


Safety Data Sheet
According to Regulation (EC) No 1907/2006 (REACH)

Trade Name: FF360

Version:1

Revision Date: 12/28/20

Section 1: Identification of the substance/mixture and of the company/undertaking	
1.1	Product Identifier Fire Protection Foam FF 360
1.2	Relevant identified uses of the substance or mixture and uses advised against Di-/poly-isocyanate component to produce polyurethanes. For industrial purposes only.
1.3	Details of the supplier of the safety data sheet TENMAT Limited Ashburton Road West Trafford Park Manchester M17 1TD United Kingdom Tel: +44 (0)161 872 2181 Fax: +44 (0)161 872 7596 Email: sales@tenmat.com
1.4	Emergency telephone number +1 800 821 3436 +1 302 633 6600 (9 am to 5 pm EST)
Section 2: Hazards identification	
2.1	Classification of the substance or mixture Classification according to Regulation (EC) No 1272/2008 [CLP]: Skin Irritation 2 Causes skin irritation Eye Irritation 2A Causes serious eye irritation. Sensitisation - respiratory 1 May cause allergy or asthma symptoms or breathing difficulties if inhaled. Sensitisation - skin 1 May cause an allergic skin reaction. Carcinogenicity 2 Suspected of causing cancer. Specific Target Organ Toxicity (Single Exposure) 3 May cause respiratory irritation Specific Target Organ Toxicity (Repeated Exposure) 2 May cause damage to organs through prolonged or repeated exposure.
2.2	Label elements Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS] 



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2.3	<p>Other hazards Persons with over-sensitive breath ways (e.g. asthma, chronic bronchitis) are not allowed to use the product due to safety regulations. Vapours and aerosols are the main dangers to the respiratory tract. Respiratory symptoms may still occur several hours after overexposure. Special danger of slipping by leaking/spilling product.</p>			
Section 3: Composition/information on ingredients				
3.1	Composition of product			
	CAS No.	Designation	Concentration	Classification
	CAS 9016-87-9	9016-87-9 Diphenylmethane diisocyanate (isomers, homologues)	10 – 30 %	Acute Toxicity (inhalative). Skin Irritation 2. Eye Irritation 2A. Sensitisation - respiratory 1. Sensitisation - skin 1. Carcinogenicity 2. Specific Target Organ Toxicity (Single Exposure) 3. Specific Target Organ Toxicity (Repeated Exposure) 2
Section 4: First Aid Measures				
4.1	Description of First Aid Measures			
	<p>General Information Immediately remove any wetted clothing, shoes or stockings</p> <p>Following Inhalation Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Do not allow victim to become chilled. Keep victim warm. Keep victim calm and seek medical attention immediately. If victim is at risk of losing consciousness, position and transport on their side.</p> <p>Following Skin Contact Immediately clean with water and soap and, if available, apply a generous amount of polyethylene glycol 400. In case of skin reactions, consult a physician</p> <p>Following Eye Contact Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Afterwards, consult an ophthalmologist immediately.</p> <p>Following Ingestion Rinse mouth. Do not induce vomiting. Immediately get medical attention.</p>			



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4.2	Most Important Symptoms and Effects, both Acute and Delayed Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause damage to organs through prolonged or repeated exposure. May cause respiratory irritation.
4.3	Indication of any Immediate Medical Attention and Special Treatment Needed Product causes irritation of respiratory tracts and may possibly increase sensitivity of skin and respiratory tracts. Treatment of the acute irritation or bronchial narrowing is mainly symptomatic. Depending on the scale of exposition, as well as aches and pains resulting, long-term medical care may be required.
Section 5: Fire-fighting measures	
5.1	Extinguishing media: Suitable extinguishing media: Foam, extinguishing powder, carbon dioxide In case of large fires: also water spray jet. Unsuitable extinguishing media: Strong water jet.
5.2	Special hazards arising from the substance or mixture: Hazardous combustion products: In case of fire may be liberated: Isocyanate vapours, traces of hydrogen cyanide, nitrous fumes, carbon monoxide.
5.3	Advice for fire-fighters: Wear self-contained breathing apparatus and protective clothing to protect skin and eyes. Additional information: Heating causes rise in pressure with risk of bursting. Cool endangered containers with water spray and, if possible, remove from danger zone. Remove persons not involved upwind. Do not allow water used to extinguish fire to enter drains, ground or waterways.



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Section 6: Accidental release measures

6.1	Personal precautions, protective equipment and emergency procedures For non-emergency personnel: Avoid exposure. Keep unprotected people away. Wear appropriate protective equipment. Provide adequate ventilation. Avoid contact with the substance. Use a breathing protection against vapours/aerosol.
6.2	Environmental precautions Do not allow to penetrate into soil, waterbodies or drains.
6.3	Methods and materials for containment and cleaning up For cleaning up: Take up mechanically, placing in appropriate containers for disposal. Final cleaning. Additional information: Special danger of slipping by leaking/spilling product.
6.4	Reference to other sections See Section 7 for Handling and Storage and Section 8 for Protective Equipment.



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Section 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:

Avoid exposure - obtain special instructions before use. Provide adequate ventilation, and local exhaust as needed. Airflow should move away from persons. The effectiveness of the facilities must be checked at regular intervals. Avoid contact with skin and eyes. Wear appropriate protective equipment. Do not breathe dusts or mists. Work place should be equipped with a shower and an eye rinsing apparatus.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Maintain dry conditions and avoid direct sunlight and extreme temperatures.

Packaging materials:

Requirements for storage rooms and vessels:

Keep containers tightly closed and at a temperature between 5 °C (41 °F) and 30 °C (86 °F). Keep in a cool, well-ventilated place. Keep container dry. Protect from humidity and water.

Do not allow the product to enter the ground.

Hints on joint storage:

Keep away from food and drinks.

Further information on storage conditions:

Use caution when opening containers under pressure.

Section 8: Exposure controls/personal protection

8.1 Control Parameters

Provide good ventilation and/or an exhaust system in the work area. See also information in chapter 7, section storage.



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8.2	<p>Exposure Controls</p> <p>Respiratory protection: Respiratory protection must be worn according to AS/NZS 1715 and AS/NZS 1716 whenever the WEL levels have been exceeded. Use combination filter type A2-P2 according to EN 14387.</p> <p>Hand protection: Protective gloves according to AS/NZS 2161. Glove material: Nitrile rubber - NBR, ≥ 0.35 mm Butyl caoutchouc (butyl rubber) - IIR, ≥ 0.5 mm Fluororubber (Viton) - FKM, ≥ 0.4 mm polyvinyl chloride - PVC, ≥ 0.5 mm Observe glove manufacturer's instructions concerning penetrability and breakthrough time.</p> <p>Eye protection: Tightly sealed eye protectors according to AS/NZS 1337.</p> <p>Body protection: Wear suitable protective clothing.</p> <p>General protection and hygiene measures: Avoid exposure - obtain special instructions before use. Avoid contact with the substance. Do not breathe dusts or mists. Work place should be equipped with a shower and an eye rinsing apparatus. Wash hands before breaks and after work. Take off immediately all contaminated clothing. Keep away from food, drink and animal feedingstuffs</p>
Section 9:	Physical and chemical properties



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9.1	Table of properties	
	Physical state at 20 °C (68 °F) and 101.3 kPa	Liquid
	Appearance	
	Colour	Red
	Odour	Characteristic
	Odour threshold	No data available
	pH	N/A
	Melting/Freezing Point	Not determined
	Boiling point	Not determined
	Flash point	Not determined
	Evaporation rate	Not determined
	Flammability (solid, gas)	Not determined
	Upper/lower flammability or explosive limits	N/A
	Upper explosive limit	N/A
	Lower explosive limit	N/A
	Vapour pressure at 25°C(77°F)	<= 0.00001 kPa
	Vapour density	No data available
	Relative density	approx. 1.3 g/mL
	Solubility	Not soluble in water
	Partition coefficient n-octanol/water	Not determined
	Auto-ignition temperature	N/A
Decomposition temperature	No data available	
Dynamic viscosity	N/A	
Kinematic viscosity	N/A	
Explosive properties	N/A	
Oxidising properties	None	
Section 10: Stability and reactivity		
10.1	Reactivity Reactions with alcohols, amines, liquid acids and bases. Contact with Water liberates carbon dioxide.	
10.2	Chemical Stability Stable under recommended storage conditions.	
10.3	Possibility of Hazardous Reaction No hazardous reaction when handled and stored according to provisions.	
10.4	Conditions to Avoid No data available	



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10.5	Incompatible Materials Amines, alcohols, water.
10.6	Hazardous Decomposition Products No data available.
Section 11: Toxicological Information	
11.1	<p>Information on Toxicological Effects</p> <p>Toxicological effects: Acute toxicity (oral): Based on available data, the classification criteria are not met. Acute toxicity (dermal): Based on available data, the classification criteria are not met. Acute toxicity (inhalative): Based on available data, the classification criteria are not met. Skin corrosion/irritation: Skin Irritation 2 = Causes skin irritation. Serious eye damage/irritation: Eye Irritation 2A = Causes serious eye irritation. Sensitisation to the respiratory tract: Sensitisation - respiratory 1 = May cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitisation: Sensitisation - skin 1 = May cause an allergic skin reaction. Germ cell mutagenicity/Genotoxicity: Lack of data. Carcinogenicity: Carcinogenicity 2 = Suspected of causing cancer. Reproductive toxicity: Lack of data. Effects on or via lactation: Lack of data. Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) 3 = May cause respiratory irritation. Specific target organ toxicity (repeated exposure): Specific Target Organ Toxicity (Repeated Exposure) 2 = May cause damage to organs through prolonged or repeated exposure. Aspiration hazard: Lack of data.</p> <p>Other information: Persons with over-sensitive breath ways (e.g. asthma, chronic bronchitis) are not allowed to use the product due to safety regulations.</p> <p>Information about Diphenylmethane diisocyanate (isomers, homologues): A long-term studie with rats over two years with mechanically produced, inhalable aerosols (aerodyn. diametre of 95% under 5 µm) of polymer MDI (PMDI) and concentrations of 0.2, 1.0 and 6.0 mg PMDI/m³ showed the following results: The group of animals exposed to the highest concentration suffered an increased incidence of lung tumors, persistent inflammatory changes to the nose, respiratory tract and lungs, and yellowish deposits in the respiratory tract and lungs. The animals in the 1.0 mg/m³ group exhibited slight irritation and inflammatory changes to the nose, respiratory tract and lungs, but did not develop lung tumors and/or deposits. Animals in the 0.2 mg/m³ group suffered no irritation: this concentration was therefore deemed to constitute the 'no-effect level'.</p> <p>Symptoms</p> <p>In case of inhalation: Irritation of nose, throat, lung. Headache, throat dryness, respiratory complaints, chest pressure. May cause sensitization by inhalation. Susceptible persons may develop ailments and allergic reactions with some delay. In case of ingestion: May be harmful if swallowed. After contact with skin: In case of a prolonged contact tanning and irritating effects may occur. After eye contact: Produces for a short time a weak reddening and tumefaction of the conjunctiva as well as a weak, reversible rendering turbid of the cornea.</p>



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Section 12: Ecological Information	
12.1	Toxicity Aquatic toxicity: Information about Diphenylmethane diisocyanate (isomers, homologues): Bacterial toxicity: EC50 > 100 mg/L /3h Daphnia toxicity: EC50 Daphnia magna: > 1000 mg/L /24h Fish toxicity: LC0 Brachydanio rerio (zebra-fish): > 1000 mg/L /96 h.
12.2	Persistence and Degradability Forms carbon dioxide and turns into a hard and insoluble by-product (poly urea) on the water's edge. This reaction is intensified by surface-active substances (e.g. liquid soaps) or water soluble solvents. Based upon current knowledge, poly urea is inert and will not decompose.
12.3	Bio accumulative Potential Not established.
12.4	Mobility in Soil No information available.
12.5	Results of PBT and vPvB Assessment No information available.
12.6	Other Adverse Effects Do not allow to penetrate into soil, waterbodies or drains.
Section 13: Waste Treatment Methods	
13.1	Product/Packaging Disposal Waste Treatment Options Recommendations Non-reacted state: ASN 080501*: Waste isocyanates, Evidence for disposal must be provided. Reacted state: ASN 080410: waste adhesives and sealants other than those mentioned in 08 04 09. Dispose of waste according to applicable legislation. Contaminated packaging: Dispose of waste according to applicable legislation. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.
Section 14: Transport Information	
14.1	UN Number N/A
14.2	UN Proper Shipping Name Not restricted.
14.3	Transport Hazard Class(es) N/A Hazard Labels N/A



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14.4	Packing Group N/A
14.5	Environmental Hazards N/A
14.6	Special Precautions for User N/A
14.7	Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code N/A
Section 15: Regulatory Information	

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15.1	<p>Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture</p> <p>National regulations U.S. federal regulations: Diphenylmethane diisocyanate (isomers, homologues): TSCA Inventory: listed; EPA flags XU TSCA HPVC: not listed CFR § 172.101, Apendix A, DOT (Department of Transportation): - MDI Reportable Quantity (RQ): 5000 lbs (= 2270 kg) Carcinogen Status: IARC Rating: Group 3 OSHA Carcinogen: not listed NTP Rating: not listed Other Environmental Laws: SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard.</p> <p>U.S. state regulations: Diphenylmethane diisocyanate (isomers, homologues): California Proposition 65 code: - Delaware Air Quality Management List: DRQ: 100 - RQ State: State requirement differs from Federal</p> <p>Hazard rating systems: NFPA Hazard Rating: Health: 2 (Moderate) Fire : 1 (Slight) Reactivity: 2 (Moderate)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>HMIS Version III Rating: Health: 2 (Moderate)– Chronic effects Flammability: 1 (Slight) Physical Hazard: 2 (Moderate) Personal Protection: X = Consult your supervisor</p> </div> </div> <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <tr><td style="background-color: #0000FF; color: white;">HEALTH</td><td style="background-color: #FFFFFF; color: #0000FF;">*</td><td style="background-color: #0000FF; color: white;">2</td></tr> <tr><td style="background-color: #FF0000; color: white;">FLAMMABILITY</td><td style="background-color: #FFFFFF; color: #FF0000;"></td><td style="background-color: #FF0000; color: white;">1</td></tr> <tr><td style="background-color: #FFA500; color: white;">PHYSICAL HAZARD</td><td style="background-color: #FFFFFF; color: #FFA500;"></td><td style="background-color: #FFA500; color: white;">2</td></tr> <tr><td style="background-color: #FFFFFF; color: #000000;"></td><td style="background-color: #FFFFFF; color: #000000;"></td><td style="background-color: #FFFFFF; color: #000000;">X</td></tr> </table> <p>National regulations EC member states Labelling of packaging with <= 125mL content</p> <p>Signal word: Danger</p> <p>Hazard statements: H317 May cause an allergic skin reaction. 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.</p>	HEALTH	*	2	FLAMMABILITY		1	PHYSICAL HAZARD		2			X
HEALTH	*	2											
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	<p>Precautionary statements:</p> <table> <tr> <td>P201</td> <td>Obtain special instructions before use.</td> </tr> <tr> <td>P260</td> <td>Do not breathe dusts or mists.</td> </tr> <tr> <td>P280</td> <td>Wear protective gloves/protective clothing/eye protection/face protection.</td> </tr> <tr> <td>P284</td> <td>[In case of inadequate ventilation] wear respiratory protection.</td> </tr> <tr> <td>P302+P352</td> <td>IF ON SKIN: Wash with plenty of water/soap.</td> </tr> <tr> <td>P304+P340</td> <td>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td> </tr> <tr> <td>P308+P313</td> <td>IF exposed or concerned: Get medical advice/attention.</td> </tr> <tr> <td>P501</td> <td>Dispose of contents/container to hazardous or special waste collection point.</td> </tr> </table>	P201	Obtain special instructions before use.	P260	Do not breathe dusts or mists.	P280	Wear protective gloves/protective clothing/eye protection/face protection.	P284	[In case of inadequate ventilation] wear respiratory protection.	P302+P352	IF ON SKIN: Wash with plenty of water/soap.	P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.	P308+P313	IF exposed or concerned: Get medical advice/attention.	P501	Dispose of contents/container to hazardous or special waste collection point.
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15.2	<p>Chemical Safety Assessment Not carried out.</p>																
Section 16: Other Information																	
16.1	<p>Indication of Changes All sections updated 12/28/20</p>																
16.2	<p>Abbreviations and Acronyms None used.</p>																
16.3	<p>Key Literature References and Sources of Data</p>																
16.4	<p>Classification for Mixtures and Used Evaluation Method According to Regulation (EC) 1207/2008 [CLP] See Section 2.</p>																
16.5	<p>Relevant R-, H- and EUH Phrases (Number and Text) N/A</p>																
16.6	<p>Training Advice</p>																
16.7	<p>Further Information For further information visit www.tenmat.com</p>																