Yes

Yes

- None

16. Other Information:

Safety Data Sheet issued by Product Safety Department

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated.

However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Date revised: 08/04/2017

Reviewer Revision 0

Date Prepared: 08/04/2017