MATERIAL SAFETY DATA SHEET

DOLPHIN FIRE RETARDANT (B2) PU FOAM

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Details

Product Name : **Dolphin Fire Retardant (B2) PU Foam**
Recommended Use : **Gap Filling Expandable Foam**

Company Details

Company Name : **Al Muqarram Industry L.L.C.**
Address : **Etihad Street, Modern Industrial Area, Umm al Thaoob**
Post Box No. 24756, Umm Al Quwain, United Arab Emirates
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Website : **www.muqarram.com**

Emergency Telephone Number: 00971-549981925

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:
Classification according to Regulation EC No 1272/2008
Classification according to Regulation EC No 1272/2008 classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
FLAM AEROSOL	1	H222: Extremely flammable aerosol
CARC	2	H351: Suspected of causing cancer
LACT	-	H362: May cause harm to breast-fed children
ACUTE TOX	4	H332: Harmful if inhaled.
STOT RE	2	H373: May cause damage to organs through prolonged or repeated exposure if inhaled
EYE IRRIT	2	H319: Causes serious eye irritation
STOT SE	3	H335: May cause respiratory irritation
SKIN IRRIT	2	H315: Causes skin irritation.
RESP SENS	1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
SKIN SENS	1	H317: May cause an allergic skin reaction

Classification according to Directive 67/548/EEC-1999/45/EC
Classified as dangerous in accordance with the criteria of Directives 67/548/EEC and 1999/45/EC

F+; R12 : Extremely flammable.
Carc. Cat. 3; R40 : Limited evidence of a carcinogenic effect
Xn; R20 - 48/20 : Harmful by inhalation.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Xi; R36/37/38 : Irritating to eyes, respiratory system and skin.
R42/43 : May cause sensitization by inhalation and skin contact.
R64 : May cause harm to breastfed babies.

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Label Elements:
Labelling according to Regulation EC No 1272/2008 (CLP)

Hazard Pictograms:

Contains: Polymethylene polyphenyl isocyanate; alkanes, C14-17, chloro Singed word | Danger

Signal Word	Danger

H-Statements

H222	Extremely flammable aerosol
H351	Suspected of causing cancer
H332	Harmful if inhaled
H373	May cause damage to organs through prolonged or repeated exposure
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H315	Causes skin irritation
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317	May cause an allergic skin reaction

P-Statements

P101	If medical advice is needed, have product container or label at hand
P102	Keep out of reach of children
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P251	Pressurized container: Do not pierce or burn, even after use
P280	Wear protective gloves and eye protection/face protection
P260	Do not breathe dust/fume/gas/mist/vapors/spray
P309 + P311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician
P410 + P412	Protect from sunlight do no expose to temperatures exceeding 50 °C/ 122°F
P501	Dispose of contents/container to manufacturer/competent authority

Supplemental information

- Persons already sensitized to diisocyanatos may develop allergic reactions when using this product
- Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product
- This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e., type A1 according to standard EN 14387) is used

Labelling according to Directive 67/548/EEC-1999/45/EC (DSD/DPD)
Labels

Extremely Flammable

Harmful

Contains: polyethylene polyphenyl isocyanate, 4,4'-methylenediphenyl diisocyanate.

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R-phrases

20	Harmful by inhalation
36/37/38	Irritating to eyes, respiratory system and skin 40 Limited evidence of a carcinogenic effect
42/43	May cause sensitization by inhalation and skin contact
48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
64	May cause harm to breastfed babies

S-phrases

23	Do not breathe spray
36/37	Wear suitable protective clothing and gloves
45	In case of accident or if you feel unwell, seek medical advice immediately (show the label)
51	Use only in well-ventilated areas
(63)	(In case of accident by inhalation: remove casualty to fresh air and keep at rest)

Additional Recommendations

- Keep away from sources of ignition - No smoking
- Keep out of the reach of children
- Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C
- Do not pierce or burn, even after use
- Do not spray on a naked flame or any incandescent material
- Contains isocyanates. See information supplied by the manufacturer
- Persons already sensitized to diisocyanatos may develop allergic reactions when using this product
- Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product
- This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used

Other Hazards:

DSD/DPD

- Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006 May be ignited by sparks Gas/vapor spreads at floor level: ignition hazard Aerosol may explode under the effect of heat

CLP

- Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006
- May be ignited by sparks
- Gas/vapour spreads at floor level: ignition hazard
- Aerosol may explode under the effect of heat

3. COMPOSITION/INFORMATION ON INGREDIENT

Name	EC No	CAS-No	Content %	Classification according to CLP
Methylene diphenyl diisocyanate	247-714-0	26447-40-5	36-50%	Carc. Cat. 3; R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43
Dimethyl ether	204-065-8	115-10-6	8-15%	F+; R12
Propane (20%)	200-827-9	74-98-6	1-3%	F+; R12
Isobutane (80%)	200-857-2	75-28-5	4-12%	F+; R12
Mixed Polyol blend	611-024-1	53637-25-5	35-50%	NA
Fire Retardant polyol (TCPP)	237-158-7	13674-84-5	2-10%	NA

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3. FIRST AID MEASURES

Description of first aid measures

General : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital

After inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service

After skin contact : Wash immediately with lots of water. Take victim to a doctor if irritation persists

After eye contact : Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists

After ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service

Most important symptoms and effects, both acute and delayed

Acute Symptoms

After inhalation : Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Runny nose.
FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible inflammation of the respiratory tract. Risk of lung edema. Respiratory difficulties.

After skin contact : Tingling/irritation of the skin

After eye contact : Irritation of the eye tissue. Lacrimation

After ingestion : Not applicable

Delayed Symptoms

No effects known

Indication of any immediate medical attention and special treatment needed

If applicable and available it will be listed below.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media : Quantities of water, Polyvalent foam, BC powder, & Carbon dioxide.

Unsuitable Extinguishing Media : None.

Special Exposure Hazards : On burning, release of toxic and corrosive gases/vapors, hydrogen chloride, carbon monoxide and carbon dioxide.
May polymerize on exposure to temperature rise. On heating: release of toxic/combustible gases/vapors (hydrogen cyanide).

Advice for firefighters

Instructions : If exposed to fire cool the closed containers by spraying with water. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion. Dilute toxic gases with water spray.

Special protective equipment for firefighters : Heat/fire exposure; compressed air/oxygen apparatus. Gloves. Protective goggles. Head/neck protection. Protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Stop engines and no smoking. No naked flames or sparks. Spark- and explosion-proof appliances and lighting equipment.

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Protective equipment for non-emergency personnel	: See heading 8.2
Protective equipment for emergency responders	: Gloves. Protective goggles. Head/neck protection. Protective clothing.
Environmental precautions	: Dam up the solid spill. Use appropriate containment to avoid environmental contamination
Methods and material for containment and cleaning up	: Allow product to solidify and remove it by mechanical means. Take collected spill to manufacturer/competent authority. Clean (treat) contaminated surfaces with acetone. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.
Reference to other sections	: See heading 13

7. HANDLING AND STORAGE

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

Precautions for safe handling : Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately.

Conditions for safe storage, including any incompatibilities

Safe storage requirements	: Ventilation at floor level. Store in a cool area. Keep out of direct sunlight. Store in a dry area. Fireproof storeroom. Unauthorized persons are not admitted. Meet the legal requirements. 1 year(s). < 50 °C.
Keep away from	: (Strong) acids, (strong) bases, heat sources, ignition sources
Suitable Packaging Material	: Aerosol
Non suitable packaging material	: No data available

Specific end use(s)
If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters
Occupational exposure
a) Occupational exposure limit values
If limit values are applicable and available these will be listed below

Regulatory exposure limit (The Netherlands)

Dimethylether	Short time value	1500 mg/m³
	Short time value, calculated	783 ppm
	Time-weighted average exposure limit 8 h	950 mg/m³
	Time-weighted average exposure limit, calculated	496 ppm

Indicative exposure limit (The Netherlands)

Difenylmethaan-4,4'diisocyanaat	Short time value	0.21 mg/m³
	Short time value, calculated	0.02 ppm
	Time-weighted average exposure limit 8 h	0.05 mg/m³
	Time-weighted average exposure limit, calculated	0.0048 ppm

Indicative exposure limit EU

Dimethylether	Short time value	- ppm

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	Time-weighted average exposure limit 8 h	1000 ppm 1920 mg/m³

Limit Value (Belgium)

4,4'-Diisocyanate de di phénylméthane (MDI)	Short time value	- ppm - mg/m³
	Time-weighted average exposure limit 8 h	0.005 ppm 0.052 mg/m³
Oxide de dimethyl	Short time value	- ppm - mg/m³
	Time-weighted average exposure limit 8 h	1000 ppm 1920 mg/m³
Hydrocarbures aliphatiques sous Forme gazeuse : (Alcanes C1-C4)	Short time value	- ppm - mg/m³
	Time-weighted average exposure limit 8 h	1000 ppm - mg/m³
	Short time value	- ppm - mg/m³
	Time-weighted average exposure limit 8 h	1000 ppm - mg/m³

TLV (USA)

Methylene biphenyl isocyanate (MDI)	Short time value	
	Time-weighted average exposure limit 8 h	0.005 ppm
Aliphatic hydrocarbon gases - alkanes(C1-C4)	Short time value	-
	Time-weighted average exposure limit 8 h	1000 ppm

TRGS 900 (Germany)

Isobutan	Time-weighted average exposure limit 8 h	1000 ppm 2400 mg/m³
Dimethylether	Time-weighted average exposure limit 8 h	1000 ppm 1900 mg/m³
4,4'-Methylen-Diphenyldiisocyanat	Time-weighted average exposure limit 8 h	0.05 mg/m³
Propane	Time-weighted average exposure limit 8 h	1000 ppm 1800 mg/m³

Limit Value (France)

4,4'-Diisocyanate de Diphénylméthane	Short time value	0.02(5 min) ppm 0.2(5 min) mg/m³
	Time-weighted average exposure limit 8 h	0.01 ppm 0.1 mg/m³
Oxyde de diméthyle	Short time value	- ppm - mg/m³
	Time-weighted average exposure limit 8 h	1000 ppm 1920 mg/m³

Limit Value (UK)

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Isocyanates, all (as -NCO)	Short time value	-(-NCO) ppm 0.07(-NCO) mg/m³
	Time-weighted average exposure limit 8 h	-(-NCO) ppm 0.02(-NCO) mg/m³
Dimethyl ether	Short time value	500 ppm 958 mg/m³
	Time-weighted average exposure limit 8 h	400 ppm 766 mg/m³

b) National biological limit values
If limit values are applicable and available these will be listed below.

Sampling Methods

Product name	Test	Number
Isocyanates	NIOSH	5522
4,4'-Methylenebis(phenyl isocyanate)	NIOSH	5525
Methylene Biphenyl Isocyanate	OSHA	47
4,4-Methylene Bisphenyl Isocyanate (MDI) (Isocyanates)	NIOSH	5521
Isocyanates	NIOSH	5521

Applicable limit values when using the substance or mixture as intended
If limit values are applicable and available these will be listed below

DNEL/PNEC values
Workers
4,4'-methylenediphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value
DNEL	Acute systemic effects dermal	50 mg/kg bw/day
	Acute systemic effects inhalation	0.1 mg/m³
	Acute local effects dermal	28.7 mg/cm²
	Acute local effects inhalation	0.1 mg/m³
	Long-term systemic effects inhalation	0.05 mg/m³
	Long-term local effects inhalation	0.05 mg/m³

Alkanes, C14-17, chloro;

Effect level (DNEL/DMEL)	Type	Value
DNEL	Acute systemic effects dermal	47.9 mg/kg bw/day
	Acute systemic effects inhalation	6.7 mg/m³

General Population
4,4'-methylenediphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value
DNEL	Acute systemic effects dermal	25 mg/kg bw/day
	Acute systemic effects inhalation	0.05 mg/m³
	Acute -systemic effects oral	20 mg/kg bw/day
	Acute local effects dermal	17.2 mg/cm²

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	Acute local effects inhalation	0.05 mg/m³
	Long-term systemic effects inhalation	0.025 mg/m³
	Long-term local effects inhalation	0.025 mg/m³

Alkanes, C14-17, chloro;

Effect level (DNEL/DMEL)	Type	Value
DNEL	Long-term systemic effects dermal	28.75 mg/kg bw/day
	Long-term systemic effects inhalation	2 mg/m³
	Long-term systemic effects oral	0.58 mg/kg bw/day

PNEC

4,4'-methylenediphenyl diisocyanate

Compartments	Value
Fresh water	1 mg/l
Marine water	0.1 mg/l
aqua (intermittent releases)	10 mg/l
STP	1 mg/l
Soil	1 mg/kg soil dw

Control banding

If applicable and available, it will be listed below.

Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

Appropriate engineering controls

Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly.

Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:
Wear gas mask with filter type A if conc. in air > exposure limit.

b) Hand protection:
Gloves

Materials	Breakthrough time	Thickness
LDPE (Low Density Polyethylene)	10 minutes	0.025 mm

c) Eye protection:
Protective goggles

d) Skin protection :
Head/neck protection. Protective clothing.

Environmental Exposure Controls

See headings 6.2, 6.3 and 13

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9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical form	: Aerosol
Odour	: Characteristic odour
Odour threshold	: No data available
Color	: Variable in color, depending on the composition
Particle size	: Not applicable
Explosion limits	: No data available
Flammability	: Extremely flammable aerosol.
Log Kow	: Not applicable (mixture)
Dynamic viscosity	: No data available
Kinematic viscosity	: No data available
Melting point	: No data available
Boiling point	: No data available
Flash point	: Not applicable
Evaporation rate	: No data available
Relative vapor density	: > 1
Vapor pressure	: No data available
Solubility	: organic solvents; soluble
Relative density	: water; insoluble
Decomposition temperature	: 0.95;
Auto-ignition temperature	: No data available
Explosive properties	: No data available
Oxidizing properties	: No chemical group associated with oxidizing properties
pH	: No data available

Physical Hazards
Flammable aerosol

Other Information
Absolute Density : 950 kg/m³; 20 °C

10. STABILITY AND REACTIVITY

Reactivity	: May be ignited by sparks. Gas/vapor spreads at floor level: ignition hazard
Chemical Stability	: Stable under normal conditions
Possibility of hazardous reactions	: May polymerize with many compounds e.g.: (strong) bases and amines. Reacts violently with (some) acids/bases
Conditions to avoid	: Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks.
Incompatible materials	: (strong) acids, (strong)bases

11.TOXICOLOGICAL INFORMATION

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Information on toxicological effects
Test Results
Acute toxicity
Dolphin PU foam
No (test) data on the mixture available

Polymethylene polyphenyl isocyanate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination
Oral	LD50		>10000 mg/kg		Rat		Literature study
Dermal	LD50		> 5000 mg/kg		Rabbit		Literature study

4,4'-methylenediphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination
Oral	LD50	Other	>2000 mg/kg bw		Rat	Male/ female	Read-across
Dermal	LD50	Equivalent to OECD 402	>9400 mg/kg bw	24 h	Rabbit	Male/ female	Read-across
Inhalation (aerosol)	LC50	OECD 403	>2.24 mg/l	1 h	Rat	Male/ female	Experimental value

Alkanes, C14-17, chloro

Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination
Oral	LD50	Other	>10 ml/kg bw		Rat		Experimental value
Oral	LD50	Other	>4000 ml/kg bw		Rat	Male/ female	Experimental value
Dermal	LD50		>13500 mg/kg bw	24 h	Rabbit		Read-across
Dermal	LD50		>2800 mg/kg bw	24 h	Rat		Read-across
Inhalation	LC50	Other	>3.3 mg/l	1 h	Rat		Read-across
Inhalation (vapours)	LC50	Other	>48170 mg/m³	1 h	Rat		Read-across
Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination

Dimethyl ether

Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination
Inhalation	LC50		309 mg/l	4 h	Rat		Literature study

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Inhalation	LC50		163991 ppm	4 h	Rat		Literature study

Isobutane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Gender	Value determination
Inhalation	LC50		> 50 mg/l	4 h	Rat		Literature

Classification of mixture is based on the relevant ingredients of the mixture

Conclusion

Harmful if inhaled
Low acute toxicity by the dermal route
Low acute toxicity by the oral route

Corrosion/irritation

Dolphin PU foam
No (test)data on the mixture available

Polymethylene polyphenyl isocyanate

Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination
Eye	Irritating					Literature Study
Skin	Irritating					Literature Study
Inhalation	Irritating					Literature Study

4,4'-methylenediphenyl diisocyanate

Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination
Eye	Irritating				Human	Weight of evidence
Skin	Irritating	OECD 404	4 h	24; 48; 72 hrs.	Rabbit	Read-across
Skin	Irritating				Human	Weight of evidence
Inhalation	Irritating				Human	Weight of evidence

Alkanes, C14-17, chloro

Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination
Eye	Slightly irritating				Rabbit	Expert judgment
Skin	Slightly irritating	OECD 404	4 h	24; 72 hrs	Rabbit	Expert judgment

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Classification of the mixture is based on the relevant ingredient of the mixture

Conclusion
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Respiratory or skin sensitisation
Dolphin PU Foam
No (test)data on the mixture available

Polymethylene polyphenyl isocynate

Route of exposure	Result	Method	Exposure time	Observation Time point	Species	Gender	Value determination
Skin	Sensitizing						Literature study
Inhalation	Sensitizing						Literature study

4,4'-methylenediphenyl diisocynate

Route of exposure	Result	Method	Exposure time	Observation Time point	Species	Gender	Value determination
Skin	Sensitizing						Literature study
Inhalation	Sensitizing				Guinea pig	Female	Experimental value
Inhalation	Sensitizing	Other			Rat	Male	Experimental value

Alkanes, C14-17, chloro

Route of exposure	Result	Method	Exposure time	Observation Time point	Species	Gender	Value determination
Skin	Not Sensitizing	Other		48 hours	Guinea pig		Experimental value

Classification od mixture is based on the relevant ingredients

Conclusion
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Specific target organ toxicity

Dolphin PU foam
No (test)data on the mixture available

4,4'-methylenediphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure Time	Species	Gender	Value determinat-ion
Inhalation (aerosol)	NOAEC	Equivalent to OECD 453	0.2 mg/m³		No effect	104 weeks (6h/day, 5 days/ week)	Rat	Male/ female	Read-across

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Inhalation (aerosol)	LOAEC	Equivalent to OECD 453	1 mg/m³	Respiratory tract		104 weeks (6h/day, 5 days/ week)	Rat	Male/ female	Read-across

Alkanes, C14-17, chloro:

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure Time	Species	Gender	Value determination
Oral	NOAEL	Equivalent to OECD 408	300 ppm	Liver; kidney	No adverse systemic effects	13 week(s)	Rat	Male/ female	Experimental value
Oral	NOAEL	Equivalent to OECD 408	100 mg/kg bw/day	Kidney	No adverse systemic effects	13 week(s)	Rat	Male/ female	Experimental value

Classification of the mixture is based on the relevant ingredients of the mixture

Conclusion

May cause damage to organs through prolonged or repeated exposure if inhaled
Low sub-chronic toxicity by the dermal route
Low sub-chronic toxicity by the oral route

Mutagenicity (in vitro)

Dolphin PU foam
No (test)data on the mixture available

4,4'-methylenediphenyl diisocyanate

Result	Method	Test Substrate	Effect	Value Determination
Negative	Equivalent to OECD 471	Bacteria (S.typhimurium)		Experimental value

Alkanes, C14-17, chloro

Result	Method	Test Substrate	Effect	Value Determination
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)		Experimental value

12. ECOLOGICAL INFORMATION

Toxicity

Dolphin PU Foam
No (test)data on the mixture available

Polymethylene polyphenyl isocyanate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination

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Acute toxicity other aquatic organisms	LC50		>1000 mg/l	96 h				Literature study
Toxicity aquatic micro-organisms	EC50	OECD 209	>100 mg/l		Activated sludge			Literature study

4,4'-methylenediphenyl diisocynate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	> 1000 mg/l	96 h	Danio rerio	Static system	Fresh water	Read-across
Acute toxicity invertebrates	EC50	OECD 202	129.7 mg/l	24 h	Daphnia magna	Static system	Fresh water	Read-across
Toxicity algae and other aquatic plants	EC50	OECD 201	> 1640 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Read-across
Long-term toxicity aquatic invertebrates	NOEC	OECD 211	≥10 mg/l	21 day(s)	Daphnia magna	Semi-static	Fresh water	Read-across
Toxicity aquatic micro-organisms	EC50	OECD 209	>100 mg/l	3 h	Activated sludge	Static system	Fresh water	Read-across

Dimethyl ether

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		>1000 mg/l	96 h	Pisces			
Acute toxicity other aquatic organisms	LC50		>4400 mg/l	48 h	Daphnia magna			

Propane

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		>1000 mg/l	96 h	Pisces			

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Conclusion
No data available on ecotoxicity

Persistence and degradability
Polymethylene polyphenyl isocyanate

Biodegradation water

Method	Value	Duration	Value Determination
OECD 302C : Inherent Biodegradibility: Modified MITI Test (I I)	<60%		Experimental Value

4,4'-methylenediphenyl diisocyanate
Biodegradation water

Method	Value	Duration	Value Determination
OECD 302C : Inherent Biodegradibility: Modified MITI Test (I I)	<0%	28 day(s)	Read-across

Dimethyl ether
Biodegradation water

Method	Value	Duration	Value Determination
OECD 301A: DOC Die-Away Test	5 %	28 day(s)	Experimental value

Propane
Biodegradation water

Method	Value	Duration	Value Determination
OECD 301E: Modified OECD Screening Test	70 %		Experimental value

Isobutane
Biodegradation water

Method	Value	Duration	Value Determination
	72.6 %	35 day(s)	
	50 %	16 - 26 day(s)	

Conclusion
Contains non readily biodegradable component(s)

12.3 Bioaccumulative Potential
Polymethylene polyphenyl isocynate
BCF Fishes

Parameter	Method	Value	Duration	Species	Value Determination
BCF		1		Pisces	Literature Study

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4,4'-methylenediphenyl diisocynate
BCF fishes

Parameter	Method	Value	Duration	Species	Value Determination
BCF	OECD 305	92-200	4 week(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Value	Temperature	Value Determination
	5.22		Estimated value

Alkanes, C14-C17, Chloro
Log Kow

Method	Value	Temperature	Value Determination
	5.5 - >6		Literature

Dimethyl ether
Log Kow

Method	Value	Temperature	Value Determination
	0.10		Experimental value

Propane
BCF Fishes

Parameter	Method	Value	Duration	Species	Value Determination
BCF		9 -25		Pisces	

Log Kow

Method	Value	Temperature	Value Determination
	2.3		Experimental value

Isobutane
BCF Fishes

Parameter	Method	Value	Duration	Species	Value Determination
BCF		20 - 52		Pisces	

BCF other aquatic organisms

Parameter	Method	Value	Duration	Species	Value Determination
BCF		20 - 52		Daphnia magna	

Log Kow

Method	Value	Temperature	Value Determination
	2.76 – 2.68		Experimental value

Conclusion

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Contains bioaccumulative component(s)

Mobility in soil
4,4'-methylenediphenyl diisocyanate
Volatile (Henry's Law constant H)

Method	Method	Temperature	Value Determination
8.95E-7 atm m³/mol		25°C	Estimated value

Conclusion
No (test)data on the mixture available

Results of PBT and vPvB assessment
Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006

Other adverse effects
Dolphin PU foam
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (1999/45/EC)

polymethylene polyphenyl isocyanate
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

4,4'-methylenediphynyl diisocyanate
Ozone-depleting. Potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

Water ecotoxicity reaction products
Reaction products are harmful to aquatic organisms

alkanes, C14-17, chloro:
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

Dimethyl ether
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

Ground water
Ground water pollutant

Propane
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

isobutane
Ozone-depleting potential (ODP)
Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

13. DISPOSAL CONSIDERATIONS

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

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Waste treatment method

Provisions to waste

Waste material code (Directive 2008/98/EC, decision 2001/118/EC)

08 04 09* (waste adhesives and sealants containing organic solvents or other dangerous substances). Depending on branch of industry and production process, also other EURAL codes may be applicable. Hazardous waste according to Directive 2008/98/EC.

Disposal Methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed with other waste. Different types of hazardous waste shall not be mixed if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Specific treatment. Do not discharge into drains or the environment.

Packaging/Container

Waste material code packaging (Directive 2008/98/EC).

15 01 10* (packaging containing residue of or contaminated by dangerous substances).

14. TRANSPORT INFORMATION

Road(ADR)

UN Number

UN Number : 1950

UN Proper Shipping Name

Proper Shipping Name : Aerosols

Transport Hazard class(es)

Class : 2

Classification code SF

Packing Group

Labels : 2.1

Environmantal Hazards

Environmentally hazardous substance mark : No

Rail (RID)

UN Number

UN Number : 1950

UN Proper Shipping Name

Proper Shipping Name : Aerosols

Transport Hazard class(es)

Class : 2

Hazard Identification No : 23

Classification code SF

Packing Group

Labels : 2.1

Environmantal Hazards

Environmentally hazardous substance mark : No

Inland Waterways

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UN Number

UN Number	: 1950

UN Proper Shipping Name

Proper Shipping Name	: Aerosols

Transport Hazard class(es)

Class	: 2
Classification code SF	

Packing Group

Labels	: 2.1

Environmantal Hazards

Environmentally hazardous substance mark	: No

Sea(IMDG)

UN Number

UN Number	: 1950

UN Proper Shipping Name

Proper Shipping Name	: Aerosols

Transport Hazard class(es)

Class	: 2.1

Packing Group

Labels	: 2.1

Environmantal Hazards

Environmentally hazardous substance mark	: No

Air(ICAO-TI/IATA-DGR)

UN Number

UN Number	: 1950

UN Proper Shipping Name

Proper Shipping Name	: Aerosols

Transport Hazard class(es)

Class	: 2

Packing Group

Labels	: 2.1

Environmantal Hazards

Environmentally hazardous substance mark	: No

15. REGULATORY INFORMATION

Risk Phrases

R 12	: Extremely flammable
R 18	: In use, may form flammable/explosive vapor-air mixture
R 20	: Harmful by inhalation
R 36/37/38	: Irritating to eyes, respiratory system and skin

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R 42/43	: May cause sensitization by inhalation and skin contact

National Legislation/Regulations
COMMI SSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization.

16. ADDITIONAL INFORMATION

General Information
This product should be used as directed. For further information, please consult product data sheets and application information bulletin for this product.

Further Information
The information contained herein is based on the present state of our knowledge. It characterizes the product about the appropriate health and safety precaution, and hazard information. It does not represent a guarantee of the properties of product.

Revision Comments
This safety data sheet supersedes all previous issues and users are cautioned to ensure that it is correct.

DISCLAIMER

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.

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