Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878

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

1.1. Product identifier

Code: **68H**
Product name **STRATOFLEX 3K (A)**

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

Intended use **SOLVENT-FREE WHITE BI-COMPONENT EPOXY RESIN**

1.3. Details of the supplier of the safety data sheet

Name **NORD RESINE S.p.A.**
Full address **Via Fornace Vecchia, 79**
District and Country **31058 Susegana (TV)**
Italia
Tel. +39 0438-437511
Fax +39 0438-435155

e-mail address of the competent person responsible for the Safety Data Sheet **annabreda@nordresine.com**

Supplier: **NORD RESINE S.p.A.**

1.4. Emergency telephone number

For urgent inquiries refer to

Ireland
National Poisons Information Centre
+353 018092166
+353 018092566

Malta
Malta Competition and Consumer Affairs Authority (MCCAA)
+356 2395 2000

Belgium
Centre Antipoisons: +32 022649636

Germany
BfR Bundesinstitut für Risikobewertung: +49 30184120

Netherlands
National Poisons Information Center / University Medical Center Utrecht
+31 88 75 585 61

Croatia
Croatian Institute of Public Health, Division for Toxicology: +38514686910

Sveden
Swedish Poisons Information Centre: +46104566750

SECTION 2. Hazards 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 2020/878.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Germ cell mutagenicity, category 2	H341	Suspected of causing genetic defects.

SECTION 2. Hazards identification ... / >>

Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.
Skin sensitization, category 1A	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment, chronic toxicity, category 2	H411	Toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms:

Signal words: Warning

Hazard statements:

H341	Suspected of causing genetic defects.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.
EUH205	Contains epoxy constituents. May produce an allergic reaction.

Precautionary statements:

P280	Wear protective gloves/ protective clothing / eye protection / face protection.
P273	Avoid release to the environment.
P391	Collect spillage.
P261	Avoid breathing dust.
P201	Obtain special instructions before use.
P308+P313	IF exposed or concerned: Get medical advice / attention.

Contains:
2,3-epoxypropyl o-tolyl ether
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane
bis-[4-(2,3-epoxipropoxi)phenyl]propane
Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane
BENZYL ALCOHOL
MALEIC ANHYDRIDE
2,3-EPOXYPROPYL NEODECANOATE

Product not intended for uses provided for by Directive 2004/42/EC.

2.3. Other hazards

vPvB substances contained:
DIISOPROPYLNAPHTHALENE

PBT substances contained:
DIISOPROPYLNAPHTHALENE

The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification		x = Conc. %	Classification (EC) 1272/2008 (CLP)
bis-[4-(2,3-epoxipropoxi)phenyl]propane			
INDEX	*603-073-00-2*	25 ≤ x < 35	**Eye Irrit. 2 H319, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Chronic 2 H411**
EC	*216-823-5*		**Skin Irrit. 2 H315: ≥ 5%, Eye Irrit. 2 H319: ≥ 5%**
CAS	*1675-54-3*		
REACH Reg.	*01-2119456619-26*		
Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane			
INDEX		20 ≤ x < 25	**Skin Irrit. 2 H315, Skin Sens. 1A H317, Aquatic Chronic 2 H411**
EC	*701-263-0*		
CAS	*9003-36-5*		
REACH Reg.	*01-2119454392-40*		
TITANIUM DIOXIDE			
INDEX		7 ≤ x < 11	**EUH212**
EC	*236-675-5*		
CAS	*13463-67-7*		
REACH Reg.	*01-2119489379-17*		
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane			
INDEX		1 ≤ x < 3	**Eye Irrit. 2 H319, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Chronic 3 H412**
EC	*618-939-5*		
CAS	*933999-84-9*		
REACH Reg.	*01-2119463471-41*		
DIISOPROPYLNAPHTHALENE			
INDEX		1 ≤ x < 2,5	**Asp. Tox. 1 H304, Aquatic Chronic 1 H410 M=1**
EC	*254-052-6*		
CAS	*38640-62-9*		
REACH Reg.	*01-2119565150-48*		
2,3-epoxypropyl o-tolyl ether			
INDEX	*603-056-00-X*	1 ≤ x < 2,5	**Muta. 2 H341, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Chronic 2 H411, Classification note according to Annex VI to the CLP Regulation: C**
EC	*218-645-3*		
CAS	*2210-79-9*		
REACH Reg.	*01-2119966907-18*		
BENZYL ALCOHOL			
INDEX	*603-057-00-5*	1 ≤ x < 3	**Acute Tox. 4 H302, Eye Irrit. 2 H319, Skin Sens. 1B H317**
EC	*202-859-9*		**LD50 Oral: 1200 mg/kg**
CAS	*100-51-6*		
REACH Reg.	*01-2119492630-38*		
2-METHOXY-1-METHYLETHYL ACETATE			
INDEX	*607-195-00-7*	0,5 ≤ x < 1	**Flam. Liq. 3 H226, STOT SE 3 H336**
EC	*203-603-9*		
CAS	*108-65-6*		
REACH Reg.	*01-2119475791-29*		
2,3-EPOXYPROPYL NEODECANOATE			
INDEX		0,5 ≤ x < 1	**Muta. 2 H341, Repr. 2 H361d, Skin Sens. 1 H317, Aquatic Chronic 2 H411**
EC	*247-979-2*		
CAS	*26761-45-5*		
REACH Reg.	*01-2119431597-33*		
4-HYDROXY-4-METHYLPENTAN-2-ONE			
INDEX	*603-016-00-1*	0,1 ≤ x < 0,5	**Repr. 2 H361d, Eye Irrit. 2 H319, STOT SE 3 H335**
EC	*204-626-7*		
CAS	*123-42-2*		
REACH Reg.	*01-2119473975-21*		
N-BUTYL ACETATE			
INDEX	*607-025-00-1*	0,1 ≤ x < 0,5	**Flam. Liq. 3 H226, STOT SE 3 H336, EUH066**
EC	*204-658-1*		
CAS	*123-86-4*		
REACH Reg.	*01-2119485493-29*		

SECTION 3. Composition/information on ingredients ... / >>

XYLENE (MIXTURE OF ISOMERS)

INDEX	*601-022-00-9*	0 < x < 0,1	**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, Classification note according to Annex VI to the CLP Regulation: C**
EC	*215-535-7*		**ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l**
CAS	*1330-20-7*		
REACH Reg.	*01-2119488216-32*		

ETHYLBENZENE

INDEX	*601-023-00-4*	0 < x < 0,1	**Flam. Liq. 2 H225, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373**
EC	*202-849-4*		**LC50 Inhalation vapours: 17,2 mg/l/4h**
CAS	*100-41-4*		
REACH Reg.	*01-2119489370-35*		

MIXED XYLENES, ETHYLBENZENE

INDEX	*601-022-00-9*	0 < x < 0,1	**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 according to Annex VI to the CLP Regulation: C**
EC	*215-535-7*		**ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l**
CAS	*1330-20-7*		
REACH Reg.	*01-2119488216-32*		

1-METHOXY-2-PROPANOL

INDEX	*603-064-00-3*	0 < x < 0,01	**Flam. Liq. 3 H226, STOT SE 3 H336**
EC	*203-539-1*		
CAS	*107-98-2*		
REACH Reg.	*01-2119457435-35*		

ETHYLBENZENE

INDEX	*601-023-00-4*	0 < x < 0,01	**Flam. Liq. 2 H225, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373, Aquatic Chronic 3 H412**
EC	*202-849-4*		**LC50 Inhalation vapours: 17,2 mg/l/4h**
CAS	*100-41-4*		
REACH Reg.	*01-2119489370-35*		

MALEIC ANHYDRIDE

INDEX	*607-096-00-9*	0 < x < 0,001	**Acute Tox. 4 H302, STOT RE 1 H372, Skin Corr. 1B H314, Eye Dam. 1 H318, Resp. Sens. 1 H334, Skin Sens. 1A H317, EUH071**
EC	*203-571-6*		**Skin Sens. 1A H317: ≥ 0,001%**
CAS	*108-31-6*		**LD50 Oral: 1090 mg/kg**
REACH Reg.	*01-2119472428-31*		

Quartz

INDEX		0 < x < 0,01	**STOT RE 1 H372**
EC	*238-878-4*		
CAS	*14808-60-7*		

ETHYL METHYL KETONE

INDEX	*606-002-00-3*	0 < x < 0,01	**Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066**
EC	*201-159-0*		
CAS	*78-93-3*		
REACH Reg.	*01-2119457290-43*		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 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.
EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.
INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuer protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal

SECTION 4. First aid measures ... / >>

protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

4.3. Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice / attention.
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Treatment: see section 4.1

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
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).

SECTION 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.

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.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

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. Keep containers away from any incompatible materials, see section 10 for details.

2-METHOXY-1-METHYLETHYL ACETATE
Store in an inert atmosphere, sheletered from moisture because it hydrolises easily.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

CZE	Česká Republika	NAŘÍZENÍ VLÁDY ze dne 10. května 2021, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při práci
DEU	Deutschland	Forschungsgemeinschaft MAK- und BAT-Werte-Liste 2022 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 58
ESP	España	Límites de exposición profesional para agentes químicos en España 2023
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021
GRC	Ελλάδα	Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ ''σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία''»
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
HRV	Hrvatska	Pravilnik o izmjenama i dopunama Pravilnika o zaštiti radnika od izloženosti opasnimkemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
NLD	Nederland	Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit
PRT	Portugal	Decreto-Lei n.º 1/2021 de 6 de janeiro, valores-limite de exposição profissional indicativos para os agentes químicos. Decreto-Lei n.º 35/2020 de 13 de julho, proteção dos trabalhadores contra os riscos ligados à exposição durante o trabalho a agentes cancerígenos ou mutagénicos
POL	Polska	Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy
ROU	România	Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006
RUS	Россия	ПОСТАНОВЛЕНИЕ от 13 февраля 2018 г. N 25 ОБ УТВЕРЖДЕНИИ ГИГИЕНИЧЕСКИХ НОРМАТИВОВ ГН 2.2.5.3532-18 "ПРЕДЕЛЬНО ДОПУСТИМЫЕ КОНЦЕНТРАЦИИ (ПДК) ВРЕДНЫХ ВЕЩЕСТВ В ВОЗДУХЕ РАБОЧЕЙ ЗОНЫ"
SVN	Slovenija	Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu (Uradni list RS, št. 100/01, 39/05, 53/07, 102/10, 43/11 – ZVZD-1, 38/15, 78/18 in 78/19)
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; 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.
	TLV-ACGIH	ACGIH 2025

SECTION 8. Exposure controls/personal protection ... / >>

2,3-epoxypropyl o-tolyl ether

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,0028	mg/l
Normal value in marine water	0,00028	mg/l
Normal value for fresh water sediment	0,039	mg/kg/d
Normal value for marine water sediment	0,0039	mg/kg/d
Normal value of STP microorganisms	10	mg/l
Normal value for the terrestrial compartment	0,012	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				0,14 mg/kg bw/d				
Inhalation					40 mg/m3	40 mg/m3	0,46 mg/m3	0,46 mg/m3
Skin								0,139 mg/kg bw/d

TITANIUM DIOXIDE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
MAK	DEU	0,3		2,4		RESP	Hinweis
VLA	ESP	10					
VLEP	FRA	10					
TLV	GRC		10				
GVI/KGVI	HRV	10				INHAL	
GVI/KGVI	HRV	4				RESP	
NDS/NDSCh	POL	10				INHAL	
TLV	ROU	10		15			
ПДК	RUS	10					a, Ф
WEL	GBR	10				INHAL	
WEL	GBR	4				RESP	
TLV-ACGIH		0,2				RESP	

SECTION 8. Exposure controls/personal protection ... / >>

2-METHOXY-1-METHYLETHYL ACETATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
TLV	CZE	270	49,14	550	100,1	SKIN	
AGW	DEU	270	50	270	50		
MAK	DEU	270	50	270	50		
VLA	ESP	275	50	550	100	SKIN	
VLEP	FRA	275	50	550	100	SKIN	
TLV	GRC	275	50	550	100		
AK	HUN	275	50	550	100		
GVI/KGVI	HRV	275	50	550	100	SKIN	
VLEP	ITA	275	50	550	100	SKIN	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	550					
VLE	PRT	275	50	550	100	SKIN	
NDS/NDSCh	POL	260		520		SKIN	
TLV	ROU	275	50	550	100	SKIN	
ПДК	RUS			10			п
MV	SVN	275	50	550	100	SKIN	
WEL	GBR	274	50	548	100	SKIN	
OEL	EU	275	50	550	100	SKIN	

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,635	mg/l
Normal value in marine water	0,0635	mg/l
Normal value for fresh water sediment	3,29	mg/kg
Normal value for marine water sediment	0,329	mg/kg
Normal value for water, intermittent release	6,35	mg/l
Normal value of STP microorganisms	100	mg/l
Normal value for the terrestrial compartment	0,29	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				36 mg/kg/d				
Inhalation				33 mg/m3			NPI	275 mg/m3
Skin			NPI	320 mg/kg/d			NPI	796 mg/kg/d

Quartz

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
VLA	ESP		0,05			RESP	
VLEP	FRA	0,1				RESP	
GVI/KGVI	HRV	0,1					
VLEP	ITA	0,1				RESP	Allegato XXXVIII D. Lgs. 81/08
TGG	NLD	0,075				RESP	
VLE	PRT	0,025				RESP	
NDS/NDSCh	POL	0,1				RESP	
TLV	ROU	0,1				RESP	
MV	SVN	0,15				RESP	
OEL	EU	0,1				RESP	
TLV-ACGIH		0,025				RESP	

SECTION 8. Exposure controls/personal protection ... / >>

ETHYLBENZENE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
TLV	CZE	200	45,4	500	113,5	SKIN	
AGW	DEU	88	20	176	40	SKIN	
MAK	DEU	88	20	176	40	SKIN	
VLA	ESP	441	100	884	200	SKIN	
VLEP	FRA	88,4	20	442	100	SKIN	
TLV	GRC	435	100	545	125		
AK	HUN	442	100	884	200	SKIN	
GVI/KGVI	HRV	442	100	884	200	SKIN	
VLEP	ITA	442	100	884	200	SKIN	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	215		430		SKIN	
VLE	PRT	442	100	884	200	SKIN	
NDS/NDSCh	POL	200		400		SKIN	
TLV	ROU	442	100	884	200	SKIN	
ПДК	RUS	50		150			п
MV	SVN	442	100	884	200	SKIN	
WEL	GBR	441	100	552	125	SKIN	
OEL	EU	442	100	884	200	SKIN	
TLV-ACGIH		87	20				

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/d
Normal value for marine water sediment	1,37	mg/kg/d
Normal value for marine 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/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		NPI		1,6 mg/kg bw/d				
Inhalation	LOW	LOW	LOW	15 mg/m3	293 mg/m3	LOW	442 mg/m3	77 mg/m3
Skin	NPI	NPI	NPI	NPI	NPI	NPI	NPI	180 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

BENZYL ALCOHOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	40	8,88	80	17,76	
AGW	DEU	22	5	44	10	SKIN 11
MAK	DEU	22	5	44	10	SKIN
NDS/NDSCh	POL	240				
ПДК	RUS			5		п
MV	SVN	22	5	44	10	SKIN

Predicted no-effect concentration - PNEC

Normal value in fresh water	1	mg/l
Normal value in marine water	0,1	mg/l
Normal value for fresh water sediment	5,27	mg/kg
Normal value for marine water sediment	0,527	mg/kg
Normal value for water, intermittent release	2,3	mg/l
Normal value of STP microorganisms	39	mg/l
Normal value for the terrestrial compartment	0,45	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		20 mg/kg bw/d		4 mg/kg bw/d				
Inhalation		27 mg/m3		5,4 mg/m3		110 mg/m3		22 mg/m3
Skin		20 mg/kg bw/d		4 mg/kg bw/d		40 mg/kg bw/d		8 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

1-METHOXY-2-PROPANOL

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
TLV	CZE	270	72,09	550	146,85	SKIN	
AGW	DEU	370	100	740	200		
MAK	DEU	370	100	740	200		
VLA	ESP	375	100	568	150	SKIN	
VLEP	FRA	188	50	375	100	SKIN	
TLV	GRC	360	100	1080	300		
AK	HUN	375	100	568	150	SKIN	
GVI/KGVI	HRV	375	100	568	150		
VLEP	ITA	375	100	568	150	SKIN	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	375		563		SKIN	
VLE	PRT	375	100	568	150		
NDS/NDSCh	POL	180		360		SKIN	
TLV	ROU	375	100	568	150	SKIN	
MV	SVN	375	100	568	150	SKIN	
WEL	GBR	375	100	560	150	SKIN	
OEL	EU	375	100	568	150	SKIN	
TLV-ACGIH		184	50	368	100		

Predicted no-effect concentration - PNEC

Normal value in fresh water	10	mg/l
Normal value in marine water	1	mg/l
Normal value for fresh water sediment	52,3	mg/kg
Normal value for marine water sediment	5,2	mg/kg
Normal value for water, intermittent release	100	mg/l
Normal value of STP microorganisms	100	mg/l
Normal value for the terrestrial compartment	4,59	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		NPI		33 mg/kg bw/d				
Inhalation		NPI	NPI	43,9 mg/m3	553,5 mg/m3	553,5 mg/m3	NPI	369 mg/m3
Skin		NPI	NPI	78 mg/kg bw/d	NPI	NPI	NPI	183 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

ETHYL METHYL KETONE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	600	200,4	900	300,6	
AGW	DEU	600	200	600	200	SKIN
MAK	DEU	600	200	600	200	SKIN
VLA	ESP	600	200	900	300	
VLEP	FRA	600	200	900	300	SKIN
TLV	GRC	600	200	900	300	
AK	HUN	600	200	900	300	SKIN
GVI/KGVI	HRV	600	200	900	300	
VLEP	ITA	600	200	900	300	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	590		500		SKIN
VLE	PRT	600	200	900	300	
NDS/NDSCh	POL	450		900		SKIN
TLV	ROU	600	200	900	300	
ПДК	RUS	200		400		п
MV	SVN	600	200	900	300	SKIN
WEL	GBR	600	200	899	300	SKIN
OEL	EU	600	200	900	300	
TLV-ACGIH		590	200	885	300	

Predicted no-effect concentration - PNEC

Normal value in fresh water	55,8	mg/l
Normal value in marine water	55,8	mg/l
Normal value for fresh water sediment	284,74	mg/kg
Normal value of STP microorganisms	709	mg/l
Normal value for the food chain (secondary poisoning)	100	mg/kg
Normal value for the terrestrial compartment	22,5	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				31 mg/kg bw/d				
Inhalation				106 mg/m3				600 mg/m3
Skin				412 mg/kg bw/d				1161 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

N-BUTYL ACETATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	241		723		
AGW	DEU	300	62	600	124	
MAK	DEU	480	100	960	200	
VLA	ESP	241	50	723	150	
VLEP	FRA	241	50	723	150	
TLV	GRC	710	150	950	200	
AK	HUN	241	50	723	150	
GVI/KGVI	HRV	241	50	723	150	
VLEP	ITA	241	50	723	150	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	150				
VLE	PRT	241	50	723	150	
NDS/NDSCh	POL	240		720		
TLV	ROU	241	50	723	150	
ПДК	RUS			0,1		п
MV	SVN	300	62	600	124	
WEL	GBR	724	150	966	200	
OEL	EU	241	50	723	150	
TLV-ACGIH			50		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/d
Normal value for marine water sediment	0,0981	mg/kg/d
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

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		2 mg/kg/d		2 mg/kg/d				
Inhalation	300 mg/m3	300 mg/m3	35,7 mg/m3	35,7 mg/m3	600 mg/m3	600 mg/m3	300 mg/m3	300 mg/m3
Skin		6 mg/kg/d		6 mg/kg/d		11 mg/kg bw/d		11 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

MALEIC ANHYDRIDE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	1	0,245	2	0,49	
AGW	DEU	0,081	0,02	0,081	0,02	11
MAK	DEU	0,081	0,02	0,081 (C)	0,02 (C)	C = 0,20 mg/m3
VLA	ESP	0,4	0,1			
VLEP	FRA			1		
TLV	GRC	1				
AK	HUN	0,08	0,2	0,08	0,2	
GVI/KGVI	HRV	0,41	0,1	0,8	0,2	INHAL
GVI/KGVI	HRV	0,41	0,1	0,8	0,2	SKIN
NDS/NDSCh	POL	0,5		1		SKIN
TLV	ROU	1	0,25	3	0,75	
ПДК	RUS			1		п + а, А
MV	SVN	0,41	0,1	0,41	0,1	
WEL	GBR	1		3		
TLV-ACGIH		0,01	0,0025			INHAL

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,038	mg/l
Normal value in marine water	0,004	mg/l
Normal value for fresh water sediment	0,296	mg/kg/d
Normal value for marine water sediment	0,03	mg/kg/d
Normal value of STP microorganisms	44,6	mg/l
Normal value for the terrestrial compartment	0,037	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					0,2 mg/m3	0,2 mg/m3	0,081 mg/m3	0,081 mg/m3

2,3-EPOXYPROPYL NEODECANOATE

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,0035	mg/l
Normal value in marine water	0,00035	mg/l
Normal value for water, intermittent release	0,035	mg/l
Normal value of STP microorganisms	50	mg/l

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation			VND	4 mg/m3		11,76 mg/m3	VND	5,88 mg/m3
Skin			VND	2,5 mg/kg bw/d			VND	4,2 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

DIISOPROPYLNAPHTHALENE

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,00023	mg/l
Normal value in marine water	0,00002 6	mg/l
Normal value for fresh water sediment	0,853 36	mg/kg
Normal value for marine water sediment	0,085	mg/kg
Normal value of STP microorganisms	0,15	mg/l
Normal value for the food chain (secondary poisoning)	25	mg/kg
Normal value for the terrestrial compartment	0,171	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			VND	2,1 mg/kg/d				
Inhalation			VND	7,4 mg/m3			VND	30 mg/m3
Skin			VND	2,1 mg/kg/d			VND	4,3 mg/kg/d

MIXED XYLENES, ETHYLBENZENE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	200		400		SKIN
AGW	DEU	440	100	880	200	SKIN
MAK	DEU	440	100	880	200	SKIN
VLA	ESP	221	50	442	100	SKIN
VLEP	FRA	221	50	442	100	SKIN
TLV	GRC	435	100	650	150	
AK	HUN	221		442		SKIN
GVI/KGVI	HRV	221	50	442	100	SKIN
VLEP	ITA	221	50	442	100	SKIN Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	210		442		SKIN
VLE	PRT	221	50	442	100	SKIN
NDS/NDSCh	POL	100				
MV	SVN	221	50			SKIN
WEL	GBR	220	50	441	100	
OEL	EU	221	50	442	100	SKIN
TLV-ACGIH		434	100	651	150	

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/d
Normal value for marine water sediment	12,46	mg/kg/d
Normal value of STP microorganisms	6,58	mg/l
Normal value for the terrestrial compartment	2,31	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		NPI		5 mg/kg bw/d				
Inhalation	260 mg/m3	260 mg/m3	65,3 mg/m3	65,3 mg/m3	442 mg/m3	442 mg/m3	221 mg/m3	221 mg/m3
Skin	LOW	LOW	NPI	125 mg/kg bw/d		LOW		212 mg/kg bw/d

SECTION 8. Exposure controls/personal protection ... / >>

4-HYDROXY-4-METHYLPENTAN-2-ONE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	200		300		
AGW	DEU	96	20	192	40	SKIN
MAK	DEU	96	20	192	40	SKIN
VLA	ESP	241	50			
VLEP	FRA	240	50			
TLV	GRC	240	50	360	75	
GVI/KGVI	HRV	241	50	362	75	
TGG	NLD	120				SKIN
NDS/NDSCh	POL	240				
TLV	ROU	150	32	250	53	
MV	SVN	240	50			SKIN
WEL	GBR	241	50	362	75	
TLV-ACGIH		238	50			

XYLENE (MIXTURE OF ISOMERS)

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	
		mg/m3	ppm	mg/m3	ppm		
TLV	CZE	200	46	400	92	SKIN	
AGW	DEU	440	100	880	200	SKIN	
MAK	DEU	440	100	880	200	SKIN	
VLA	ESP	221	50	442	100	SKIN	
VLEP	FRA	221	50	442	100	SKIN	
TLV	GRC	435	100	650	150		
GVI/KGVI	HRV	221	50	442	100	SKIN	
VLEP	ITA	221	50	442	100	SKIN	Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	210		442		SKIN	
VLE	PRT	221	50	442	100	SKIN	
NDS/NDSCh	POL	100		200		SKIN	
TLV	ROU	221	50	442	100	SKIN	
MV	SVN	221	50	442	100	SKIN	
WEL	GBR	220	50	441	100	SKIN	
OEL	EU	221	50	442	100	SKIN	
TLV-ACGIH		434	100	651	150		

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

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral								1,6 mg/kg/d
Inhalation				14,8 mg/m3	289 mg/m3	289 mg/m3		77 mg/m3
Skin				108 mg/kg/d				180 mg/kg/d

SECTION 8. Exposure controls/personal protection ... / >>

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,003	mg/l
Normal value for fresh water sediment	0,294	mg/kg
Normal value for marine water sediment	0,029	mg/kg
Normal value for water, intermittent release	0,025	mg/l
Normal value of STP microorganisms	10	mg/l
Normal value for the terrestrial compartment	0,237	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				6,25 mg/kg bw/d				
Inhalation				8,7 mg/m3				29,39 mg/m3
Skin				62,5 mg/kg bw/d	0,0083 mg/cm2			104,15 mg/kg bw/d

Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,0115	mg/l
Normal value in marine water	0,00115	mg/l
Normal value for fresh water sediment	0,283	mg/kg
Normal value for marine water sediment	0,0283	mg/kg
Normal value for water, intermittent release	0,115	mg/l
Normal value of STP microorganisms	1	mg/l
Normal value for the terrestrial compartment	0,223	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		0,83 mg/kg bw/d				0,83 mg/kg bw/d		
Inhalation		2,9 mg/m3	0,27 mg/m3	2,9 mg/m3		4,9 mg/m3	0,44 mg/m3	4,9 mg/m3
Skin	0,0136 mg/kg bw/d	1,7 mg/kg bw/d	0,0136 mg/cm2	1,7 mg/kg bw/d	0,0136 mg/kg bw/d		0,0226 mg/cm2	2,8 mg/kg bw/d

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,006	mg//l
Normal value in marine water	0,0006	mg/l
Normal value for fresh water sediment	0,996	mg/kg
Normal value for marine water sediment	0,0996	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			VND	0,75 mg/kg/d				
Inhalation							VND	12,25 mg/m3
Skin			VND	3,571 mg/kg/d			VND	8,33 mg/kg

SECTION 8. Exposure controls/personal protection ... / >>

ETHYLBENZENE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	200	45,4	500	113,5	SKIN
AGW	DEU	88	20	176	40	SKIN
MAK	DEU	88	20	176	40	SKIN
VLA	ESP	441	100	884	200	SKIN
VLEP	FRA	88,4	20	442	100	SKIN
TLV	GRC	435	100	545	125	
AK	HUN	442		884		SKIN
GVI/KGVI	HRV	442	100	884	200	SKIN
VLEP	ITA	442	100	884	200	SKIN Allegato XXXVIII D.Lgs. 81/08
TGG	NLD	215		430		SKIN
VLE	PRT	442	100	884	200	SKIN
NDS/NDSCh	POL	200		400		SKIN
TLV	ROU	442	100	884	200	SKIN
ПДК	RUS	50		150		п
MV	SVN	442	100	884	200	SKIN
WEL	GBR	441	100	552	125	SKIN
OEL	EU	442	100	884	200	SKIN
TLV-ACGIH		87	20			

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/d
Normal value for marine water sediment	1,37	mg/kg/d
Normal value for marine 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/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		NPI		1,6 mg/kg bw/d				
Inhalation	LOW	LOW	LOW	15 mg/m3	293 mg/m3	LOW	442 mg/m3	77 mg/m3
Skin	NPI	NPI	NPI	NPI	NPI	NPI	NPI	180 mg/kg bw/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 ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.
Provide an emergency shower with face and eye wash station.
HAND PROTECTION
Protect hands with category III work gloves.
The following should be considered when choosing work glove material (see standard EN 374): compatibility, degradation, permeability time.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
Protect your hands with gloves of the following type:
Material: Butyl rubber (IIR)
Thickness: 0,5 mm
Breakthrough time: 480 min

Material: Nitrile rubber (NBR)
Thickness: 0,35 mm
Breakthrough time: 480 min

SECTION 8. Exposure controls/personal protection ... / >>

SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION
Wear airtight protective goggles (see standard EN ISO 16321).
RESPIRATORY PROTECTION
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. Use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387).
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties		Value		Information
Appearance		liquid		
Colour		various		
Odour		characteristic		
Melting point / freezing point		not determined		Reason for missing data:not determined
Initial boiling point	>	200	°C	
Flammability		not determined		
Lower explosive limit		not determined		Reason for missing data:not determined
Upper explosive limit		not determined		Reason for missing data:not determined
Flash point	>	150	°C	
Auto-ignition temperature		not determined		Reason for missing data:not determined
Decomposition temperature		not determined		Reason for missing data:not determined
pH		not applicable		
Kinematic viscosity		not determined		Reason for missing data:not determined
Solubility		insoluble in water		
Partition coefficient: n-octanol/water		not applicable		
Vapour pressure		not determined		Reason for missing data:not determined
Density and/or relative density		1,47	kg/l	Method:EN ISO 2811-1 Temperature: 23 °C
Relative vapour density		not determined		Reason for missing data:not determined
Particle characteristics		not applicable		

Supplementary information for nanoforms

Silicon dioxide
Shape 1:

Category	spheroidal
Shape	spherical

Crystallinity
Crystalline structure 1:

Structure	amorphous

Surface functionalisation / treatment
Surface treatments 1:

Surface treatment applied	no

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

SECTION 9. Physical and chemical properties ... / >>

9.2.2. Other safety characteristics

Total solids (250°C / 482°F)	0 %			
VOC (Directive 2010/75/EU)	2,76 %	-	40,61	g/litre
VOC (volatile carbon)	1,87 %	-	27,44	g/litre

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

2-METHOXY-1-METHYLETHYL ACETATE
Stable in normal conditions of use and storage.
With the air it may slowly develop peroxides that explode with an increase in temperature.

BENZYL ALCOHOL
Decomposes at temperatures above 870°C/1598°F.Possibility of explosion.
1-METHOXY-2-PROPANOL
Dissolves various plastic materials.Stable in normal conditions of use and storage.
Absorbs and disolves in water and in organic solvents. With air it may slowly form explosive peroxides.

ETHYL METHYL KETONE
Reacts with: light metals,strong oxidants.Attacks various types of plastic materials.Decomposes under the effect of heat.
N-BUTYL ACETATE
Decomposes on contact with: water.
4-HYDROXY-4-METHYLPENTAN-2-ONE
Decomposes at temperatures above 90°C/194°F.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

2-METHOXY-1-METHYLETHYL ACETATE
May react violently with: oxidising substances,strong acids,alkaline metals.
ETHYLBENZENE
Reacts violently with: strong oxidants.Attacks various types of plastic materials.May form explosive mixtures with: air.
BENZYL ALCOHOL
May react dangerously with: hydrobromic acid,iron,oxidising agents,sulphuric acid.Risk of explosion on contact with: phosphorus trichloride.
1-METHOXY-2-PROPANOL
May react dangerously with: strong oxidising agents,strong acids.
ETHYL METHYL KETONE
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.
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.
MIXED XYLENES, ETHYLBENZENE
Stable in normal conditions of use and storage.Reacts violently with: strong oxidants,strong acids,nitric acid,perchlorates.May form explosive mixtures with: air.
4-HYDROXY-4-METHYLPENTAN-2-ONE
Risk of explosion on contact with: air,sources of heat.May react dangerously with: alkaline metals,amines,oxidising agents,acids.
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
Reacts violently with: strong oxidants.Attacks various types of plastic materials.May form explosive mixtures with: air.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

BENZYL ALCOHOL
Avoid exposure to: air,sources of heat,naked flames.
1-METHOXY-2-PROPANOL
Avoid exposure to: air.

SECTION 10. Stability and reactivity ... / >>

ETHYL METHYL KETONE
Avoid exposure to: sources of heat.
N-BUTYL ACETATE
Avoid exposure to: moisture,sources of heat,naked flames.
4-HYDROXY-4-METHYLPENTAN-2-ONE
Avoid exposure to: light,sources of heat,naked flames.

10.5. Incompatible materials

2-METHOXY-1-METHYLETHYL ACETATE
Incompatible with: oxidising substances,strong acids,alkaline metals.
BENZYL ALCOHOL
Incompatible with: sulphuric acid,oxidising substances,aluminium.
1-METHOXY-2-PROPANOL
Incompatible with: oxidising substances,strong acids,alkaline metals.
ETHYL METHYL KETONE
Incompatible with: strong oxidants,inorganic acids,ammonia,copper,chloroform.
N-BUTYL ACETATE
Incompatible with: water,nitrates,strong oxidants,acids,alkalis,zinc.

10.6. Hazardous decomposition products

ETHYLBENZENE
May develop: methane,styrene,hydrogen,ethane.
ETHYLBENZENE
May develop: methane,styrene,hydrogen,ethane.

SECTION 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.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

MIXED XYLENES, ETHYLBENZENE
Has a toxic effect on the CNS (encephalopathies). Irritating to the skin, conjunctivae, cornea and respiratory apparatus.

Metabolism, toxicokinetics, mechanism of action and other information

2-METHOXY-1-METHYLETHYL ACETATE
The main route of entry is the skin, whereas the respiratory route is less important due to the low vapour pressure of the product.

Information on likely routes of exposure

2-METHOXY-1-METHYLETHYL ACETATE
WORKERS: inhalation; contact with the skin.

ETHYLBENZENE
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

1-METHOXY-2-PROPANOL
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; inhalation of ambient air; contact with the skin of products containing the substance.

N-BUTYL ACETATE
WORKERS: inhalation; contact with the skin.

4-HYDROXY-4-METHYLPENTAN-2-ONE
WORKERS: inhalation; contact with the skin.

XYLENE (MIXTURE OF ISOMERS)
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; inhalation of envoronmental air.

ETHYLBENZENE
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

SECTION 11. Toxicological information ... / >>

Delayed and immediate effects as well as chronic effects from short and long-term exposure

2-METHOXY-1-METHYLETHYL ACETATE
Above 100 ppm causes irritation of the eye, nose and oropharynx mucous membranes. At 1000 ppm, disturbance of equilibrium and severe eye irritation can be noticed. Clinical and biological examinations carried out on exposed volunteers revealed no anomalies. Acetate produces greater skin and eye irritation with direct contact. No chronic effects on humans have been reported (INCR, 2010).

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.

1-METHOXY-2-PROPANOL
The main route of entry is the skin, whereas the respiratory route is less important due to the low vapour pressure of the product. Above 100 ppm causes irritation of the eye, nose and oropharynx mucous membranes. At 1000 ppm, disturbance of equilibrium and severe eye irritation can be noticed. Clinical and biological examinations carried out on exposed volunteers revealed no anomalies. Acetate produces greater skin and eye irritation with direct contact. No chronic effects on humans have been reported.

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.

4-HYDROXY-4-METHYLPENTAN-2-ONE
Acute toxicity causes irritation of the eyes, nose and throat in humans at 100 ppm (476 mg/kg) and pulmonary disorders at 400 ppm. No chronic effects on humans have been reported. The substance may have a depressive effect on the respiratory centres and cause death from respiratory failure.

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.

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).

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.

ACUTE TOXICITY

ATE (Inhalation) of the mixture:	Not classified (no significant component)
ATE (Oral) of the mixture:	>2000 mg/kg
ATE (Dermal) of the mixture:	Not classified (no significant component)

2,3-epoxypropyl o-tolyl ether

LD50 (Dermal):	2000 mg/kg Rabbit
LC50 (Inhalation vapours):	1220 mg/l

TITANIUM DIOXIDE

LD50 (Oral):	> 10000 mg/kg Rat

2-METHOXY-1-METHYLETHYL ACETATE

LD50 (Dermal):	2000 mg/kg Rat
LD50 (Oral):	6190 mg/kg Rat

SECTION 11. Toxicological information ... / >>

ETHYLBENZENE
LD50 (Dermal): 15400 mg/kg Rabbit
LD50 (Oral): 3500 mg/kg Rat
LC50 (Inhalation vapours): 17,2 mg/l/4h Rat

BENZYL ALCOHOL
LD50 (Dermal): 2000 mg/kg Rabbit
LD50 (Oral): 1200 mg/kg
LC50 (Inhalation vapours): > 4,1 mg/l/4h Rat

1-METHOXY-2-PROPANOL
LD50 (Dermal): 2000 mg/kg Rat
LD50 (Oral): 4016 mg/kg Rat

ETHYL METHYL KETONE
LD50 (Dermal): 6480 mg/kg Rabbit
LD50 (Oral): 2737 mg/kg Rat
LC50 (Inhalation vapours): 23,5 mg/l/8h Rat

N-BUTYL ACETATE
LD50 (Dermal): > 14112 mg/kg Rabbit
LD50 (Oral): 10760 mg/kg Rat
LC50 (Inhalation vapours): 21,1 mg/l/4h Rat

MALEIC ANHYDRIDE
LD50 (Dermal): 2620 mg/kg Rabbit
LD50 (Oral): 1090 mg/kg Rat

2,3-EPOXYPROPYL NEODECANOATE
LD50 (Dermal): 3800 mg/kg Rat
LD50 (Oral): > 9700 mg/kg Rat
LC50 (Inhalation vapours): > 240 mg/l/4h Rat

DIISOPROPYLNAPHTHALENE
LD50 (Dermal): > 4000 mg/kg Rat
LD50 (Oral): > 4000 mg/kg Rat

MIXED XYLENES, ETHYLBENZENE
LD50 (Dermal): 4350 mg/kg Rabbit
ATE (Dermal): 1100 mg/kg estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)
LD50 (Oral): 3523 mg/kg Rat
LC50 (Inhalation vapours): 26 mg/l/4h Rat

4-HYDROXY-4-METHYLPENTAN-2-ONE
LD50 (Oral): 4000 mg/kg Rat

XYLENE (MIXTURE OF ISOMERS)
LD50 (Dermal): 4350 mg/kg Rabbit
ATE (Dermal): 1100 mg/kg estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)
LD50 (Oral): 3523 mg/kg Rat
LC50 (Inhalation vapours): 26 mg/l/4h Rat

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and
[2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane
LD50 (Dermal): > 2000 mg/kg Rat
LD50 (Oral): > 5000 mg/kg Rat

ETHYLBENZENE
LD50 (Dermal): 15400 mg/kg Rabbit
LD50 (Oral): 3500 mg/kg Rat
LC50 (Inhalation vapours): 17,2 mg/l/4h Rat

SKIN CORROSION / IRRITATION

Causes skin irritation

SECTION 11. Toxicological information ... / >>

2-METHOXY-1-METHYLETHYL ACETATE
Species: rabbit
Result: non-irritating
Method: OECD 404

N-BUTYL ACETATE
Species: rabbit
Result: non-irritating
Method: OECD 404

2,3-EPOXYPROPYL NEODECANOATE
Species: rabbit
Method: OECD 404
Result: Primary Skin Irritation Index (PDII) = 0.7

XYLENE (MIXTURE OF ISOMERS)
Causes irritation (redness, burning sensation), dryness and slight flaking of the skin

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane
The skin irritation of bisphenol F diglycidyl ether was determined to be mild to non-irritating based on the six Klimisch 1 and 2 studies conducted according to OECD guidelines.
In the experimental conditions used, only one product induced erythema and edema reactions above the significance threshold (score 2 for erythema or edema) and was classified as irritant according to EEC directive no. 83/467/1983. The other studies indicated mild irritation, but not sufficient to reach the classification threshold.
Two repeated dose cumulative irritation studies were performed and under the experimental conditions employed the test materials induced significant irritation after repeated application and a potential for cumulative skin irritation was found in albino rabbits.
Effects on skin irritation/corrosion: slightly irritating.

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

2-METHOXY-1-METHYLETHYL ACETATE
Species: rabbit
Result: non-irritating
Method: OECD 405

N-BUTYL ACETATE
Species: rabbit
Result: non-irritating
Method: OECD 405

2,3-EPOXYPROPYL NEODECANOATE
Species: rabbit
Method: OECD 405
Result: Redness of the conjunctivae = 0.7

XYLENE (MIXTURE OF ISOMERS)
Irritating to eyes

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane
The ocular irritation of bisphenol F diglycidyl ether was determined to be non-irritating based on the four Klimisch 1 and 2 studies conducted according to OECD guidelines. In rabbit eye irritation tests, 0.1 ml of the test material caused no irritation and no initial pain response.

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

2-METHOXY-1-METHYLETHYL ACETATE
Species: guinea pig
Result: non-sensitizing
Method: OECD 406

SECTION 11. Toxicological information ... / >>

N-BUTYL ACETATE
Species: guinea pig
Result: non-sensitizing
Method: OECD 406

MALEIC ANHYDRIDE
Species: rabbit
Result: skin sensitization
Method: OECD 406

Skin sensitization

2,3-EPOXYPROPYL NEODECANOATE
Species: Guinea pig
Method: OECD 406
Result: sensitizing

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane
Bisphenol F diglycidyl ether (BPFDGE) tested positive for induction of skin sensitization in the mouse Local Lymph Node Assay (LLNA). Based on an EC3 value of 0.7%, BPFDGE is considered a strong skin sensitizer. According to ECHA guidelines, this EC3 value was converted to an EC3 value of 175 ug/cm2 and is considered the LOAEL for the induction of skin sensitization in the LLNA mouse for BPFDGE. From sensitization tests it can be concluded that BPFDGE is a sensitizer.

GERM CELL MUTAGENICITY

Suspected of causing genetic defects

2,3-EPOXYPROPYL NEODECANOATE
2,3-epoxypropyl neodecanoate induced a gene mutation in experimental Salmonella typhimurium strains TA 1535 and TA 100 in the presence of a metabolic activation preparation derived from rat liver S-9 in three independent studies. These data suggest that the test substance must be metabolized to the final mutagenic bacterial form. 2,3-epoxypropyl neodecanoate did not induce gene conversion in S-9 rat liver yeast cells. Furthermore, the test substance did not induce significant chromosomal damage in primary rat RL1 cells in culture. These rat liver-derived primary cells are capable of endogenous metabolic activation. Furthermore, 2,3-epoxypropyl neodecanoate did not induce transformed clones in hamster-derived BHK cells. In an in vivo study in rats, 2,3-epoxypropyl neodecanoate induced no evidence of DNA damage detectable by alkaline elution. The weight of evidence demonstrates that 2,3-epoxypropyl neodecanoate may not be genotoxic in vitro and is not genotoxic in vivo.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

ETHYLBENZENE
Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2000).
Classified in Group D (not classifiable as a human carcinogen) by the US Environmental Protection Agency (EPA) - (US EPA file on-line 2014).

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".

ETHYLBENZENE
Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2000).
Classified in Group D (not classifiable as a human carcinogen) by the US Environmental Protection Agency (EPA) - (US EPA file on-line 2014).

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

SECTION 11. Toxicological information ... / >>

Target organs

ETHYLBENZENE
Test: STOT RE - Route: Inhalation. Auditory system, ears

XYLENE (MIXTURE OF ISOMERS)
May cause damage to organs (respiratory tract) through prolonged or repeated exposure.

ETHYLBENZENE
Test: STOT RE - Route: Inhalation. Auditory system, ears

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it has negative effects on the aquatic environment.

12.1. Toxicity

2,3-epoxypropyl o-tolyl ether	
LC50 - for Fish	7,5 mg/l/96h Oncorhynchus mykiss
EC50 - for Crustacea	3,3 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	5,1 mg/l/72h Selenastrum capricornutum
2-METHOXY-1-METHYLETHYL ACETATE	
LC50 - for Fish	> 100 mg/l/96h Oncorhynchus mykiss
EC50 - for Crustacea	500 mg/l/48h Daphnia magna
Chronic NOEC for Crustacea	100 mg/l Daphnia magna
BENZYL ALCOHOL	
LC50 - for Fish	10 mg/l/96h Bluegill
1-METHOXY-2-PROPANOL	
LC50 - for Fish	> 1000 mg/l/96h
EC50 - for Crustacea	> 21100 mg/l/48h
N-BUTYL ACETATE	
LC50 - for Fish	18 mg/l/96h Pimephales promelas
EC50 - for Crustacea	44 mg/l/48h Daphnia magna
Chronic NOEC for Crustacea	23 mg/l Daphnia magna
MALEIC ANHYDRIDE	
LC50 - for Fish	75 mg/l/96h Oncorhynchus mykiss
EC50 - for Crustacea	42,81 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	74,35 mg/l/72h Pseudokirchneriella subcapitata
Chronic NOEC for Crustacea	10 mg/l Daphnia magna
2,3-EPOXYPROPYL NEODECANOATE	
LC50 - for Fish	9,6 mg/l/96h Oncorhynchus mykiss
EC50 - for Crustacea	4,8 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	3,5 mg/l/72h Algae
DIISOPROPYLNAPHTHALENE	
LC50 - for Fish	2,44 mg/l/96h
EC10 for Crustacea	0,16 mg/l/48h
EC10 for Algae / Aquatic Plants	0,15 mg/l/72h
Chronic NOEC for Crustacea	0,013 mg/l

SECTION 12. Ecological information ... / >>

4-HYDROXY-4-METHYLPENTAN-2-ONE

LC50 - for Fish	> 100 mg/l/96h Oryzia latipes
EC50 - for Crustacea	> 1000 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	> 1000 mg/l/72h Pseudokirchneriella subcapitata

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane

LC50 - for Fish	2,54 mg/l/96h
EC50 - for Crustacea	2,55 mg/l/48h Daphnia Magna
EC50 - for Algae / Aquatic Plants	1,8 mg/l/72h

bis-[4-(2,3-epoxipropoxi)phenyl]propane

LC50 - for Fish	1,5 mg/l/96h Fish

12.2. Persistence and degradability

TITANIUM DIOXIDE
Solubility in water < 0,001 mg/l
Degradability: information not available

2-METHOXY-1-METHYLETHYL ACETATE
Solubility in water > 10000 mg/l
Rapidly degradable 83% (28 d, OECD 301 F)

ETHYLBENZENE
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

BENZYL ALCOHOL
Rapidly degradable

1-METHOXY-2-PROPANOL
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

ETHYL METHYL KETONE
Solubility in water > 10000 mg/l
Rapidly degradable

N-BUTYL ACETATE
Solubility in water 1000 - 10000 mg/l
Rapidly degradable >90% (28 d)

MALEIC ANHYDRIDE
Solubility in water > 10000 mg/l
Inherently degradable

2,3-EPOXYPROPYL NEODECANOATE
Rapidly degradable

DIISOPROPYLNAPHTHALENE
Solubility in water 0,125 mg/l

MIXED XYLENES, ETHYLBENZENE
Degradability: information not available

4-HYDROXY-4-METHYLPENTAN-2-ONE
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

XYLENE (MIXTURE OF ISOMERS)
Solubility in water 100 - 1000 mg/l
Degradability: information not available

bis-[4-(2,3-epoxipropoxi)phenyl]propane
Solubility in water 0,1 - 100 mg/l
NOT rapidly degradable

SECTION 12. Ecological information ... / >>

ETHYLBENZENE
Solubility in water 1000 - 10000 mg/l
Rapidly degradable

12.3. Bioaccumulative potential

2,3-epoxypropyl o-tolyl ether
Partition coefficient: n-octanol/water 2,16

2-METHOXY-1-METHYLETHYL ACETATE
Partition coefficient: n-octanol/water 1,2 Log Kow 20°C - OECD 117

ETHYLBENZENE
Partition coefficient: n-octanol/water 3,6

BENZYL ALCOHOL
Partition coefficient: n-octanol/water 1,1

1-METHOXY-2-PROPANOL
Partition coefficient: n-octanol/water < 1

ETHYL METHYL KETONE
Partition coefficient: n-octanol/water 0,3

N-BUTYL ACETATE
Partition coefficient: n-octanol/water 2,3 25°C - OECD 117
BCF 15,3

MALEIC ANHYDRIDE
Partition coefficient: n-octanol/water -2,78

2,3-EPOXYPROPYL NEODECANOATE
Partition coefficient: n-octanol/water 4,4

MIXED XYLENES, ETHYLBENZENE
Partition coefficient: n-octanol/water 3,12
BCF 25,9

4-HYDROXY-4-METHYLPENTAN-2-ONE
Partition coefficient: n-octanol/water -0,09

XYLENE (MIXTURE OF ISOMERS)
Partition coefficient: n-octanol/water 3,12
BCF 25,9

bis-[4-(2,3-epoxipropoxi)phenyl]propane
Partition coefficient: n-octanol/water > 2,918
BCF 31

ETHYLBENZENE
Partition coefficient: n-octanol/water 3,6

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

vPvB substances contained:
DIISOPROPYLNAPHTHALENE

PBT substances contained:
DIISOPROPYLNAPHTHALENE

12.6. Endocrine disrupting properties

SECTION 12. Ecological information ... / >>

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Waste transportation may be subject to ADR restrictions.
The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

14.1. UN number or ID number

ADR / RID, IMDG, IATA: UN 3082

ADR / RID: In accordance with Special Provision 375, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to ADR provisions.

IMDG: In accordance with Section 2.10.2.7 of IMDG Code, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to IMDG Code provisions.

IATA: In accordance with SP A197, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to IATA dangerous goods regulations.

14.2. UN proper shipping name

ADR / RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane; Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane; Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane; Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane)

14.3. Transport hazard class(es)

ADR / RID: Class: 9 Label: 9

IMDG: Class: 9 Label: 9

IATA: Class: 9 Label: 9

14.4. Packing group

ADR / RID, IMDG, IATA: III

SECTION 14. Transport information ... / >>

14.5. Environmental hazards

ADR / RID: Environmentally Hazardous

IMDG: Marine Pollutant

IATA: Environmentally Hazardous

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 90	Limited Quantities: 5 lt	Tunnel restriction code: (-)
	Special provision: 274, 335, 375, 601		
IMDG:	EMS: F-A, S-F	Limited Quantities: 5 lt	
IATA:	Cargo:	Maximum quantity: 450 L	Packaging instructions: 964
	Passengers:	Maximum quantity: 450 L	Packaging instructions: 964
	Special provision:	A97, A158, A197, A215	

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EU: E2

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product
Point 3 - 40
Contained substance
Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
not applicable

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

Healthcare 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 been performed for the following contained substances
2-METHOXY-1-METHYLETHYL ACETATE
BENZYL ALCOHOL
ETHYL METHYL KETONE

SECTION 15. Regulatory information ... / >>

N-BUTYL ACETATE
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane
bis-[4-(2,3-epoxipropoxi)phenyl]propane

SECTION 16. Other information

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

Flam. Liq. 2	Flammable liquid, category 2
Flam. Liq. 3	Flammable liquid, category 3
Muta. 2	Germ cell mutagenicity, category 2
Repr. 2	Reproductive toxicity, category 2
Acute Tox. 4	Acute toxicity, category 4
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
Asp. Tox. 1	Aspiration hazard, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Skin Corr. 1B	Skin corrosion, category 1B
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Sens. 1	Skin sensitization, category 1
Skin Sens. 1A	Skin sensitization, category 1A
Skin Sens. 1B	Skin sensitization, category 1B
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H341	Suspected of causing genetic defects.
H361d	Suspected of damaging the unborn child.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H315	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.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.
EUH071	Corrosive to the respiratory tract.
EUH205	Contains epoxy constituents. May produce an allergic reaction.
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- 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 labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%

SECTION 16. Other information ... / >>

- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 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: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

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2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
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5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
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22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
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- INRS - Fiche Toxicologique (toxicological sheet)
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- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

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 16. Other information ... / >>

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 / 03 / 04 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.