

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/
UNDERTAKING****PRODUCT NAME: LimbFoam Hardener (LFH/4.6 , LFH/2.3)**

Address/Phone No.

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TEL: 0116 2785440**2. HAZARDS IDENTIFICATION**

Harmful by inhalation: This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons. Irritating to eyes and skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Product description:

Diisocyanato diphenylmethane (P-MDI) based composition.

HAZARDOUS INGREDIENT(S)	CAS No.	Symbol	R phrases
Diphenylmethane - 4, 4'-Diisocyanate, blend of Isomers & Homologues.	009016-87-9	Xn	R20,36/37/38,42/43

4. FIRST-AID MEASURES

General advice: Remove from exposure and immediately remove contaminated clothing.

Inhalation: Remove patient from exposure, keep warm and at rest. Obtain medical attention. Treatment is symptomatic for primary irritation or bronchospasm.

Skin Contact: Wash immediately with water followed by soap and water. If symptoms persist, obtain medical attention.

Eye Contact: Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain medical attention.

Ingestion: Provided the patient is conscious, wash out mouth with water and give plenty of water to drink. Do not induce vomiting. Obtain immediate medical attention.

Further Medical Treatment:

Symptomatic treatment and supportive therapy as indicated, symptoms may appear some time after exposure. If necessary administer corticosteroid dose aerosol to prevent pulmonary edema.

5. FIRE FIGHTING MEASURES

Not classed as flammable.

If involved in a fire, it may emit noxious and toxic fumes. Due to reaction with water producing CO₂ gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed.

Combustion products:	Carbon monoxide, carbon dioxide, nitrogen oxides, MDI, HCN.
Extinguishing Media:	Foam, CO ₂ or dry powder. Water spray may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous.
Fire Fighting Protective Equipment:	Suitable respiratory protection with full face piece and positive air supply. PVC Boots, gloves, and protective clothing should be worn.

Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing media in accordance with regulations.

6. ACCIDENTAL RELEASE MEASURES

Clean-up should only be performed by trained personnel. People dealing with major spillages should wear full protective clothing including respiratory protection. Evacuate the area. Prevent further leakage, spillage or entry into drains. In case of large quantities pump product into suitable containers. Contain and absorb spillages onto an inert, non flammable absorbent carrier. Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spillage area clean with liquid decontaminant. Test atmosphere for MDI vapour. Neutralise small spillages with decontaminant. Remove and dispose of residues in accordance with regulations.

7. HANDLING AND STORAGE

7.1 HANDLING

Provide adequate ventilation, including local extraction, to ensure that the defined occupational exposure limit is not exceeded. The efficiency of the ventilation must be monitored regularly because of the possibility of blockage. Avoid aerosol formation.
Keep stocks of decontaminant readily available.

7.2 STORAGE

Keep containers properly sealed and store indoors in a well ventilated area. Keep away from moisture. Due to reaction with water producing CO₂ gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Store away from acids, bases and oxidising agents.

Storage Temperature: 15 - 25°C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Wear suitable protective clothing, gloves and eye/face protection. No eating, drinking or smoking in or close to the work area. Remove contaminated workwear immediately.

Respirators: Suitable respiratory equipment with positive air supply should be used in cases of insufficient ventilation or where operational procedures demand it.

Eye protection: Chemical goggles. Full face shield in addition if splashing is possible.

Gloves: Neoprene or butyl rubber is recommended.

Other: Overalls (Preferably heavy cotton)

Occupational Exposure Limits

For Diphenylmethane diisocyanate refer to current edition of HSE guidance note EH40 on occupational exposure under isocyanate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form :	Liquid
Colour :	Brown
Odour :	Earthy, musty.
Melting Point :	<10°C.
Boiling Point (°C) :	330°C (1013mbar).
Flash Point (°C) :	200 - 250
Ignition Temperature :	>600°C.
Vapour Pressure :	< 0.01 Pa (at 25 °C)
Density :	1.23 g/cm ³ (at 25 °C)
Viscosity, dynamic :	170-250 mPa.s.
Solubility (Other) :	most organic solvents: soluble.

10. STABILITY AND REACTIVITY

Incompatible materials and conditions: Reaction with water (moisture) produces CO₂ gas. Exothermic reaction with materials containing active hydrogen groups, including acids, alkalis, alcohols, amines and water.

Hazardous Reactions: Stable at room temperature.

Hazardous Decomposition Product(s): Highly unlikely under normal industrial use.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Assessment of acute toxicity:

Virtually non-toxic after a single ingestion. Virtually non-toxic after a single skin contact. Harmful by inhalation.

LD50 rat (oral): 10,000 mg/kg.

LD50 rabbit (dermal) 10,000 mg/kg.

Irritation:

Irritating to eyes, respiratory system and skin.

Sensitisation:

May cause sensitisation by inhalation and skin contact.

General toxicity:

The substance was mutagenic in various test systems with microorganisms and cell cultures, however these results could not be confirmed in tests with mammals.

Carcinogenicity:

Limited evidence of a carcinogenic effect. The substance was tested in form of respirable aerosols.

Reproductive toxicity:

Repeated inhalative uptake of the substance did not cause damage to reproductive organs.

Developmental toxicity, teratogenicity:

Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Experiences in humans:

Coughing dyspnea, tightness in the chest, temporary influenzal symptoms; can severely irritate the eyes and respiratory tract depending on concentration.

12. ECOLOGICAL INFORMATION

Aquatic toxicity:

High probability that the product is not acutely harmful to aquatic organisms. No toxic effects occur within the range of solubility.

Toxicity to fish: LC0 (96h) >1,000mg/l, Fish (other)

Aquatic invertebrates: EC0 >500mg/l, Daphnia (other)

Aquatic plants: EC0 (72h) 1,640mg/l *Scenedemus subspicatus*
(OECD Guideline 201)

Persistence and degradability:

Assessment biodegradation and elimination (water): poorly biodegradable.

< 10% BOD of the ThOD (28d) (OECD Guideline 201)(aerobic, activated sludge), under test conditions no biodegradation observed.

Bioaccumulation potential:

Accumulation in organisms is not expected.

Additional information:

Do not release into natural waters, do not allow to enter soil, waterways or waste water channels.

13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimised wherever possible.

The UK Environmental Protection (Duty of Care) Regulations (EP) and its amendments should be noted. Small quantities and empty drums - pretreat with decontaminant or waste polyol to neutralise prior to disposal.

Large quantities: destruction by controlled pyrolysis with scrubbing and neutralisation of the vapours, using incinerators specifically designed for the destruction of noxious chemical waste.

Waste key: 07 02 08 other still bottoms and reaction residues

14. TRANSPORT INFORMATION

The UN Committee of Experts on the Transport of Dangerous Goods deleted UN 2489 Diphenylmethane-4,4' diisocyanate from Class 6.1., at the 18th session 28th November - 7th December 1994. It will take time for the various national and international authorities to implement this change in their regulations. The product is therefore not classified as hazardous for transport purposes for land, inland waterway, sea or air transport.

15. REGULATORY INFORMATION

EEC Classification: HARMFUL

Hazard Symbol: Xn

Contains isocyanates.

Risk Phrases: R20: Harmful by in

R36/37/38: Irritating to eyes, respiratory system and skin.

R42/43: May cause sensitisation by inhalation or skin contact

Safety Phrases: S23.3: Do not breathe vapour/spray.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27: Take off immediately any contaminated clothing.

S28.1: After contact with skin wash immediately with water, then soap and water.

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Use of this product above a certain annual quantity may require registration with the relevant local authority, agency or inspectorate as laid down in the (Environmental Protection) Pollution Prevention Control Regulations (United Kingdom)

16. OTHER INFORMATION

Must only be mixed with the relevant LFOAM Component A. Must be kept in original containers and not decanted. Given thorough and adequate mixing the fully reacted product derived from the proper use of LFOAM Components A and B is not considered hazardous. However the reaction develops exothermic heat and the liquid chemical mixture should be handled accordingly. The information contained herein is based on the present state of our knowledge and does not therefore guarantee certain properties. Recipients of our product must take responsibility for observing existing laws and regulations.

APPENDIX - I.S.O.P.A. RECOMMENDATIONS FOR DECONTAMINANT

APPENDIX 1
Recommended Formulations For
Decontamination Solutions

1. Formulation	Weight or Volume
	%
Water	90-95
Concentrated ammonia* solution	3-8
Liquid detergent	0.2-2

2. Formulation	Weight or Volume
	%
Water	90-95
Sodium carbonate	5-10
Liquid detergent	0.2-2

For routine operations, for example, decontamination of protective equipment, tools and parts of machines, the following formulation is more effective. The solution is flammable and should be handled accordingly.

2. Formulation	Weight or Volume
	%
An alcohol (ethanol, isopropanol or butanol)	50
Water	45
Concentrated ammonia* solution	5

* Care should be taken with ammonia since it is a hazardous material