SAFETY DATA SHEET
(in accordance with Regulation (EU) 2015/830)
H419 HARDENER

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name: HARDENER
Product Code: H419

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

Polyurethane hardener to catalyze at 50%

Uses advised against:
Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company: STARDUSTCOLORS SAS
Address: ZA DE TESAN - PLAN SUD
City: 30126 SAINT LAURENT DES ARBRES -
Province: FRANCE
Telephone: Tél 04 66 50 61 66
E-mail: info@stardustcolors.com
Web: www.stardustcolors.com

1.4 Emergency telephone number: +33 (0)1 45 42 59 59
(Only available during office hours; Monday-Thursday; 08:00-13:30 14:30-18:00 Friday; 08:00-14:00)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance or mixture.
In accordance with Regulation (EU) No 1272/2008:
Eye Irrit. 2 : Causes serious eye irritation.
Flam. Liq. 2 : Highly flammable liquid and vapour.
STOT SE 3 : May cause drowsiness or dizziness.
Skin Irrit. 2 : Causes skin irritation.
Skin Sens. 1 : May cause an allergic skin reaction.

2.2 Label elements.
Labelling in accordance with Regulation (EU) No 1272/2008:
Pictograms:

Signal Word:
Danger
H statements:

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

P statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.

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P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/…
P321	Specific treatment (see ... on this label).
P370+P378	In case of fire: Use... to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.

Contains:
ethyl acetate
n-butyl acetate
Benzene, 2,4-diisocyanato-1-methyl-, homopolymer
Hexamethylene diisocyanate, oligomers
Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetrimethanol

2.3 Other hazards.
In normal use conditions and in its original form, the product itself does not involve any other risk for health and the environment.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.
Not Applicable.

3.2 Mixtures.
Substances posing a danger to health or the environment in accordance with the Regulation (EC) No. 1272/2008, assigned a Community exposure limit in the workplace, and classified as PBT/vPvB or included in the Candidate List:

Identifiers	Name	Concentrate	(*)Classification - Regulation (EC) No 1272/2008	
			Classification	specific concentration limit
CAS No: 53317-61-6 EC No: 500-120-8	Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetrimethanol	10 - 25 %	Eye Irrit. 2, H319 - Skin Sens. 1, H317	-
Index No: 607-025-00-1 CAS No: 123-86-4 EC No: 204-658-1 Registration No: 01-2119485493-29-XXXX	[1] n-butyl acetate	1 - 20 %	Flam. Liq. 3, H226 - STOT SE 3, H336	-
CAS No: 26006-20-2	Benzene, 2,4-diisocyanato-1-methyl-, homopolymer	10 - 25 %	Eye Irrit. 2, H319 - Skin Sens. 1, H317	-
Index No: 601-022-00-9 CAS No: 1330-20-7 EC No: 215-535-7 Registration No: 01-2119488216-32-XXXX	[1] xylene	10 - 25 %	Acute Tox. 4 *, H312 - Acute Tox. 4 *, H332 - Flam. Liq. 3, H226 - Skin Irrit. 2, H315	-
Index No: 607-026-00-7 CAS No: 110-19-0 EC No: 203-745-1 Registration No: 01-2119488971-22-XXXX	[1] isobutyl acetate (Mixture of isomers)	2.5 - 25 %	Flam. Liq. 2, H225	-
CAS No: 28182-81-2 EC No: 500-060-2	Hexamethylene diisocyanate, oligomers	1 - 25 %	Skin Sens. 1, H317	-

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Index No: 607-022-00-5 CAS No: 141-78-6 EC No: 205-500-4 Registration No: 01-2119475103-46-XXXX	[1] ethyl acetate	1 - 10 %	Eye Irrit. 2, H319 - Flam. Liq. 2, H225 - STOT SE 3, H336	-
Index No: 607-038-00-2 CAS No: 112-07-2 EC No: 203-933-3 Registration No: 01-2119475112-47-XXXX	[1] 2-butoxyethyl acetate, butylglycol acetate	1 - 10 %	Acute Tox. 4 *, H312 - Acute Tox. 4 *, H332	-
Index No: 607-195-00-7 CAS No: 108-65-6 EC No: 203-603-9 Registration No: 01-2119475791-29-XXXX	[1] 2-methoxy-1-methylethyl acetate	0 - 2.5 %	Flam. Liq. 3, H226	-

(*) *The complete text of the H phrases is given in section 16 of this Safety Data Sheet.*
** See Regulation (EC) No. 1272/2008, Annex VI, section 1.2.*
[1] Substance with a Community workplace exposure limit (see section 8.1).

SECTION 4: FIRST AID MEASURES.

IRRITANT MIXTURE. Its repeated or prolonged contact with the skin or mucous membranes can cause irritant symptoms such as reddening of the skin, blisters, or dermatitis. Some of the symptoms may not be immediate. They can cause allergic reactions on the skin.

4.1 Description of first aid measures.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

Inhalation.
Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration. Do not administer anything orally. If unconscious, place them in a suitable position and seek medical assistance.

Eye contact.
Remove contact lenses, if present and if it is easy to do. Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance. Dont let the person to rub the affected eye.

Skin contact.
Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. NEVER use solvents or thinners.

Ingestion.
If accidentally ingested, seek immediate medical attention. Keep calm. NEVER induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed.
Irritant Product, repeated or prolonged contact with skin or mucous membranes can cause redness, blisters or dermatitis, inhalation of spray mist or particles in suspension may cause irritation of the respiratory tract, some symptoms may not be immediate.
It may cause an allergic reaction, dermatitis, redness or inflammation of the skin.

4.3 Indication of any immediate medical attention and special treatment needed.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious. Cover the affected area with a dry sterile bandage. Protect the affected area from pressure or friction.

SECTION 5: FIREFIGHTING MEASURES.

The product is Highly inflammable, it can cause or considerably worsen a fire, the necessary prevention measures should be taken and risks avoided. In case of fire, the following measures are recommended:

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5.1 Extinguishing media.
Suitable extinguishing media:
Extinguisher powder or CO2. In case of more serious fires, also alcohol-resistant foam and water spray.

Unsuitable extinguishing media:
Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

5.2 Special hazards arising from the substance or mixture.
Special risks.
Fire can cause thick, black smoke. As a result of thermal decomposition, dangerous products can form: carbon monoxide, carbon dioxide. Exposure to combustion or decomposition products can be harmful to your health.

During a fire and depending on its magnitude the following may occur:
- Flammable vapors or gases.

5.3 Advice for firefighters.
Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways. Follow the instructions given in the emergency or fire evacuation plan or plans if available.

Fire protection equipment.
According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and boots. During extinction and depending on the magnitude and proximity to the fire, additional protective equipment such as chemical protection gloves, heat-reflecting suits or gas-tight suits may be required.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.
Eliminate possible ignition points and ventilate the area. No smoking. Avoid breathing fumes. For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions.
Prevent the contamination of drains, surface or subterranean waters, and the ground.

6.3 Methods and material for containment and cleaning up.
Contain and collect spillage with inert absorbent material (earth, sand, vermiculite, Kieselguhr...) and clean the area immediately with a suitable decontaminant.
Deposit waste in closed and suitable containers for disposal, in compliance with local and national regulations

6.4 Reference to other sections.
For exposure control and individual protection measures, see section 8.
For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.
The fumes are heavier than air and can spread across the ground. They can form explosive mixtures with air. Prevent the creation of flammable or explosive fume concentrations in the air; prevent fume concentrations above work exposure limits. The product must only be used in areas where all unprotected flames and other ignition points have been eliminated. Electrical equipment has to be protected according to applicable standards.
The product can be electrostatically charged: always use earth grounds when transferring the product. Operators must use anti-static footwear and clothing, and floors must be conductors.
Keep the container tightly closed and isolated from heat sources, sparks, and fire. Do not use tools that can cause sparks. For personal protection, see section 8.
In the application area, smoking, eating, and drinking must be prohibited.
Follow legislation on occupational health and safety.
Never use pressure to empty the containers. They are not pressure-resistant containers. Keep the product in containers made of a material identical to the original.

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7.2 Conditions for safe storage, including any incompatibilities.
Store according to local legislation. Observe indications on the label. Store the containers between 5 and 25 º C, in a dry and well-ventilated place, far from sources of heat and direct solar light. Keep far away from ignition points. Keep away from oxidising agents and from highly acidic or alkaline materials. Do not smoke. Prevent the entry of non-authorised persons. Once the containers are open, they must be carefully closed and placed vertically to prevent spills.

The product is not affected by Directive 2012/18/EU (SEVESO III).

7.3 Specific end use(s).
Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

Work exposure limit for:

Name	CAS No.	Country	Limit value	ppm	mg/m³
n-butyl acetate	123-86-4	United Kingdom [1]	**Eight hours**	150	724
			Short term	200	966
		Éire [2]	**Eight hours**	150	710
			Short term	200	950
		United States [3] (Cal/OSHA)	**Eight hours**	150	
			Short term	200	
		United States [4] (NIOSH)	**Eight hours**	150	
			Short term	200	
		United States [5] (OSHA)	**Eight hours**	150	710
			Short term		
xylene	1330-20-7	European Union [6]	**Eight hours**	50 (skin)	221 (skin)
			Short term	100 (skin)	442 (skin)
		United Kingdom [1]	**Eight hours**	50	220
			Short term	100	441
		Éire [2]	**Eight hours**	50	221
			Short term	100	442
		United States [3] (Cal/OSHA)	**Eight hours**	100	
			Short term	150 (Ceiling) 300	
		United States [4] (NIOSH)	**Eight hours**	100	
			Short term	150	
		United States [5] (OSHA)	**Eight hours**	100	435
			Short term		
isobutyl acetate (Mixture of isomers)	110-19-0	United Kingdom [1]	**Eight hours**	150	724
			Short term	187	903
		Éire [2]	**Eight hours**	150	700
			Short term		
		United States [3] (Cal/OSHA)	**Eight hours**	150	
			Short term		
		United States [4] (NIOSH)	**Eight hours**	150	
			Short term		
		United States [5] (OSHA)	**Eight hours**	150	700
			Short term		
ethyl acetate	141-78-6	European Union [6]	**Eight hours**	200	734
			Short term	400	1468
		United Kingdom [1]	**Eight hours**	200	
			Short term	400	
		Éire [2]	**Eight hours**	200	734
			Short term	400	1468
		United States [3] (Cal/OSHA)	**Eight hours**	400	
			Short term		

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		United States [4] (NIOSH)	**Eight hours**	400	
			Short term		
		United States [5] (OSHA)	**Eight hours**	400	1400
			Short term		
2-butoxyethyl acetate, butylglycol acetate	112-07-2	European Union [6]	**Eight hours**	20 (skin)	133 (skin)
			Short term	50 (skin)	333 (skin)
		United Kingdom [1]	**Eight hours**	20	133
			Short term	50	332
		Éire [2]	**Eight hours**	20	133
			Short term	50	333
2-methoxy-1-methylethyl acetate	108-65-6	European Union [6]	**Eight hours**	50 (skin)	275 (skin)
			Short term	100 (skin)	550 (skin)
		United Kingdom [1]	**Eight hours**	50	274
			Short term	100	548
		Éire [2]	**Eight hours**	50	275
			Short term	100	550

[1] According Limit Value (IOELV) list in 2nd Indicative Occupational Exposure adobted by Health and Safety Executive.
[2] According Code of Practice for the Safety, Health and Welfare at Work (Chemicals Agents) Regulations adopted by Health and Safety Authority (HSA).
[3] California Division of Occupational Safety and Health (Cal/OSHA) Permissible Exposure Limits (PELs).
[4] National Institute for Occupational Safety and Health. NIOSH Recommendations for occupational safety and health, Compendium of Policy Documents and Statements, January, 1992, DHHS (NIOSH) Publication No. 92-100.
[5] Occupational Safety and Health Administration, United States Department of Labor. Permissible Exposure limits (PELs), California Division of Occupational Safety and Health (Cal/OSHA) Permissible Exposure Limits (PELs).
[6] According both Binding Occupational Esposure Limits (BOELVs) and Indicative Occupational Exposure Limits (IOELVs) adopted by Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL).
The product does NOT contain substances with Biological Limit Values.
Concentration levels DNEL/DMEL:

Name	DNEL/DMEL	Type	Value
n-butyl acetate CAS No: 123-86-4 EC No: 204-658-1	DNEL (Workers)	Inhalation, Long-term, Systemic effects	480 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Systemic effects	102,34 (mg/m³)
	DNEL (Workers)	Inhalation, Acute, Systemic effects	960 (mg/m³)
	DNEL (General population)	Inhalation, Acute, Systemic effects	859,7 (mg/m³)
	DNEL (Workers)	Inhalation, Long-term, Local effects	480 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Local effects	102,34 (mg/m³)
	DNEL (Workers)	Inhalation, Acute, Local effects	960 (mg/m³)
	DNEL (General population)	Inhalation, Acute, Local effects	859,7 (mg/m³)
	DNEL (General population)	Oral, Long-term, Systemic effects	3,4 (mg/kg bw/day)
	DNEL (General population)	Dermal, Long-term, Systemic effects	3,4 (mg/kg bw/day)
xylene CAS No: 1330-20-7 EC No: 215-535-7	DNEL (Workers)	Inhalation, Long-term, Systemic effects	77 (mg/m³)
isobutyl acetate (Mixture of isomers) CAS No: 110-19-0 EC No: 203-745-1	DNEL (Workers)	Inhalation, Long-term, Local effects	480 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Local effects	102,34 (mg/m³)
	DNEL (Workers)	Inhalation, Long-term, Systemic effects	480 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Systemic effects	102,34 (mg/m³)

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	DNEL (Workers)	Inhalation, Acute, Systemic effects	960 (mg/m³)
	DNEL (General population)	Inhalation, Acute, Systemic effects	859,7 (mg/m³)
	DNEL (Workers)	Inhalation, Acute, Local effects	960 (mg/m³)
	DNEL (General population)	Inhalation, Acute, Local effects	859,7 (mg/m³)
ethyl acetate CAS No: 141-78-6 EC No: 205-500-4	DNEL (Workers)	Inhalation, Long-term, Systemic effects	734 (mg/m³)
	DNEL (Workers)	Inhalation, Long-term, Local effects	734 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Local effects	367 (mg/m³)
	DNEL (Workers)	Inhalation, Acute, Local effects	1468 (mg/m³)
	DNEL (General population)	Inhalation, Acute, Local effects	734 (mg/m³)
	DNEL (Workers)	Dermal, Long-term, Systemic effects	63 (mg/kg bw/day)
	DNEL (General population)	Dermal, Long-term, Systemic effects	37 (mg/kg bw/day)
2-butoxyethyl acetate, butylglycol acetate CAS No: 112-07-2 EC No: 203-933-3	DNEL (Workers)	Inhalation, Long-term, Systemic effects	133 (mg/m³)
2-methoxy-1-methylethyl acetate CAS No: 108-65-6 EC No: 203-603-9	DNEL (Workers)	Inhalation, Long-term, Systemic effects	275 (mg/m³)
	DNEL (General population)	Inhalation, Long-term, Systemic effects	33 (mg/m³)
	DNEL (Workers)	Dermal, Long-term, Systemic effects	153,5 (mg/kg bw/day)
	DNEL (General population)	Dermal, Long-term, Systemic effects	54,8 (mg/kg bw/day)
	DNEL (General population)	Oral, Long-term, Systemic effects	1,67 (mg/kg bw/day)

DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.
DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.
Concentration levels PNEC:

Name	Details	Value
n-butyl acetate CAS No: 123-86-4 EC No: 204-658-1	aqua (freshwater)	0,18 (mg/l)
	aqua (marine water)	0,018 (mg/l)
	aqua (intermittent releases)	0,36 (mg/l)
	STP	35,6 (mg/l)
	sediment (freshwater)	0,981 (mg/kg sediment dw)
	sediment (marine water)	0,0981 (mg/kg sediment dw)
isobutyl acetate (Mixture of isomers) CAS No: 110-19-0 EC No: 203-745-1	aqua (freshwater)	0,17 (mg/L)
	aqua (marine water)	0,017 (mg/L)
	aqua (intermittent releases)	0,34 (mg/L)
	STP	200 (mg/L)
	sediment (freshwater)	0,877 (mg/kg sediment dw)
	sediment (marine water)	0,0877 (mg/kg sediment dw)

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	soil	0,0755 (mg/kg soil dw)
ethyl acetate CAS No: 141-78-6 EC No: 205-500-4	aqua (freshwater)	0,24 (mg/L)
	aqua (marine water)	0,024 (mg/L)
	aqua (intermittent releases)	1,65 (mg/L)
	sediment (freshwater)	1,15 (mg/L)
	sediment (marine water)	0,115 (mg/L)
	Soil	0,148 (mg/kg soil dw)
	STP	650 (mg/L)
	oral (Hazard for predators)	0,2 (g/kg food)
2-methoxy-1-methylethyl acetate CAS No: 108-65-6 EC No: 203-603-9	aqua (freshwater)	0,635 (mg/L)
	aqua (marine water)	0,0635 (mg/L)
	aqua (intermittent releases)	6,35 (mg/L)
	STP	100 (mg/L)
	sediment (freshwater)	3,29 (mg/kg sediment dw)
	sediment (marine water)	0,329 (mg/kg sediment dw)
	soil	0,29 (mg/kg soil dw)

PNEC: Predicted No Effect Concentration, concentration of the substance below which adverse effects are not expected in the environmental compartment.

8.2 Exposure controls.

Measures of a technical nature:
Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

Concentration:	**100 %**		
Uses:	**Polyurethane hardener to catalyze at 50%**		
Breathing protection:			
PPE:	Filter mask for protection against gases and particles.		
Characteristics:	«CE» marking, category III. The mask must have a wide field of vision and an anatomically designed form in order to be sealed and watertight.		
CEN standards:	EN 136, EN 140, EN 405		
Maintenance:	Should not be stored in places exposed to high temperatures and damp environments before use. Special attention should be paid to the state of the inhalation and exhalation valves in the face adaptor.		
Observations:	Read carefully the manufacturer's instructions regarding the equipment's use and maintenance. Attach the necessary filters to the equipment according to the specific nature of the risk (Particles and aerosols: P1-P2-P3, Gases and vapours: A-B-E-K-AX), changing them as advised by the manufacturer.		
Filter Type needed:	A2		
Hand protection:			
PPE:	Protective gloves.		
Characteristics:	«CE» marking, category II.		
CEN standards:	EN 374-1, En 374-2, EN 374-3, EN 420		
Maintenance:	Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.		
Observations:	Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.		
Material:	PVC (polyvinyl chloride)	Breakthrough time (min.): > 480	Material thickness (mm): 0,35
Eye protection:			
PPE:	Face shield.		
Characteristics:	«CE» marking, category II. Face and eye protector against splashing liquid.		
CEN standards:	EN 165, EN 166, EN 167, EN 168		

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Maintenance:	Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions. Make sure that mobile parts move smoothly.
Observations:	Face shields should offer a field of vision with a dimension in the central line of, at least, 150 mm vertically once attached to the frame.
Skin protection:	
PPE:	Anti-static protective clothing.
Characteristics:	«CE» marking, category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.
CEN standards:	EN 340, EN 1149-1, EN 1149-2, EN 1149-3, EN 1149-5
Maintenance:	In order to guarantee uniform protection, follow the washing and maintenance instructions provided by the manufacturer.
Observations:	The protective clothing should offer a level of comfort in line with the level of protection provided in terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level of activity and the expected time of use.
PPE:	Anti-static safety footwear.
Characteristics:	«CE» marking, category II.
CEN standards:	EN ISO 13287, EN ISO 20344, EN ISO 20346
Maintenance:	The footwear should be checked regularly
Observations:	The level of comfort during use and acceptability are factors that are assessed very differently depending on the user. Therefore, it is advisable to try on different footwear models and, if possible, different widths.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.
Appearance:Liquid with characteristic odour and colour
Colour: N.A./N.A.
Odour:CHARACTERISTIC
Odour threshold:N.A./N.A.
pH:N.A./N.A.
Melting point:N.A./N.A.
Boiling Point: 121 ºC
Flash point: 19 ºC
Evaporation rate: N.A./N.A.
Inflammability (solid, gas): N.A./N.A.
Lower Explosive Limit: N.A./N.A.
Upper Explosive Limit: N.A./N.A.
Vapour pressure: 18,134
Vapour density:N.A./N.A.
Relative density:1
Solubility:N.A./N.A.
Liposolubility: N.A./N.A.
Hydrosolubility: N.A./N.A.
Partition coefficient (n-octanol/water): N.A./N.A.
Auto-ignition temperature: N.A./N.A.
Decomposition temperature: N.A./N.A.
Viscosity: N.A./N.A.
Explosive properties: N.A./N.A.
Oxidizing properties: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

9.2 Other information.
Dropping point: N.A./N.A.
Blink: N.A./N.A.
Kinematic viscosity: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

SECTION 10: STABILITY AND REACTIVITY.

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10.1 Reactivity.
The product does not present hazards by their reactivity.

10.2 Chemical stability.
Stable under the recommended handling and storage conditions (see section 7).

10.3 Possibility of hazardous reactions.
The product does not present possibility of hazardous reactions.

10.4 Conditions to avoid.
Avoid any improper handling.

10.5 Incompatible materials.
Keep away from oxidising agents and from highly alkaline or acidic materials in order to prevent exothermic reactions.

10.6 Hazardous decomposition products.
No decomposition if used for the intended uses.

SECTION 11: TOXICOLOGICAL INFORMATION.

2-butoxyethanol and its acetate are easily absorbed by the skin and can cause noxious effects to the kidneys.
IRRITANT MIXTURE. Splashes in the eyes can cause irritation.
IRRITANT MIXTURE. The inhalation of spray mist or suspended particulates can irritate the respiratory tract. It can also cause serious respiratory difficulties, central nervous system disorders, and in extreme cases, unconsciousness.
IRRITANT MIXTURE. Its repeated or prolonged contact with the skin or mucous membranes can cause irritant symptoms such as reddening of the skin, blisters, or dermatitis. Some of the symptoms may not be immediate. They can cause allergic reactions on the skin.

11.1 Information on toxicological effects.
Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin.

Toxicological information about the substances present in the composition.

Name	Acute toxicity			
	Type	Test	Kind	Value
n-butyl acetate CAS No: 123-86-4 EC No: 204-658-1	Oral	LD50	Rat	10800 mg/kg bw [1] [1] Acute Toxicity Data. Journal of the American College of Toxicology, Part B. Vol. 1, Pg. 196, 1992
	Dermal	LD50	Rabbit	>17600 mg/kg bw [1] [1] Raw Material Data Handbook, Vol.1: Organic Solvents, 1974. Vol. 1, Pg. 7, 1974
	Inhalation	LC50	Rat	1.85 mg/l/4 h [1] [1] Inhalation Toxicology. Vol. 9, Pg. 623, 1997
xylene CAS No: 1330-20-7 EC No: 215-535-7	Oral	LD50	Rat	4300 mg/kg bw [1] [1] AMA Archives of Industrial Health. Vol. 14, Pg. 387, 1956
	Dermal	LD50	Rabbit	> 1700 mg/kg bw [1] [1] Raw Material Data Handbook, Vol.1: Organic Solvents, 1974. Vol. 1, Pg. 123, 1974
	Inhalation	LC50	Rat	21,7 mg/l/4 h [1] [1] Raw Material Data Handbook, Vol.1: Organic Solvents, 1974. Vol. 1, Pg. 123, 1974
isobutyl acetate (Mixture of isomers)	Oral	LD50	Rat	13413 mg/kg bw [1] [1] Experimental result, OECD Guideline 401 (Acute Oral Toxicity).

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CAS No: 110-19-0 EC No: 203-745-1	Dermal	LD50 Rabbit >17400 mg/kg bw [1] [1] Experimental result, 1962. OECD Guideline 402 (Acute Dermal Toxicity).
	Inhalation	LC50 Rat >30 mg/L air (analytical) (6 h) [1] [1] Study report, 1994. EPA OTS 798.6050 (Neurotoxicity Screening Battery).
2-methoxy-1-methylethyl acetate CAS No: 108-65-6 EC No: 203-603-9	Oral	LD50 Rat 6190 mg/kg bw [1] [1] Study report, 1985. OECD Guideline 401 (Acute Oral Toxicity).
	Dermal	LD50 Rabbit >5000 mg/kg bw [1] [1] Dow Chemical Company Reports. Vol. MSD-1582
	Inhalation	LC0 Rat >4345 ppm (6 h) [1] [1] Study report, 1980. OECD Guideline 403 (Acute Inhalation Toxicity).

a) acute toxicity;
Not conclusive data for classification.

Acute Toxicity Estimate (ATE):
Mixtures:
ATE (Dermal) = 7.333 mg/kg

b) skin corrosion/irritation;
Product classified:
Skin irritant, Category 2: Causes skin irritation.

c) serious eye damage/irritation;
Product classified:
Eye irritation, Category 2: Causes serious eye irritation.

d) respiratory or skin sensitisation;
Product classified:
Skin sensitiser, Category 1: May cause an allergic skin reaction.

e) germ cell mutagenicity;
Not conclusive data for classification.

f) carcinogenicity;
Not conclusive data for classification.

g) reproductive toxicity;
Not conclusive data for classification.

h) STOT-single exposure;
Product classified:
Specific target organ toxicity following a single exposure, Category 3: May cause drowsiness or dizziness.

i) STOT-repeated exposure;
Not conclusive data for classification.

j) aspiration hazard;
Not conclusive data for classification.

SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

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Name	Ecotoxicity			
	Type	**Test**	**Kind**	**Value**
n-butyl acetate CAS No: 123-86-4 EC No: 204-658-1	Fish	LC50	Fish	81 mg/l (96 h) [1] [1] Wellens, H. 1982. Comparison of the Sensitivity of Brachydanio rerio and Leuciscus idus by Testing the Fish Toxicity of Chemicals and Wastewaters. Z.Wasser-Abwasser-Forsch. 51(2):49-52 (GER) (ENG ABS). Dawson, G.W., A.L. Jennings, D. Drozdowski, and E. Rider 1977. The Acute Toxicity of 47 Industrial Chemicals to Fresh and Saltwater Fishes. J.Hazard.Mater. 1(4):303-318 (OECDG Data File)
	Aquatic invertebrates	EC50	Daphnia sp.	44 mg/l (48 h) [1] [1] publication, 1959
	Aquatic plants	EC50	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	674.7 mg/l (72 h) [1] [1] Method: other: algae growth inhibition test, according to Umweltbundesamt (German Federal Environment Agency) (proposal/draft, version February 1984)
xylene CAS No: 1330-20-7 EC No: 215-535-7	Fish	LC50	Fish	15,7 mg/l (96 h) [1] [1] Bailey, H.C., D.H.W. Liu, and H.A. Javitz 1985. Time/Toxicity Relationships in Short-Term Static, Dynamic, and Plug-Flow Bioassays. In: R.C.Bahner and D.J.Hansen (Eds.), Aquatic Toxicology and Hazard Assessment, 8th Symposium, ASTM STP 891, Philadelphia, PA :193-212
	Aquatic invertebrates	LC50	Crustacean	8,5 mg/l (48 h) [1] [1] Tatem, H.E., B.A. Cox, and J.W. Anderson 1978. The Toxicity of Oils and Petroleum Hydrocarbons to Estuarine Crustaceans. Estuar.Coast.Mar.Sci. 6(4):365-373. Tatem, H.E. 1975. The Toxicity and Physiological Effects of Oil and Petroleum Hydrocarbons on Estuarine Grass Shrimp Palaemonetes pugio (Holthuis). Ph.D.Thesis, Texas A&M University, College Station, TX :133 p
	Aquatic plants			
isobutyl acetate (Mixture of isomers) CAS No: 110-19-0 EC No: 203-745-1	Fish	LC50	Leuciscus idus melanotus	101 mg/l (48 h) [1] [1] Experimental result, DIN38412 part 15 (preprint 1976).
	Aquatic invertebrates	EC50	Daphnia magna	168 mg/l (24 h) [1] [1] Exposure period was 24 h in this study, whereas the current OECD Test guideline 202 (April 13th, 2004) requires 48 h.. Further, there was no measurement of dissolved oxygen and no analytical determination of the test substance.
	Aquatic plants	EC50	Pseudokirchnerella subcapitata	370 mg/l (72 h) [1] [1] Experimental result, 1999. OECD Guideline 201 (Alga, Growth Inhibition Test).
ethyl acetate	Fish	LC50	Pimephales promelas	230 mg/l (96 h) [1]

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		[1] US EPA method E03-05, 1984
	Aquatic invertebrates	EC50 Hydra Oligactis (Hydrozoa) 1350 mg/l (48 h) [1] [1] Aquat. Toxicol. 4, 73 - 82, Slooff, W. 1983
CAS No: 141-78-6 EC No: 205-500-4	Aquatic plants	EC50 Algae 2500 mg/l (96 h) [1] [1] Slooff, W. 1982. A Comparative Study on the Short-Term Effects of 15 Chemicals on Fresh Water Organisms of Different Tropic Levels. Natl.Tech.Inf.Serv., Springfield, VA :25 p. (DUT) (ENG ABS) (NTIS/PB83-200386)
2-methoxy-1-methylethyl acetate	Fish	LC50 Oryzias latipes 100 mg/L (96 h) [1] [1] Environment Agency of Japan (1998)
	Aquatic invertebrates	EC50 Daphnia magna 407 mg/L (48 h) [1] [1] Environment Agency of Japan (1998)
CAS No: 108-65-6 EC No: 203-603-9	Aquatic plants	EC50 Selenastrum capricornutum (Pseudokirchnerella subcapitata) >1000 mg/L (72 h) [1] [1] Environment Agency of Japan (1998)

12.2 Persistence and degradability.

No information is available regarding the biodegradability of the substances present.
No information is available on the degradability of the substances present.No information is available about persistence and degradability of the product.

12.3 Bioaccumulative potential.
Information about the bioaccumulation of the substances present.

Name	Bioaccumulation			
	Log Pow	BCF	NOECs	Level
n-butyl acetate CAS No: 123-86-4 EC No: 204-658-1	1,78	-	-	Very low
isobutyl acetate (Mixture of isomers) CAS No: 110-19-0 EC No: 203-745-1	1,78	-	-	Very low
ethyl acetate CAS No: 141-78-6 EC No: 205-500-4	0,73	-	9,65 mg/L	Very low

12.4 Mobility in soil.
No information is available about the mobility in soil.
The product must not be allowed to go into sewers or waterways.
Prevent penetration into the ground.

12.5 Results of PBT and vPvB assessment.
No information is available about the results of PBT and vPvB assessment of the product.

12.6 Other adverse effects.
No information is available about other adverse effects for the environment.

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SECTION 13: DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.
Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.
Follow the provisions of Directive 2008/98/EC regarding waste management.

SECTION 14: TRANSPORT INFORMATION.

Transport following ADR rules for road transport, RID rules for railway, ADN for inner waterways, IMDG for sea, and ICAO/IATA for air transport.
Land: Transport by road: ADR, Transport by rail: RID.
Transport documentation: Consignment note and written instructions
Sea: Transport by ship: IMDG.
Transport documentation: Bill of lading
Air: Transport by plane: ICAO/IATA.
Transport document: Airway bill.

14.1 UN number.
UN No: UN1263

14.2 UN proper shipping name.
Description:
ADR: UN 1263, PAINT, 3, PG II, (D/E)
IMDG: UN 1263, PAINT, 3, PG II (19ºC)
ICAO/IATA: UN 1263, PAINT, 3, PG II

14.3 Transport hazard class(es).
Class(es): 3

14.4 Packing group.
Packing group: II

14.5 Environmental hazards.
Marine pollutant: No

14.6 Special precautions for user.
Labels: 3

Hazard number: 33
ADR LQ: 5 L
IMDG LQ: 5 L
ICAO LQ: 1 L

Provisions concerning carriage in bulk ADR: Not authorized carriage in bulk in accordance with ADR.
Transport by ship, FEm – Emergency sheets (F – Fire, S - Spills): F-E,S-E
Proceed in accordance with point 6.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code.
The product is not transported in bulk.

SECTION 15: REGULATORY INFORMATION.

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15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.
The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): N/A
The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.
The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.
Restrictions on the manufacturing, placing on the market and use of certain dangerous substances, mixtures and articles:

Designation of the substance, of the group of substances or of the mixture	**Conditions of restriction**
74. Diisocyanates, O = C = N- R-N = C = O, where R is an aliphatic or aromatic hydrocarbon structure of unspecified length	1. Shall not be used as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 August 2023, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the employer or self-employed ensures that industrial or professional user(s) have successfully completed training on the safe use of diisocyanates prior to the use of the substance(s) or mixture(s).2. Shall not be placed on the market as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 February 2022, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the supplier ensures that the recipient of the substance(s) or mixture(s) is provided with information on the requirements referred to in point (b) of paragraph 1 and the following statement is placed on the packaging, in a manner that is visibly distinct from the rest of the label information: 'As from 24 August 2023 adequate training is required before industrial or professional use'. 3. For the purpose of this entry 'industrial and professional user(s)' means any worker or self-employed worker handling diisocyanates on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) or supervising these tasks. 4. The training referred to in point (b) of paragraph 1 shall include the instructions for the control of dermal and inhalation exposure to diisocyanates at the workplace without prejudice to any national occupational exposure limit value or other appropriate risk management measures at national level. Such training shall be conducted by an expert on occupational safety and health with competence acquired by relevant vocational training. That training shall cover as a minimum: (a) the training elements in point (a) of paragraph 5 for all industrial and professional use(s). (b) the training elements in points (a) and (b) of paragraph 5 for the following uses: - handling open mixtures at ambient temperature (including foam tunnels); - spraying in a ventilated booth; - application by roller; - application by brush;

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	- application by dipping and pouring; - mechanical post treatment (e.g. cutting) of not fully cured articles which are not warm anymore; - cleaning and waste; - any other uses with similar exposure through the dermal and/or inhalation route; (c) the training elements in points (a), (b) and (c) of paragraph 5 for the following uses: - handling incompletely cured articles (e.g. freshly cured, still warm); - foundry applications; - maintenance and repair that needs access to equipment; - open handling of warm or hot formulations (> 45 °C); - spraying in open air, with limited or only natural ventilation (includes large industry working halls) and spraying with high energy (e.g. foams, elastomers); - and any other uses with similar exposure through the dermal and/or inhalation route. 5. Training elements: (a) general training, including on-line training, on: - chemistry of diisocyanates; - toxicity hazards (including acute toxicity); - exposure to diisocyanates; - occupational exposure limit values; - how sensitisation can develop; - odour as indication of hazard; - importance of volatility for risk; - viscosity, temperature, and molecular weight of diisocyanates; - personal hygiene; - personal protective equipment needed, including practical instructions for its correct use and its limitations; - risk of dermal contact and inhalation exposure; - risk in relation to application process used; - skin and inhalation protection scheme; - ventilation; - cleaning, leakages, maintenance;

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	- discarding empty packaging; - protection of bystanders; - identification of critical handling stages; - specific national code systems (if applicable); - behaviour-based safety; - certification or documented proof that training has been successfully completed (b) intermediate level training, including on-line training, on: - additional behaviour-based aspects; - maintenance; - management of change; - evaluation of existing safety instructions; - risk in relation to application process used; - certification or documented proof that training has been successfully completed (c) advanced training, including on-line training, on: - any additional certification needed for the specific uses covered; - spraying outside a spraying booth; - open handling of hot or warm formulations (> 45 °C); - certification or documented proof that training has been successfully completed 6. The training shall comply with the provisions set by the Member State in which the industrial or professional user(s) operate. Member States may implement or continue to apply their own national requirements for the use of the substance(s) or mixture(s), as long as the minimum requirements set out in paragraphs 4 and 5 are met. 7. The supplier referred to in point (b) of paragraph 2 shall ensure that the recipient is provided with training material and courses pursuant to paragraphs 4 and 5 in the official language(s) of the Member State(s) where the substance(s) or mixture(s) are supplied. The training shall take into consideration the specificity of the products supplied, including composition, packaging, and design. 8. The employer or self-employed shall document the successful completion of the training referred to in paragraphs 4 and 5. The training shall be renewed at least every five years. 9. Member States shall include in their reports pursuant to Article 117(1) the following information: (a) any established training requirements and other risk management measures related to the industrial and professional uses of diisocyanates foreseen in national law; (b) the number of cases of reported and recognised occupational asthma and

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	occupational respiratory and dermal diseases in relation to diisocyanates; (c) national exposure limits for diisocyanates, if there are any; (d) information about enforcement activities related to this restriction. 10. This restriction shall apply without prejudice to other Union legislation on the protection of safety and health of workers at the workplace.

15.2 Chemical safety assessment.
No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION.

Complete text of the H phrases that appear in section 3:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.

Classification codes:

Acute Tox. 4 : Acute toxicity (Dermal), Category 4
Acute Tox. 4 : Acute toxicity (Inhalation), Category 4
Eye Irrit. 2 : Eye irritation, Category 2
Flam. Liq. 2 : Flammable liquid, Category 2
Flam. Liq. 3 : Flammable liquid, Category 3
STOT SE 3 : Specific target organ toxicity following a single exposure, Category 3
Skin Irrit. 2 : Skin irritant, Category 2
Skin Sens. 1 : Skin sensitiser, Category 1

Changes regarding to the previous version:

- Change of the name of the product (SECTION 1.1).
- Change of the uses of the product (SECTION 1.2).

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data
Health hazards	Calculation method
Environmental hazards	Calculation method

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Abbreviations and acronyms used:
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
BCF: Bioconcentration factor.
CEN: European Committee for Standardization.
DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.
DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not

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anticipated.
EC50: Half maximal effective concentration.
PPE: Personal protection equipment.
IATA: International Air Transport Association.
ICAO: International Civil Aviation Organization.
IMDG: International Maritime Code for Dangerous Goods.
LC50: Lethal concentration, 50%.
LD50: Lethal dose, 50%.
Log Pow: Logarithm of the partition octanol-water.
NOEC: No observed effect concentration.
PNEC: Predicted No Effect Concentration, concentration of the substance below which adverse effects are not expected in the environmental compartment.
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

Key literature references and sources for data:
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/
Regulation (EU) 2015/830.
Regulation (EC) No 1907/2006.
Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.

-End of safety data sheet.-