AQUIMAX FLAMESHIELD FR BARRIER HARDENER

HEALTH AND SAFETY DATA SHEET
According to Annex II to REACH - Regulation (EU) 2020/878 and to Annex II to UK REACH
Revised Date: 27/01/2020
Version: 37

1. PRODUCT AND COMPANY IDENTIFICATION

1.1	Product Code	AFS3600CAT
	Product name	AQUIMAX FLAMESHEILD FR BARRIER HARDENER
1.2	Relevant identified uses of the substance or mixture and uses advised against	PU HARDNER
1.3	Name, Address, Telephone Number of the chemical manufacturer	Ultrimax Coatings Ltd Shaw Lane Industrial Estate, Ogden Road, Doncaster, DN2 4SE 01302 856666
1.4	Emergency phone number	01302 856666

2. HAZARD(S) IDENTIFICATION

2.1	Classification of the substance or mixture	The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.
	CLP Regulation (EC) No 1272/2008	
2.2	Hazard classification and indication:	
	Flammable liquid, category 2: H225	Highly flammable liquid and vapour.
	Eye irritation, category 2: H319	Causes serious eye irritation
	Skin sensitization, category 1: H317	May cause respiratory irritation.
	Skin sensitization, category 1: H317	May cause an allergic skin reaction.
	Specific target organ toxicity - single exposure, category 3: H336	May cause drowsiness or dizziness.

2. HAZARD(S) IDENTIFICATION CONTINUED

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

2.2	Hazard Pictograms	
	Signal Words	Danger
	Hazard Statements	
	H225	Highly flammable liquid and vapour.
	H319	Causes serious eye irritation.
	H317	May cause an allergic skin reaction.
	H317	May cause an allergic skin reaction.
	H336	May cause drowsiness or dizziness.
	EUH066	Repeated exposure may cause skin dryness or cracking.
	EUH204	Contains isocyanates. May produce an allergic reaction.
	Precautionary Statements:	
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P280	Wear protective gloves/ protective clothing / eye protection / face protection.
	P370+P378	In case of fire: use carbon dioxide, foam, powder and water spray to extinguish.
	P261	Avoid breathing dust / fume / gas / mist / vapours / spray.
	P233	Keep container tightly dosed.
	P312	Call a POISON CENTRE / doctor if you feel unwell.
	Contains:	Aromatic polyisocyanate, based on toluendiisocyanate N-BUTYL ACETATE BUTANONE ETHYL ACETATE
2.3	Other hazards	On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0, 1 %.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1	Mixtures		
3.2	Mixtures	contains Identification	**X = Conc. %** **classification (EC) 127/2008 (CLP)**
		N-BUTYL ACETATE CAS: 123-86-4 EC: 204-658-1 INDEX: 607-025-00-1 Reg. No. 01-2119485493-29-XXXX	35 ≤ x < 50 **Flam. Liq. 3 H226, STOT SE 3 H336, EUH066**
		AROMATIC POLYISOCYANATE, BASED ON TOLUENDIISOCYANATE CAS: 53317-61-6 EC: INDEX: Reg. No.	30 ≤ x < 35 **Eye Irrit. 2 H319, Skin Sens. 1 H317**
		BUTANONE CAS: 78-93-3 EC: 201-159-0 INDEX: 606-002-00-3 Reg. no. 01-2119457290-43-XXXX	10 ≤ x < 15 **Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066**
		ETHYL ACETATE CAS: 141-78-6 EC: 205-500-4 INDEX: 607-022-00-5 Reg. No. 01- 2119475103-46-XXXX	10 ≤ x < 15 **Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066**
		XYLENE (MIXTURES OF ISOMERS) CAS: 1330-20-7 EC: 215-535-7 INDEX: 601-022-00-9 Reg. No. 01-2119488216-32-XXXX	5 ≤ x < 10 **Flam. Liq. 3 H226, Acute Tox. 4 H312, Acute Tox. 4 H332, Asp. Tox.1 H304, STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Aquatic Chronic 3 H412, Classification note/notes according to Annex VI to the CLP Regulation: C**
		ETHYLBENZENE CAS: 100-41-4 EC: 202-849-4 INDEX: 601-023-00-4 Reg. No. 01-2119489370-35-XXXX	0,5 ≤ x < 1 **Flam. Liq. 2 H225, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373, Aquatic Chronic 3 H412**
		M-TOLYLIDENE DIISOCYANATE CAS: 26471-62-5 EC: 247-722-4 INDEX: 615-006-00-4 Reg. No. 01-2119454791-34-xxxx	0 ≤ x < 0,1 **Care. 2 H351, Acute Tox. 1 H330, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335 , Resp. Sens. 1 H334, Skin Sens. 1 H317, Aquatic Chronic 3 H412**
		The full wording of hazard (H) phrases is given in section 16 of the sheet.	

4. FIRST-AID MEASURES

4.1	Description of first aid measures	In case of doubt or in the presence of symptoms contact a doctor and show him this document. In case of more severe symptoms, ask for immediate medical aid.
	By inhalation	Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
	By skin contact	Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
	By eye contact	Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
	By ingestion / aspiration	Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.
4.2	Most important symptoms / effects, acute and delayed	Specific information on symptoms and effects caused by the product are unknown.
4.3	Indication of immediate medical attention and special treatment needed, if necessary	Information not available

5. FIRE-FIGHTING MEASURES

5.1	Extinguishing media	SUITABLE EXTINGUISHING EQUIPMENT Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak. UNSUITABLE EXTINGUISHING EQUIPMENT Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.
5.2	Specific hazards arising from the chemical	HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.
5.3	Advice for firefighters	GENERAL INFORMATION Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations. SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. ACCIDENTAL RELEASE MEASURES

6.1	Personal precautions, protective equipment and emergency procedures:	Block the leakage if there is no hazard. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures. Send away individuals who are not suitably equipped. Use explosion-proof equipment. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.
6.2	Environmental precautions	The product must not penetrate into the sewer system or come into contact with surface water or ground water.
6.3	Methods and material for containment and cleaning up	Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.
6.4	Reference to other sections	Any information on personal protection and disposal is given in sections 8 and 13.

7. HANDLING AND STORAGE

7.1	Precautions for safe handing	Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.
7.2	Conditions for safe storage, including any incompatibilities	Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.
7.3	Specific end use(s)	Information not available

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1

Control Parameters (United Kingdom)	EH40/2005 Workplace exposure limits (Third Edition 2018)					
EU	EH40/2005 Workplace exposure limits (Third edition, published 2018) Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.					
Threshold Limit Value						
XYLENE (MIXTURE OF ISOMERS)						
Type	Country	TWA/8h	PPM	STEL/15min	PPM	Remarks/Observations
WEL	GBR	220 mg/m3	50	441 mg/m3	100	SKIN
OEL	EU	221 mg/m3	50	442 mg/m3	100	SKIN

Predicted no-effect concentration - PNEC	Normal value in fresh water	0,327 mg/l
	Normal value in marine water	0,327 mg/l
	Normal value for fresh water sediment	12,46 mg/kg
	Normal value for marine water sediment	12,46 mg/kg
	Normal value for water, intermittent release	0,327 mg/l
	Normal value of STP microorganisms	6,58 mg/l
	Normal value for the terrestrial compartment	2,31 mg/kg

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1 Health - Derived no-effect level - DNEL / DMEL

Effects on consumer

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
oral				
Inhalation	260 mg/m3	260 mg/m3	65,3 mg/m3	65,3 mg/m3
Skin				125 mg/kg

Effects on workers

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
oral				
Inhalation	442 mg/m3	442 mg/m3	221 mg/m3	221 mg/m3
Skin				212 mg/kg

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1

ETHYLBENZENE

Type	Country	TWA/8h	PPM	STEL/15min	PPM	Remarks/Observations
WEL	GBR	441 mg/m3	100	552	125	SKIN
OEL	EU	442	100	884	200	SKIN

Predicted no-effect concentration - PNEC	
Normal value in fresh water	0.1 mg/l
Normal value in marine water	0,01 mg/l
Normal value for fresh water sediment	13,7 mg/kg
Normal value for marine water sediment	1,37 mg/kg
Normal value for water, intermittent release	0,1 mg/l
Normal value of STP microorganisms	9,6 mg/l
Normal value for the food chain (secondary poisoning)	20 mg/kg
Normal value for the terrestrial compartment	2,68 mg/kg

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1 Health - Derived no-effect level - DNEL / DMEL

Effects on consumer

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	VND		VND	15 mg/m3
Oral		VND		1,6 mg/kg/d
Skin	VND	VND	VND	VND

Effects on workers

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	293 mg/m3		293 mg/m3	77 mg/m3
Oral				
Skin	VND	VND		180 mg/kg/d

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1	Threshold Limit Value						
	BUTANONE						
	Type	Country	TWA/8h	PPM	STEL/15min	PPM	Remarks/Observations
	WEL	GBR	600 mg/m3	200	899	300	SKIN
	OEL	EU	600 mg/m3	200	900	300	
	Predicted no-effect concentration - PNEC			Normal value in fresh water		55,8mg/l	
				Normal value in marine water		55,8 mg/l	
				Normal value for fresh water sediment		284,74 mg/kg	
				Normal value for marine water sediment		284,7 mg/kg	
				Normal value for water, intermittent release		55,8 mg/l	
				Normal value of STP microorganisms		709 mg/l	
				Normal value for the food chain (secondary poisoning)		1000 mg/kg	
				Normal value for the terrestrial compartment		22,5 mg/kg	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1 Health - Derived no-effect level - DNEL / DMEL

Effects on consumer

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation			VND	106 mg/m3
Oral				31 mg/kg bw/d
Skin				412 mg/kg bw/d

Effects on workers

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation			VND	600 mg/m3
Oral				
Skin			VND	1161 mg/kg bw/d

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

<table>
<tr><td rowspan="11">8.1</td><td colspan="7">ETHYL ACETATE</td></tr>
<tr><td>Type</td><td>Country</td><td>TWA/8h</td><td>PPM</td><td>STEL/15min</td><td>PPM</td><td>Remarks/Observations</td></tr>
<tr><td>WEL</td><td>GBR</td><td>734 mg/m3</td><td>200</td><td>1468</td><td>400</td><td></td></tr>
<tr><td>OEL</td><td>EU</td><td>734 mg/m3</td><td>200</td><td>1468</td><td>400</td><td></td></tr>
<tr><td colspan="3" rowspan="9">Predicted no-effect concentration - PNEC</td><td colspan="2">Normal value in fresh water</td><td colspan="2">0,24mg/l</td></tr>
<tr><td colspan="2">Normal value in marine water</td><td colspan="2">0,024 mg/l</td></tr>
<tr><td colspan="2">Normal value for fresh water sediment</td><td colspan="2">1,15 mg/kg</td></tr>
<tr><td colspan="2">Normal value for marine water sediment</td><td colspan="2">0,115 mg/kg</td></tr>
<tr><td colspan="2">Normal value for water, intermittent release</td><td colspan="2">1,63 mg/l</td></tr>
<tr><td colspan="2">Normal value of STP microorganisms</td><td colspan="2">650 mg/l</td></tr>
<tr><td colspan="2">Normal value for the food chain (secondary poisoning)</td><td colspan="2">200 mg/kg</td></tr>
<tr><td colspan="2">Normal value for the terrestrial compartment</td><td colspan="2">0,148 mg/kg</td></tr>
</table>

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1 Health - Derived no-effect level - DNEL / DMEL

Effects on consumer

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	734 mg/m3	734 mg/m3	367 mg/m3	367 mg/m3
Oral				4,5 mg/kg bw/d
Skin				37 mg/kg bw/d

Effects on workers

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	1468 mg/m3	1468 mg/m3	734 mg/m3	743 mg/m3
Oral				
Skin			37 mg/kg bw/d	63 mg/kg bw/d

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1	N-BUTYL ACETATE						
	Type	Country	TWA/8h	PPM	STEL/15min	PPM	Remarks/Observations
	WEL	GBR	724 mg/m3	150	966 mg/m3	200	
	OEL	EU	241 mg/m3	50	723 mg/m3	150	
	Predicted no-effect concentration - PNEC			Normal value in fresh water		0,18 mg/l	
				Normal value in marine water		0,018 mg/l	
				Normal value for fresh water sediment		0,981 mg/kg	
				Normal value for marine water sediment		0,0981 mg/kg	
				Normal value for water, intermittent release		0,36 mg/l	
				Normal value of STP microorganisms		35,6 mg/l	
				Normal value for the terrestrial compartment		0,0903 mg/kg	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.1 Health - Derived no-effect level - DNEL / DMEL

Effects on consumer

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	300 mg/m3	300 mg/m3	35,7 mg/m3	35,7 mg/m3
Oral		2 mg/kg/d		2 mg/kg/d
Skin		6 mg/kg/d	VND	6 mg/kg bw/d

Effects on workers

Route of exposure	Acute Local	Acute systematic	Chronic Local	Chronic systematic
Inhalation	600mg/m3	600 mg/m3	300 mg/m3	300 mg/m3
Oral				
Skin		11 mg/kg/d		11 mg/kg/d

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA= Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION CONTINUED

8.2	Exposure controls	Take the normal precautions for handling chemicals and apply an adequate standard of workplace hygiene. Users must assess the risks in their workplace and adopt: - Primary collective protective measures such as adequate natural ventilation and local extraction - Personal protective equipment to manage the combination of residual risks Personal protective equipment varies according to the possible exposure and hazardousness of the working conditions, so the final choice depends on the risk assessment.
	Hand protection	Use category Ill chemical resistant gloves according to the EN 374 standard Brief contact (splash protection) - non-exhaustive list Suitable material: NITRILE RUBBER (NBR) Glove thickness: greater than 0.4 mm Breakthrough time: from 30 to 60 minutes Breakthrough index: at least 2 The gloves must be replaced if there are signs of deterioration. In any case, users must assess the risks to determine the most suitable type of glove for the conditions of use
	Skin protection	Wear antistatic work clothes and safety footwear that complies with EN ISO 20344.
	Eye protection	Wear safety mask glasses (EN 166).
	Respiratory protection	Use a mask with EN140 and/or EN136 approval, with a type A filter (for organic vapours with boiling points > 65°C; EN 14387) of a class (1, 2, 3) to be chosen according to the risk assessment in the workplace.
	ENVIRONMENTAL EXPOSURE CONTROLS	The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

9. PHYSICAL AND CHEMICAL PROPERTIES

NOTE: Determination of the flash point may be NA (not applicable), the product being non flammable

		Properties	Value	Information
9.1	Information on basic physical and chemical properties	Appearance	liquid	
		Colour	Not available	
		Odour	pungent	
		Odour threshold	Not available	
		pH	Not available	
		Melting point / freezing point	Not available	
		Initial boiling point	> 65 °c	
		Boiling range	Not available	
		Flash point	-9 °c	
		Evaporation Rate	Not available	

9. PHYSICAL AND CHEMICAL PROPERTIES CONTINUED

		Properties	Value	Information
9.1	Information on basic physical and chemical properties	Flammability of solids and gases	not applicable	
		Lower inflammability limit	Not available	
		Upper inflammability limit	Not available	
		Lower explosive limit	Not available	
		Upper explosive limit	Not available	
		Vapour pressure	Not available	
		Vapour density	Not available	
		Relative density	0,98	
		Solubility	insoluble in water	
		Partition coefficient: n-octanol/water	Not available	
		Auto-ignition temperature	Not available	
		Decomposition temperature	Not available	
		Viscosity	Not available	
		Explosive properties	Not available	
		Oxidising properties	Not applicable	

9. PHYSICAL AND CHEMICAL PROPERTIES CONTINUED

9.2	Other information	Total solids (250°C / 482°F)	34,54 %
		VOC (Directive 2010/75/EU)	65,46 % - 641,49 g/litre
		VOC (volatile carbon)	42,06 % - 412,19 g/litre

10. STABILITY AND REACTIVITY

10.1	Reactivity	There are no particular risks of reaction with other substances in normal conditions of use.
		BUTANONE
		Reacts with: light metals, strong oxidants. Attacks various types of plastic materials. Decomposes under the effect of heat.
		ETHYL ACETATE
		Decomposes slowly into acetic acid and ethanol under the effect of light, air and water.
		N-BUTYL ACETATE
		Decomposes on contact with: water
10.2	Chemical stability	The product is stable in normal conditions of use and storage. M-TOLYLIDENE DIISOCYANATE SADT = 230°C/446°F.
10.3	Possibility of hazardous reactions	The vapours may also form explosive mixtures with the air
		XYLENE (MIXTURE OF ISOMERS)
		Stable in normal conditions of use and storage. Reacts violently with: strong oxidants. strong acids. nitric acid, perchlorates. May form explosive mixtures with: air.
		ETHYLBENZENE
		May form explosive mixtures with: alcohols, bases. May react violently with: alcohols, amines, strong bases, oxidising agents, strong acids, water.

10. STABILITY AND REACTIVITY

10.3	Possibility of hazardous reactions	BUTANONE	
		May form peroxides with: air, light, strong oxidising agents. Risk of explosion on contact with: hydrogen peroxide. nitric acid. sulphuric acid. May react dangerously with: oxidising agents, trichloromethane, alkalis. Forms explosive mixtures with: air.	
		ETHYL ACETATE	
		Risk of explosion on contact with: alkaline metals,hydrides,oleum.May react violently with: fluorine.strong oxidising agents,chlorosulphuric acid,potassium tert-butoxide.Forms explosive mixtures with: air.	
		N-BUTYL ACETATE	
		Risk of explosion on contact with: strong oxidising agents. May react dangerously with: alkaline hydroxides, potassium tert-butoxide. Forms explosive mixtures with: air.	
10.5	Condition to avoid	BUTANONE	
		Avoid exposure to: sources of heat.	
		ETHYL ACETATE	
		Avoid exposure to: light sources of heat, naked flames.	
		N-BUTYL ACETATE	
		Avoid exposure to: moisture sources of heat, naked flames.	
10.5	Incompatible materials	BUTANONE	
		Incompatible with: strong oxidants. inorganic acids, ammonia, copper, chloroform.	
		ETHYL ACETATE	
		Incompatible with: acids, bases, strong oxidants, aluminium, nitrates, chlorosulphuric acid. Incompatible materials: plastic materials.	
		N-BUTYL ACETATE	
		Incompatible with: water, nitrates, strong oxidants, acids, alkalis, zinc.	
10.6	Hazardous decomposition	In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.	
		ETHYLBENZENE	May develop: methane, styrene, hydrogen, ethane.

11. TOXICOLOGICAL INFORMATION

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

	Information on hazard classes as defined in Regulation (EC) No 1272/2008	
11.1	Metabolism, toxicokinetics, mechanism of action and other information	Information not available
	Information on likely routes of exposure	XYLENE (MIXTURE OF ISOMERS) WORKERS: inhalation; contact with the skin. POPULATION: ingestion of contaminated food or water; inhalation of ambient air. ETHYLBENZENE WORKERS: inhalation; contact with the skin. POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance. N-BUTYL ACETATE WORKERS: inhalation; contact with the skin.
	Delayed and immediate effects as well as chronic effects from short and long-term exposure	XYLENE (MIXTURE OF ISOMERS) Toxic effect on the central nervous system (encephalopathy); irritating for the skin, conjunctiva, cornea and respiratory apparatus. ETHYLBENZENE As the counterparts of benzene, may have an acute effect on the central nervous system, with depression, narcosis, often preceded by dizziness and associated with headache (Ispesl). Is irritating for skin, conjunctiva and respiratory tract. N-BUTYL ACETATE In humans, the substance's vapours cause irritation of the eyes and nose. In the event of repeated exposure, skin irritation, dermatitis (dryness and cracking of the skin) and keratitis appear.
	Interactive effects	XYLENE (MIXTURE OF ISOMERS) Intake of alcohol interferes with the metabolism of the substance, inhibiting it. Ethanol consumption (0.8 g/kg) before a 4-hour exposure to xylene vapours (145 and 280 ppm) causes a 50% reduction in the excretion of methyl hippuric acid, whereas the concentration of xylenes in the blood increases approx. 1.5-2 times. At the same time there is an increase in the secondary side effects of the ethanol. The metabolism of the xylenes is increased by phenobarbital and 3-methyl-colantrene type enzyme inducers. Aspirin and xylenes mutually inhibit their conjugation with the glycine, which results in a decrease in urinary excretion of methyl hippuric acid. Other industrial products can interfere with the metabolism of xylenes.

11. TOXICOLOGICAL INFORMATION CONTINUED

	Interactive effects	N-BUTYL ACETATE A case of acute intoxication been reported involving a 33 year old worker while cleaning a tank with a preparation containing xylenes, butyl acetate and ethylene glycol acetate. The person had irritation of the conjunctiva and upper respiratory tract, drowsiness and motor coordination disorders, which disappeared within 5 hours. The symptoms are attributed to poisoning by mixed xylenes and butyl acetate, with a possible synergistic effect responsible for the neurological effects. Cases of vacuolar keratitis are reported in workers exposed to a mixture of butyl acetate and isobutanol vapours, but with uncertainty concerning the responsibility of a particular solvent (INRC, 2011).	
	Acute toxicity	ATE (Inhalation) of the mixture:	> 20 mg/l
		ATE (Oral) of the mixture:	Not classified (no significant component)
		ATE (Dermal) of the mixture:	< 2000 mg/kg
11.1	XYLENE (MIXTURE OF ISOMERS)		
	LD5O (Oral)	> 3523 mg/kg	
	LD5O (Dermal)	4200 mg/kg	
	LC50 (Inhalation)	29 mg/l/4h	
	M-TOL YLIDENE DIISOCYANATE		
	LD5O (Oral)	4130 mg/kg	
	LD5O (Dermal)	> 9400 mg/kg	
	LC50 (Inhalation)	0, 107 mg/l/4h	
	ETHYLBENZENE		
	LD5O (Oral)	3500 mg/kg	
	LD5O (Dermal)	15400 mg/kg	
	LC50 (Inhalation)	9,5 mg/l/4h	

11. TOXICOLOGICAL INFORMATION CONTINUED

11.1	BUTANONE	
	LD5O (Oral)	2193 mg/kg
	LD5O (Dermal)	> 5000 mg/kg
	LC50 (Inhalation)	23,5 mg/l/8h
	ETHYL ACETATE	
	LD5O (Oral)	4100 mg/kg
	LD5O (Dermal)	> 2000 mg/kg
	N-BUTYL ACETATE	
	LD5O (Oral)	> 6400 mg/kg
	LD5O (Dermal)	> 5000 mg/kg
	LC50 (Inhalation)	21,1 mg/l/4h
	Aromatic polyisocyanate, based on toluendiisocyanate	
	LD5O (Oral)	> 2000 mg/kg
	LC50 (Inhalation)	> 3,82 mg/l/4h
	Health hazards	
	SKIN CORROSION / IRRITATION	Repeated exposure may cause skin dryness or cracking.
	SERIOUS EYE DAMAGE / IRRITATION	Causes serious eye irritation
	RESPIRATORY OR SKIN SENSITISATION	Sensitising for the skin
	GERM CELL MUTAGENICITY	Does not meet the classification criteria for this hazard class
	CARCINOGENICITY	Does not meet the classification criteria for this hazard class
	XYLENE (MIXTURE OF ISOMERS) Classified in Group 3 (not classifiable as a human carcinogen) by the International Agency for Research on Cancer (IARC). The US Environmental Protection Agency (EPA) affirms that "the data is inadequate for an assessment of the carcinogenic potential".	
	REPRODUCTIVE TOXICITY	Does not meet the classification criteria for this hazard class
	STOT - SINGLE EXPOSURE	May cause drowsiness or dizziness

11. TOXICOLOGICAL INFORMATION CONTINUED

11.1	STOT - REPEATED EXPOSURE	Does not meet the classification criteria for this hazard class
	ASPIRATION HAZARD	Does not meet the classification criteria for this hazard class

12. ECOLOGICAL INFORMATION

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1	Toxicity	XYLENE (MIXTURE OF ISOMERS)	
		LC50 - for Fish	4,2 mg/l/96h Oncorhynchus mykiss
		EC50 - for Crustacea	1,8 mg/l/48h Daphnia magna
		EC50 - for Algae / Aquatic Plants	2,6 mg/l/72h Pseudokirchneriella subcapitata
		Chronic NOEC for Algae / Aquatic Plants	3,4 mg/l Selenastrum capricornutum
		BUTANONE	
		LC50 - for Fish	2993 mg/l/96h Pimephales promelas
		EC50 - for Crustacea	308 mg/l/48h Daphnia
		ETHYL ACETATE	
		LC50 - for Fish	230 mg/l/96h Pimephales promelas
		EC50 - for Crustacea	260 mg/l/48h Daphnia magna
		Chronic NOEC for Fish	< 9,65 mg/l Pimephales promelas
		Chronic NOEC for Crustacea	2,4 mg/l Daphnia magna (21 d)
		N-BUTYL ACETATE	
		LC50 - for Fish	17 mg/l/96h Pimephales promelas
		EC50 - for Crustacea	44 mg/l/48h Daphnia magna
		EC50 - for Algae I Aquatic Plants	674,7 mg/l/72h Desmodesmus subspicatus
		Chronic NOEC for Crustacea	23 mg/l 21 d

12. ECOLOGICAL INFORMATION - CONTINUED

12.2	Persistence and degradability	XYLENE (MIXTURE OF ISOMERS)	
		Solubility in water - Rapidly degradable	100 - 1000 mg/I
		M-TOLYLIDENE DIISOCYANATE	
		Solubility in water - NOT Rapidly degradable	0,1 mg/I 0%
		ETHYLBENZENE	
		Solubility in water - Rapidly degradable	1000-10000 mg/I
		BUTANONE	
		Solubility in water - Rapidly degradable	> 10000 mg/I
		ETHYL ACETATE	
		Solubility in water - Rapidly degradable	> 10000 mg/I 70%
		N-BUTYL ACETATE	
		Solubility in water -Rapidly degradable	1000 - 10000 mg/I 83%

12. ECOLOGICAL INFORMATION - CONTINUED

12.3	Bioaccumulative potential	XYLENE (MIXTURE OF ISOMERS)	
		Partition coefficient: n-octanol/water BCF	3,12 25,9
		M-TOLYLIDENE DIISOCYANATE	
		Partition coefficient: n-octanol/water	3,43
		ETHYLBENZENE	
		Partition coefficient: n-octanol/water	3,6
		BUTANONE	
		Partition coefficient: n-octanol/water	0,3
		ETHYL ACETATE	
		Partition coefficient: n-octanol/water BCF	0,68 30
		N-BUTYL ACETATE	
		Partition coefficient: n-octanol/water BCF	2,3 15,3
12.4	Mobility in soil	XYLENE (MIXTURE OF ISOMERS) Partition coefficient: soil/water : 2,73 N-BUTYL ACETATE Partition coefficient: soil/water: < 3	
12.5	Results of PBT and vPvB assessment	On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.	
12.6	Other adverse effects	Information not available	

13. DISPOSAL CONSIDERATIONS

13.1	Waste treatment methods	For disposal or recovery in EU countries , use the relevant waste code (EWC code) identified in the European Waste Catalogue. The producer of the waste must assign the EWC code according to the sector and type of process. Disposal must be carried out by an authorised waste management company. After the producer of the waste has assigned the EWC code, the contaminated packaging must be sent for recovery or disposal in compliance with the European waste management regulations. Disposal must be carried out by an authorised waste management company. For waste disposal or recovery in countries outside the EU, comply with the national or local regulations in force. For disposal or recovery of contaminated packaging in countries outside the EU, comply with the national or local regulations in force. Waste transportation may be subject to regulations on transportation of hazardous goods.

14. TRANSPORT INFORMATION

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1	UN number or ID number	ADR / RID, IMDG, IATA: UN 1263
14.2	UN proper shipping name	ADR / RID: PAINT IMDG: PAINT IATA: PAINT
14.3	Transport hazard class(es)	ADR / RID: Class: 3 Label: 3 IMDG: Class: 3 Label: 3 IATA: Class: 3 Label: 3 
14.4	Packing group	ADR / RID, IMDG, IATA: II
14.5	Environmental hazards	ADR / RID: NO IMDG: NO IATA: NO
14.6	Special precautions for user	

ADR/ RID:	HIN - Kemler: 33 Special Provision: 640 C	Limited Quantities: 5 L	Tunnel restriction code: (DIE)
IMDG:	EMS: F-E, S-E	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 364
	Pass.:	Maximum quantity: 5 L A3,	Packaging instructions: 353
	Special Instructions:	A7 2, A19 2	

14.7	Maritime transport in bulk according to IMO instruments	Information not relevant

15. REGULATORY INFORMATION

Only for uses exempt from EU DIRECTIVE 2004/42/CE.

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
	Seveso Category - Directive 2012/18/EU:	P5c
	Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006	
	3 - 40	
	Substances in Candidate List (Art. 59 REACH)	On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0, 1 %.
	Substances subject to authorisation (Annex XIV REACH)	None
	Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:	None
	Substances subject to the Rotterdam Convention:	None
	Substances subject to the Stockholm Convention:	None
	Health care controls	Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.
15.2	Chemical safety assessment	A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

16. OTHER INFORMATION

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

16	Flam. Liq. 2	Flammable liquid, category 2
	Flam. Liq. 3	Flammable liquid, category 3
	Care. 2	Carcinogenicity, category 2
	Acute Tox.1	Acute toxicity, category 1
	AcuteTox. 4	Acute toxicity, category 4
	Asp. Tox.1	Aspiration hazard, category 1
	STOT RE2	Specific target organ toxicity - repeated exposure, category 2
	Eye Irrit. 2	Eye irritation, category 2
	Skin Irrit. 2	Skin irritation, category 2
	STOT SE3	Specific target organ toxicity - single exposure, category 3
	Resp. Sens. 1	Respiratory sensitization, category 1
	Skin Sens.1	Skin sensitization, category 1
	Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
	H225	Highly flammable liquid and vapour.
	H226	Flammable liquid and vapour.
	H351	Suspected of causing cancer.
	H330	Fatal if inhaled.
	H312	Harmful in contact with skin.
	H332	Harmful if inhaled.
	H304	May be fatal if swallowed and enters airways.
	H373	May cause damage to organs through prolonged or repeated exposure.

16. OTHER INFORMATION CONTINUED

16	H319	Causes skin irritation.
	H335	May cause respiratory irritation.
	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	H317	May cause an allergic skin reaction.
	H336	May cause drowsiness or dizziness.
	H412	Harmful to aquatic life with long lasting effects.
	EUH066	Repeated exposure may cause skin dryness or cracking.
	EUH204	Contains isocyanates. May produce an allergic reaction.
	LEGEND:	
	ADR	European Agreement concerning the carriage of Dangerous goods by Road
	CAS	Chemical Abstract Service Number
	CE50	Effective concentration (required to induce a 50% effect)
	CE	Identifier in ESIS (European archive of existing substances)
	CLP	Regulation (EC) 1272/2008
	DNEL	Derived No Effect Level
	EmS	Emergency Schedule
	GHS	Globally Harmonized System of classification and labelling of chemicals
	IATA DGR	International Air Transport Association Dangerous Goods Regulation
	IC50	Immobilization Concentration 50%
	IMDG	International Maritime Code for dangerous goods

16. OTHER INFORMATION CONTINUED

16	LEGEND:	
	IMO	International Maritime Organization
	INDEX NUMBER	Identifier in Annex VI of CLP
	LC50	Lethal Concentration 50%
	LD50	Lethal dose 50%
	OEL	Occupational Exposure Level
	PBT	Persistent bioaccumulative and toxic as REACH Regulation
	PEC	Predicted environmental Concentration
	PEL	Predicted exposure level
	PNEC	Predicted no effect concentration
	REACH	EC Regulation 1907/2006
	RID	Regulation concerning the international transport of dangerous goods by train
	TLV	Threshold Limit Value
	TLV CEILING	Concentration that should not be exceeded during any time of occupational exposure.
	TWA STEL	Short-term exposure limit
	TWA	Time-weighted average exposure limit
	VOC	Volatile organic Compounds
	vPvB	Very Persistent and very Bioaccumulative as for REACH Regulation
	WGK	Water hazard classes (German).

16. OTHER INFORMATION CONTINUED

16	GENERAL BIBLIOGRAPHY
	1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
	2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
	3. Regulation (EU) 790/2009 (I Alp. CLP) of the European Parliament
	4. Regulation (EU) 2015/830 of the European Parliament
	5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
	6. Regulation (EU) 618/2012 (Ill Alp. CLP) of the European Parliament
	7. Regulation (EU) 487/2013 (IV Alp. CLP) of the European Parliament
	8. Regulation (EU) 944/2013 (V Alp. CLP) of the European Parliament
	9. Regulation (EU) 605/2014 (VI Alp. CLP) of the European Parliament
	10. Regulation (EU) 2015/1221 (VII Alp. CLP) of the European Parliament
	11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament12. Regulation (EU) 2016/1179 (IX Atp. CLP)
	12. Regulation (EU) 2017n76 (X Atp. CLP)
	13. Regulation (EU) 2018/669 (XI Atp. CLP)
	14. Regulation (EU) 2018/1480 (XIII Atp. CLP)
	15. Regulation (EU) 2019/521 (XII Atp. CLP)
	- The Merck Index. - 10th Edition
	- Handling Chemical Safety
	- INRS - Fiche Toxicologique (toxicological sheet)
	- Patty - Industrial Hygiene and Toxicology
	- N.I. Sax - Dangerous properties of Industrial Materials-?, 1989 Edition

16. OTHER INFORMATION CONTINUED

16	Note for users:	The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses. Provide appointed staff with adequate training on how to use chemical products.
	CALCULATION METHODS FOR CLASSIFICATION	Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9. Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11. Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.
	Changes to previous review: The following sections were modified: 02 I 03 I 08 I 09 I 10 / 11 / 12 / 15 / 16.	