

Hardtop AS/HB Comp B

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	: Hardtop AS/HB Comp B
UFI	: FG71-10SU-600S-6S7E
Product code	: 448
Product description	: Hardener.
Product type	: Liquid.
Other means of identification	: Not available.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use in coatings - Industrial use
Use in coatings - Professional use

1.3 Details of the supplier of the safety data sheet

Jotun A/S
P.O.Box 2021
3202 Sandefjord
Norway

Tel: + 47 33 45 70 00
Fax: +47 33 45 72 42
E-mail: SDSJotun@jotun.no

National contact

Jotun Paints Europe (Ltd).
Unit K7, Marina Commercial Park
Centre Park Road
Cork
Ireland

Tel: +353 214 965955
Fax: +353 214 965992

SDSJotun@jotun.com

1.4 Emergency telephone number

Poisons Information Centre of Ireland: +353 1 809 3000 (8am-10pm, 7 days a week)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226
Acute Tox. 4, H332
Skin Sens. 1, H317
STOT SE 3, H335
STOT SE 3, H336

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Hardtop AS/HB Comp B

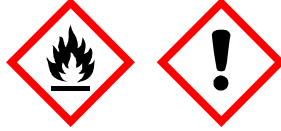
SECTION 2: Hazards identification

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word :

Warning.

Hazard statements :

H226 - Flammable liquid and vapour.
 H317 - May cause an allergic skin reaction.
 H332 - Harmful if inhaled.
 H335 - May cause respiratory irritation.
 H336 - May cause drowsiness or dizziness.

Precautionary statements

General :

Not applicable.

Prevention :

P280 - Wear protective gloves.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P261 - Avoid breathing vapour.

Response :

P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
 P362 + P364 - Take off contaminated clothing and wash it before reuse.
 P302 + P352 - IF ON SKIN: Wash with plenty of water.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.

Storage :

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal :

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients :

hexane, 1,6-diisocyanato-, homopolymer
 n-butyl acetate
 2-methoxy-1-methylethyl acetate
 tosyl isocyanate
 hexamethylene-di-isocyanate

Supplemental label elements :

EUH204 - Contains isocyanates. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles :

As from August 24 2023 adequate training is required before industrial or professional use.

Special packaging requirements

Containers to be fitted with child-resistant fastenings :

Not applicable.

Tactile warning of danger :

Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification :

None known.

Hardtop AS/HB Comp B

SECTION 3: Composition/information on ingredients**3.2 Mixtures**

: Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
hexane, 1,6-diisocyanato-, homopolymer	REACH #: 01-2119488934-20 EC: 500-060-2 CAS: 28182-81-2	≥50 - ≤75	Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335	ATE [Inhalation (dusts and mists)] = 1.5 mg/l	[1] [2]
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4	≥10 - ≤25	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	-	[1] [2]
2-methoxy-1-methylethyl acetate	REACH #: 01-2119475791-29 EC: 203-603-9 CAS: 108-65-6 Index: 607-195-00-7	≥10 - ≤25	Flam. Liq. 3, H226 STOT SE 3, H336	-	[1] [2]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	<10	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 20 mg/l	[1] [2]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≤3	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304 Aquatic Chronic 3, H412	ATE [Inhalation (vapours)] = 17.8 mg/l	[1] [2]
tosyl isocyanate	EC: 223-810-8 CAS: 4083-64-1 Index: 615-012-00-7	<1	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335 EUH014	Skin Irrit. 2, H315: C ≥ 5% Eye Irrit. 2, H319: C ≥ 5% STOT SE 3, H335: C ≥ 5%	[1] [2]
hexamethylene-diisocyanate	REACH #: 01-2119457571-37 EC: 212-485-8 CAS: 822-06-0	≤0.3	Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335 See Section 16 for the full text of the H statements declared above.	ATE [Inhalation (vapours)] = 0.5 mg/l Resp. Sens. 1, H334: C ≥ 0.5%	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

*Hardtop AS/HB Comp B***SECTION 3: Composition/information on ingredients**

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures**4.1 Description of first aid measures**

- General** : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.
- Eye contact** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Hexamethylene diisocyanate, oligomers, 4-isocyanatosulphonyltoluene, hexamethylene-di-isocyanate. May produce an allergic reaction.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Hardtop AS/HB Comp B

SECTION 4: First aid measures

- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Recommended: alcohol-resistant foam, CO₂, powders, water spray or mist.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
- Special protective equipment for fire-fighters** : Appropriate breathing apparatus may be required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.3 Methods and material for containment and cleaning up

- : Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is

Hardtop AS/HB Comp B

SECTION 6: Accidental release measures

reached, close container and dispose of according to local regulations (see section 13).

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

7.1 Precautions for safe handling

Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.
In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.
Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing and floors should be of the conducting type.
Care should be taken when re-opening partly-used containers. Precautions should be taken to minimise exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurisation. Keep away from heat, sparks and flame. No sparking tools should be used.
Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
Put on appropriate personal protective equipment (see Section 8).
Never use pressure to empty. Container is not a pressure vessel.
Always keep in containers made from the same material as the original one.
Comply with the health and safety at work laws.
Do not allow to enter drains or watercourses.

Information on fire and explosion protection

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

When operators, whether spraying or not, have to work inside the spray booth, ventilation is unlikely to be sufficient to control particulates and solvent vapour in all cases. In such circumstances they should wear a compressed air-fed respirator during the spraying process and until such time as the particulates and solvent vapour concentration has fallen below the exposure limits.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations.

Notes on joint storage

Keep away from: oxidising agents, strong alkalis, strong acids.

Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight.

Keep container tightly closed.

Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonne	50000 tonne

See Technical Data Sheet / packaging for further information.

Hardtop AS/HB Comp B

SECTION 7: Handling and storage**7.3 Specific end use(s)****Recommendations** : Not available.**Industrial sector specific solutions** : Not available.**SECTION 8: Exposure controls/personal protection**

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters**Occupational exposure limits**

Product/ingredient name	Exposure limit values
hexane, 1,6-diisocyanato-, homopolymer	EH40/2005 WELs (United Kingdom (UK), 1/2020). Inhalation sensitiser. STEL: 0.07 mg/m ³ , (as -NCO) 15 minutes. TWA: 0.02 mg/m ³ , (as -NCO) 8 hours.
n-butyl acetate	EH40/2005 WELs (United Kingdom (UK), 1/2020). STEL: 966 mg/m ³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 724 mg/m ³ 8 hours. TWA: 150 ppm 8 hours.
2-methoxy-1-methylethyl acetate	EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin. STEL: 548 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 274 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
xylene	EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin. STEL: 441 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 220 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
ethylbenzene	EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin. STEL: 552 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours. TWA: 441 mg/m ³ 8 hours.
tosyl isocyanate	EH40/2005 WELs (United Kingdom (UK), 1/2020). Inhalation sensitiser. STEL: 0.07 mg/m ³ , (as -NCO) 15 minutes. TWA: 0.02 mg/m ³ , (as -NCO) 8 hours.
hexamethylene-di-isocyanate	EH40/2005 WELs (United Kingdom (UK), 1/2020). Inhalation sensitiser. Notes: as NCO STEL: 0.07 mg/m ³ , (as -NCO) 15 minutes. TWA: 0.02 mg/m ³ , (as -NCO) 8 hours.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Hardtop AS/HB Comp B

SECTION 8: Exposure controls/personal protection**DNELs/DMELs**

Product/ingredient name	Type	Exposure	Value	Population	Effects	
hexane, 1,6-diisocyanato-, homopolymer	DNEL	Long term Inhalation	0.5 mg/m ³	Workers	Local	
	DNEL	Short term Inhalation	1 mg/m ³	Workers	Local	
n-butyl acetate	DNEL	Short term Inhalation	960 mg/m ³	Workers	Systemic	
	DNEL	Short term Inhalation	960 mg/m ³	Workers	Local	
	DNEL	Long term Inhalation	480 mg/m ³	Workers	Systemic	
	DNEL	Long term Inhalation	480 mg/m ³	Workers	Local	
	DNEL	Short term Inhalation	859.7 mg/m ³	General population [Consumers]	Systemic	
	DNEL	Short term Inhalation	859.7 mg/m ³	General population [Consumers]	Local	
	DNEL	Long term Inhalation	102.34 mg/m ³	General population [Consumers]	Systemic	
	DNEL	Long term Inhalation	102.34 mg/m ³	General population [Consumers]	Local	
	DNEL	Short term Oral	2 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Oral	2 mg/kg bw/day	General population	Systemic	
	DNEL	Short term Dermal	6 mg/kg bw/day	General population	Systemic	
	DNEL	Short term Dermal	11 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Inhalation	35.7 mg/m ³	General population	Local	
	DNEL	Short term Inhalation	300 mg/m ³	General population	Local	
	DNEL	Short term Inhalation	300 mg/m ³	General population	Systemic	
	DNEL	Long term Inhalation	300 mg/m ³	Workers	Local	
	2-methoxy-1-methylethyl acetate	DNEL	Short term Inhalation	600 mg/m ³	Workers	Local
		DNEL	Short term Inhalation	600 mg/m ³	Workers	Systemic
DNEL		Long term Dermal	3.4 mg/kg bw/day	General population	Systemic	
DNEL		Long term Dermal	7 mg/kg bw/day	Workers	Systemic	
DNEL		Long term Inhalation	12 mg/m ³	General population	Systemic	
DNEL		Long term Inhalation	48 mg/m ³	Workers	Systemic	
DNEL		Long term Dermal	153.5 mg/kg bw/day	Workers	Systemic	
DNEL		Long term Inhalation	275 mg/m ³	Workers	Systemic	
DNEL		Long term Dermal	54.8 mg/kg bw/day	General population [Consumers]	Systemic	
DNEL		Long term	33 mg/m ³	General	Systemic	

Hardtop AS/HB Comp B

SECTION 8: Exposure controls/personal protection

xylene		Inhalation			population [Consumers]		
	DNEL	Long term Oral	1.67 mg/kg bw/day	General population	Systemic		
	DNEL	Long term Inhalation	33 mg/m ³	General population	Local		
	DNEL	Long term Inhalation	33 mg/m ³	General population	Systemic		
	DNEL	Long term Oral	36 mg/kg bw/day	General population	Systemic		
	DNEL	Long term Inhalation	275 mg/m ³	Workers	Systemic		
	DNEL	Long term Dermal	320 mg/kg bw/day	General population	Systemic		
	DNEL	Short term Inhalation	550 mg/m ³	Workers	Local		
	DNEL	Long term Dermal	796 mg/kg bw/day	Workers	Systemic		
	DNEL	Long term Inhalation	65.3 mg/m ³	General population	Local		
	DNEL	Short term Inhalation	260 mg/m ³	General population	Local		
	DNEL	Short term Inhalation	260 mg/m ³	General population	Systemic		
	DNEL	Long term Inhalation	221 mg/m ³	Workers	Local		
	DNEL	Long term Oral	12.5 mg/kg bw/day	General population	Systemic		
	DNEL	Long term Inhalation	65.3 mg/m ³	General population	Systemic		
	DNEL	Long term Dermal	125 mg/kg bw/day	General population	Systemic		
	ethylbenzene	DNEL	Long term Dermal	212 mg/kg bw/day	Workers	Systemic	
		DNEL	Long term Inhalation	221 mg/m ³	Workers	Systemic	
DNEL		Short term Inhalation	442 mg/m ³	Workers	Local		
DNEL		Short term Inhalation	442 mg/m ³	Workers	Systemic		
DNEL		Long term Oral	1.6 mg/kg bw/day	General population	Systemic		
DNEL		Long term Inhalation	15 mg/m ³	General population	Systemic		
DNEL		Long term Inhalation	77 mg/m ³	Workers	Systemic		
DNEL		Long term Dermal	180 mg/kg bw/day	Workers	Systemic		
DNEL		Short term Inhalation	293 mg/m ³	Workers	Local		
DMEL		Long term Inhalation	442 mg/m ³	Workers	Local		
tosyl isocyanate	DMEL	Short term Inhalation	884 mg/m ³	Workers	Systemic		
	DNEL	Long term Oral	0.46 mg/kg bw/day	General population	Systemic		
	DNEL	Long term Dermal	0.46 mg/kg bw/day	General population	Systemic		
	DNEL	Long term Inhalation	0.8 mg/m ³	General population	Systemic		
	DNEL	Long term Dermal	0.92 mg/kg bw/day	Workers	Systemic		

Hardtop AS/HB Comp B

SECTION 8: Exposure controls/personal protection

hexamethylene-di-isocyanate	DNEL	Long term Inhalation	3.24 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	0.035 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	0.07 mg/m ³	Workers	Local

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
n-butyl acetate	Fresh water	0.18 mg/l	-
	Marine	0.018 mg/l	-
	Sewage Treatment Plant	35.6 mg/l	-
	Fresh water sediment	0.981 mg/kg dwt	-
	Marine water sediment	0.0981 mg/kg dwt	-
	Soil	0.0903 mg/kg dwt	-
2-methoxy-1-methylethyl acetate	Fresh water	0.635 mg/l	-
	Marine	0.0635 mg/l	-
	Sewage Treatment Plant	100 mg/l	-
	Fresh water sediment	3.29 mg/kg dwt	-
	Marine water sediment	0.329 mg/kg dwt	-
	Soil	0.29 mg/kg dwt	-
xylene	Fresh water	0.327 mg/l	-
	Marine	0.327 mg/l	-
	Sewage Treatment Plant	6.58 mg/l	-
	Fresh water sediment	12.46 mg/kg dwt	-
	Marine water sediment	12.46 mg/kg dwt	-
	Soil	2.31 mg/kg dwt	-
ethylbenzene	Fresh water	0.1 mg/l	-
	Marine	0.01 mg/l	-
	Sewage Treatment Plant	9.6 mg/l	-
	Fresh water sediment	13.7 mg/kg dwt	-
	Soil	2.68 mg/kg dwt	-
	Secondary Poisoning	20 mg/kg	-
hexamethylene-di-isocyanate	Fresh water	0.0774 mg/l	-
	Marine	0.00774 mg/l	-
	Sewage Treatment Plant	8.42 mg/l	-
	Fresh water sediment	0.01334 mg/kg dwt	-
	Marine water sediment	0.001334 mg/kg dwt	-
	Soil	0.0026 mg/kg dwt	-

8.2 Exposure controls

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

Appropriate engineering controls : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn. (See Occupational exposure controls.)

Individual protection measures

Hardtop AS/HB Comp B

SECTION 8: Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying to ISO 16321-1:2022 should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.

The breakthrough time must be greater than the end use time of the product.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

Always ensure that gloves are free from defects and that they are stored and used correctly.

The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Gloves

Wear suitable gloves tested to ISO 374-1:2016.

Not recommended, gloves(breakthrough time) < 1 hour: neoprene (> 0.35 mm)

May be used, gloves(breakthrough time) 4 - 8 hours: Viton® (> 0.7 mm), nitrile rubber (> 0.4 mm), butyl rubber (> 0.4 mm), PVC (> 0.5 mm)

Recommended, gloves(breakthrough time) > 8 hours: 4H/Silver Shield® (> 0.07 mm), Teflon (> 0.35 mm), polyvinyl alcohol (PVA) (> 0.3 mm)

For right choice of glove materials, with focus on chemical resistance and time of penetration, seek advice by the supplier of chemical resistant gloves.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

Body protection : Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Self-contained respiratory equipment must be worn by spray operator, even when good ventilation is provided. By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask.

Environmental exposure controls : Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.

Colour : Colourless.

Odour : Characteristic.

Odour threshold : Not applicable.

*Hardtop AS/HB Comp B***SECTION 9: Physical and chemical properties**

Melting point/freezing point	: Not applicable.
Initial boiling point and boiling range	: 127 to 145°C (260.6 to 293°F)
Flammability	: Not applicable.
Lower and upper explosion limit	: 0.8 - 7.6%
Flash point	: Closed cup: 34°C
Auto-ignition temperature	: Lowest known value: 333°C (631.4°F) (2-methoxy-1-methylethyl acetate).
Decomposition temperature	: Not available.
pH	: Not applicable.
Viscosity	: Kinematic (40°C): >20.5 mm ² /s
Solubility in water	: cold water Not soluble hot water Not soluble
Partition coefficient: n-octanol/ water	: Not available.
Vapour pressure	: Highest known value: 1.5 kPa (11.3 mm Hg) (at 20°C) (n-butyl acetate). Weighted average: 0.37 kPa (2.78 mm Hg) (at 20°C)
Evaporation rate	: Highest known value: 1 (n-butyl acetate) Weighted average: 0.73 compared with butyl acetate
Density	: 1.04 g/cm ³
Vapour density	: Highest known value: 4.6 (Air = 1) (2-methoxy-1-methylethyl acetate). Weighted average: 4.09 (Air = 1)
Explosive properties	: Not available.
Oxidising properties	: Not available.
Particle characteristics	
Median particle size	: Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: The product reacts slowly with water, resulting in the production of carbon dioxide.
10.2 Chemical stability	: Stable under recommended storage and handling conditions (see Section 7).
10.3 Possibility of hazardous reactions	: In closed containers, pressure build-up could result in distortion, expansion and, in extreme cases, bursting of the container.
10.4 Conditions to avoid	: In a fire, hazardous decomposition products may be produced.
10.5 Incompatible materials	: Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.
10.6 Hazardous decomposition products	: Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

Thermal decomposition (>200°C) may liberate anhydrides and relatively low concentrations of isocyanates.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Hardtop AS/HB Comp B**SECTION 11: Toxicological information**

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Hexamethylene diisocyanate, oligomers, 4-isocyanatosulphonyltoluene, hexamethylene-di-isocyanate. May produce an allergic reaction.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
n-butyl acetate	LC50 Inhalation Vapour	Rat	>21.1 mg/l	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Rat	13100 mg/kg	-
2-methoxy-1-methylethyl acetate	LD50 Dermal	Rabbit	>5 g/kg	-
	LD50 Oral	Rat	8532 mg/kg	-
xylene	LC50 Inhalation Vapour	Rat	20 mg/l	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
	TDLo Dermal	Rabbit	4300 mg/kg	-
ethylbenzene	LC50 Inhalation Vapour	Rat - Male	17.8 mg/l	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
tosyl isocyanate	LD50 Oral	Rat	2234 mg/kg	-
	LD50 Oral	Rat	2234 mg/kg	-
hexamethylene-di-isocyanate	LC50 Inhalation Dusts and mists	Rat	124 mg/m ³	4 hours

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Hardtop AS/HB Comp B	N/A	13861.7	N/A	96.5	2.4
hexane, 1,6-diisocyanato-, homopolymer	N/A	N/A	N/A	N/A	1.5
n-butyl acetate	13100	N/A	N/A	N/A	N/A
2-methoxy-1-methylethyl acetate	8532	N/A	N/A	N/A	N/A
xylene	4300	1100	N/A	20	N/A
ethylbenzene	3500	N/A	N/A	17.8	N/A
tosyl isocyanate	2234	N/A	N/A	N/A	N/A
hexamethylene-di-isocyanate	N/A	N/A	N/A	0.5	N/A

Irritation/Corrosion

Hardtop AS/HB Comp B

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
hexane, 1,6-diisocyanato-, homopolymer	Eyes - Moderate irritant	Rabbit	-	100 mg	-
xylene	Skin - Moderate irritant	Rabbit	-	500 mg	-
	Eyes - Mild irritant	Rabbit	-	87 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
tosyl isocyanate	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
hexamethylene-di-isocyanate	Eyes - Mild irritant	Mammal - species unspecified	-	-	-
	Skin - Mild irritant	Mammal - species unspecified	-	-	-

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
hexane, 1,6-diisocyanato-, homopolymer	skin	Mammal - species unspecified	Sensitising
hexamethylene-di-isocyanate	skin	Mammal - species unspecified	Sensitising

Mutagenicity

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
hexane, 1,6-diisocyanato-, homopolymer	Category 3	-	Respiratory tract irritation
n-butyl acetate	Category 3	-	Narcotic effects
2-methoxy-1-methylethyl acetate	Category 3	-	Narcotic effects
xylene	Category 3	-	Respiratory tract irritation
tosyl isocyanate	Category 3	-	Respiratory tract irritation
hexamethylene-di-isocyanate	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	-	hearing organs

Aspiration hazard

Hardtop AS/HB Comp B

SECTION 11: Toxicological information

Product/ingredient name	Result
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

11.2 Information on other hazards**11.2.1 Endocrine disrupting properties**

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information**12.1 Toxicity**

There are no data available on the mixture itself.

Do not allow to enter drains or watercourses.

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is not classified as hazardous to the environment, but contains substance(s) hazardous to the environment. See section 3 for details.

Product/ingredient name	Result	Species	Exposure
xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
ethylbenzene	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 7700 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 2.93 mg/l	Daphnia	48 hours
	Acute LC50 4.2 mg/l	Fish	96 hours

Conclusion/Summary : No known significant effects or critical hazards.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
hexane, 1,6-diisocyanato-, homopolymer	5.54	367.7	low
n-butyl acetate	2.3	-	low
2-methoxy-1-methylethyl acetate	1.2	-	low
xylene	3.12	8.1 to 25.9	low
ethylbenzene	3.6	-	low
hexamethylene-di-isocyanate	0.02	57.63	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Hardtop AS/HB Comp B

SECTION 12: Ecological information**12.6 Endocrine disrupting properties**

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods**Product**

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

Disposal considerations : Do not allow to enter drains or watercourses. Residues in empty containers should be neutralised with a decontaminant (see section 6). Dispose of according to all federal, state and local applicable regulations. If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. For further information, contact your local waste authority.

European waste catalogue (EWC)

The European Waste Catalogue classification of this product, when disposed of as waste, is:

Waste code	Waste designation
08 01 11*	Waste paint and varnish containing organic solvents or other dangerous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.





Disposal considerations : Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers. Empty containers must be scrapped or reconditioned. Dispose of containers contaminated by the product in accordance with local or national legal provisions.

Type of packaging	European waste catalogue (EWC)
CEPE Guidelines	15 01 10* packaging containing residues of or contaminated by hazardous substances

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

Hardtop AS/HB Comp B

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1263	UN1263	UN1263	UN1263
14.2 UN proper shipping name	Paint	Paint	Paint	Paint
14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	No.	No.	No.	No.

Additional information

ADR/RID : **Hazard identification number** 30
Tunnel code (D/E)

IMDG : **Emergency schedules** F-E, S-E

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : As from August 24 2023 adequate training is required before industrial or professional use.

Other EU regulations

VOC : The provisions of Directive 2004/42/EC on VOC apply to this product. Refer to the product label and/or technical data sheet for further information.

VOC for Ready-for-Use Mixture : Not available.

Hardtop AS/HB Comp B

SECTION 15: Regulatory information

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product may add to the calculation for determining whether a site is within the scope of the Seveso Directive on major accident hazards.

National regulations

Industrial use : The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment : Not applicable.

SECTION 16: Other information

📌 Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 N/A = Not available
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 SGG = Segregation Group
 vPvB = Very Persistent and Very Bioaccumulative

*Hardtop AS/HB Comp B***SECTION 16: Other information****Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Classification	Justification
Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335 STOT SE 3, H336	On basis of test data Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
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.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
EUH014	Reacts violently with water.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 2	ACUTE TOXICITY - Category 2
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Resp. Sens. 1	RESPIRATORY SENSITISATION - Category 1
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

Date of printing : 27.03.2023**Date of issue/ Date of revision** : 27.03.2023**Date of previous issue** : No previous validation**Version** : 1**Notice to reader**

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.