SAFETY DATA SHEET

EPIRUSTIK 2000 - All variants

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

1.1 Product identifier

Product name : EPIRUSTIK 2000 - All variants

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

Product use : Paint.

1.3 Details of the supplier of the safety data sheet

Teknos Group Oy, Takkatie 3, FI-00370 HELSINKI, FINLAND. Tel. +358 9 506 091.

e-mail address of person responsible for this SDS : Prod-safe@teknos.com

National contact

Teknos Group Oy, Takkatie 3, FI-00370 HELSINKI, FINLAND. Tel. +358 9 506 091.

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : In an emergency, call 112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Flam. Liq. 2, H225
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Skin Sens. 1, H317
Repr. 1B, H360F
STOT RE 2, H373
Aquatic Chronic 3, H412

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

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

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

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements :
H225 - Highly flammable liquid and vapour.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H360F - May damage fertility.
H373 - May cause damage to organs through prolonged or repeated exposure.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

SECTION 2: Hazards identification

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe vapour.

Response : P308 + P313 - IF exposed or concerned: Get medical advice or attention.

Storage : Not applicable.

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

Hazardous ingredients : Contains: Bis[4-(2,3-epoxypropoxy)phenyl]propane; Oxirane, mono[(C12-14-alkyloxy)methyl]derivs.; Phenol, methylstyrenated and crystalline silica, respirable powder

Supplemental label elements : Contains epoxy constituents. May produce an allergic reaction.
Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Bis[4-(2,3-epoxypropoxy) phenyl]propane	REACH #: 01-2119456619-26 EC: 216-823-5 CAS: 1675-54-3 Index: 603-073-00-2	≥10 - <25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	Skin Irrit. 2, H315: C ≥ 5% Eye Irrit. 2, H319: C ≥ 5%	[1]
Xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	<10	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 (oral, inhalation) Asp. Tox. 1, H304	ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]
titanium dioxide	REACH #: 01-2119489379-17 EC: 236-675-5 CAS: 13463-67-7	≤5	Carc. 2, H351 (inhalation)	-	[1] [*]
iso-butanol	REACH #: 01-2119484609-23 EC: 201-148-0 CAS: 78-83-1	<3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335	-	[1]

SECTION 3: Composition/information on ingredients

	Index: 603-108-00-1		STOT SE 3, H336		
Butanone	REACH #: 01-2119457290-43 EC: 201-159-0 CAS: 78-93-3 Index: 606-002-00-3	≤3	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	-	[1] [2]
n-Butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4 Index: 607-025-00-1	≤3	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	-	[1] [2]
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	REACH #: 01-2119485289-22 EC: 271-846-8 CAS: 68609-97-2 Index: 603-103-00-4	≤3	Skin Irrit. 2, H315 Skin Sens. 1, H317 Repr. 1B, H360F	-	[1]
Phenol, methylstyrenated	REACH #: 01-2119555274-38 EC: 700-960-7 CAS: 68512-30-1	≤3	Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 3, H412	-	[1] [3]
crystalline silica, respirable powder	EC: 238-878-4 CAS: 14808-60-7	≤3	STOT RE 1, H372 (inhalation)	-	[1]
Ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≤3	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) (oral, inhalation) Asp. Tox. 1, H304	ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]
Salicylic Acid	REACH #: 01-2119486984-17 EC: 200-712-3 CAS: 69-72-7	≤0.3	Acute Tox. 4, H302 Eye Dam. 1, H318 Repr. 2, H361d	ATE [Oral] = 891 mg/kg	[1]
N,N'-ethane-1,2-diylbis(12-hydroxyoctadecan-1-amide)	REACH #: 01-2119978265-26 EC: 204-613-6 CAS: 123-26-2	≤0.3	Skin Sens. 1B, H317 Aquatic Chronic 3, H412 **See Section 16 for the full text of the H statements declared above.**	-	[1]

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

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[*] The classification as a carcinogen by inhalation applies only to mixtures placed on the market in powder form containing 1% or more of titanium dioxide particles with aerodynamic diameter ≤ 10 µm not bound within a matrix.

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

SECTION 6: Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

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

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Seveso Directive - Reporting thresholds

Danger criteria

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

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Bis[4-(2,3-epoxypropoxy)phenyl]propane	**Regulation on Limit Values - MAC (Austria, 4/2021). [1,2-Epoxy-3-(tolyloxy)propane (all isomers)]** TWA: 10 ppm 8 hours. TWA: 70 mg/m³ 8 hours. PEAK: 20 ppm, 4 times per shift, 15 minutes. PEAK: 140 mg/m³, 4 times per shift, 15 minutes.
Xylene	**Regulation on Limit Values - MAC (Austria, 4/2021). [Xylenes (all isomers)]** PEAK: 442 mg/m³, 4 times per shift, 15 minutes. TWA: 50 ppm 8 hours. PEAK: 100 ppm, 4 times per shift, 15 minutes. TWA: 221 mg/m³ 8 hours.
iso-butanol	**Regulation on Limit Values - MAC (Austria, 4/2021). [Butanol (all isomers except 2-methyl-2-propanol)]** PEAK: 200 ppm, 4 times per shift, 15 minutes. TWA: 150 mg/m³ 8 hours. TWA: 50 ppm 8 hours. PEAK: 600 mg/m³, 4 times per shift, 15 minutes.
Butanone	**Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin.** TWA: 100 ppm 8 hours. TWA: 295 mg/m³ 8 hours. PEAK: 200 ppm, 4 times per shift, 30 minutes. PEAK: 590 mg/m³, 4 times per shift, 30 minutes.
n-Butyl acetate	**Regulation on Limit Values - MAC (Austria, 4/2021). [Butyl acetate (all isomers except tert-butyl acetate)]** CEIL: 480 mg/m³ 15 minutes. CEIL: 100 ppm 15 minutes. TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
Oxirane, mono[(C12-14-alkyloxy)methyl]derivs.	**Regulation on Limit Values - MAC (Austria, 4/2021). [1,2-Epoxy-3-(tolyloxy)propane (all isomers)]** TWA: 10 ppm 8 hours. TWA: 70 mg/m³ 8 hours. PEAK: 20 ppm, 4 times per shift, 15 minutes. PEAK: 140 mg/m³, 4 times per shift, 15 minutes.
crystalline silica, respirable powder	**Regulation on Limit Values - MAC (Austria, 4/2021). [Quarzfeinstaub]** AMV: 0.05 mg/m³ Form: Respirable dust
Ethylbenzene	**Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin.** TWA: 100 ppm 8 hours. TWA: 440 mg/m³ 8 hours. CEIL: 200 ppm, 8 times per shift, 5 minutes. CEIL: 880 mg/m³, 8 times per shift, 5 minutes.
Xylene	**Limit values (Belgium, 5/2021). [Xylene] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
iso-butanol	**Limit values (Belgium, 5/2021).** TWA: 50 ppm 8 hours. TWA: 154 mg/m³ 8 hours.
Butanone	**Limit values (Belgium, 5/2021).** TWA: 200 ppm 8 hours.

SECTION 8: Exposure controls/personal protection

	TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**Limit values (Belgium, 5/2021). [butyl acetate, all isomers]** STEL: 712 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 238 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**Limit values (Belgium, 5/2021).** TWA: 0.1 mg/m³ 8 hours. Form: Respirable dust
Ethylbenzene	**Limit values (Belgium, 5/2021). Absorbed through skin.** TWA: 20 ppm 8 hours. TWA: 87 mg/m³ 8 hours. STEL: 125 ppm 15 minutes. STEL: 551 mg/m³ 15 minutes.
Xylene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). [Xylene (mixture of isomers), pure] Absorbed through skin.** Limit value 8 hours: 221 mg/m³ 8 hours. Limit value 15 min: 442 mg/m³ 15 minutes. Limit value 15 min: 100 ppm 15 minutes. Limit value 8 hours: 50 ppm 8 hours.
Butanone	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021).** Limit value 8 hours: 590 mg/m³ 8 hours. Limit value 15 min: 885 mg/m³ 15 minutes.
n-Butyl acetate	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021).** Limit value 8 hours: 241 mg/m³ 8 hours. Limit value 15 min: 723 mg/m³ 15 minutes. Limit value 15 min: 150 ppm 15 minutes. Limit value 8 hours: 50 ppm 8 hours.
crystalline silica, respirable powder	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 10/2003. (Bulgaria, 6/2021). [respirable crystalline silica dust]** Limit value 8 hours: 0.1 mg/m³ 8 hours. Form: respirable dust
Ethylbenzene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). Absorbed through skin.** Limit value 8 hours: 435 mg/m³ 8 hours. Limit value 15 min: 545 mg/m³ 15 minutes.
Xylene	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). [xylene (all isomers)] Absorbed through skin.** STELV: 442 mg/m³ 15 minutes. STELV: 100 ppm 15 minutes. ELV: 221 mg/m³ 8 hours. ELV: 50 ppm 8 hours.
iso-butanol	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin.** STELV: 231 mg/m³ 15 minutes. STELV: 75 ppm 15 minutes. ELV: 154 mg/m³ 8 hours. ELV: 50 ppm 8 hours.
Butanone	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021).** STELV: 900 mg/m³ 15 minutes. STELV: 300 ppm 15 minutes. ELV: 600 mg/m³ 8 hours. ELV: 200 ppm 8 hours.
n-Butyl acetate	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021).** STELV: 723 mg/m³ 15 minutes. STELV: 150 ppm 15 minutes.

	ELV: 241 mg/m³ 8 hours. ELV: 50 ppm 8 hours.
crystalline silica, respirable powder	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021).** ELV: 0.1 mg/m³ 8 hours.
Ethylbenzene	**Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin.** STELV: 884 mg/m³ 15 minutes. STELV: 200 ppm 15 minutes. ELV: 442 mg/m³ 8 hours. ELV: 100 ppm 8 hours.
Xylene	**Department of labour inspection (Cyprus, 7/2021). [Xylene, mixed isomers] Absorbed through skin.** STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours.
Butanone	**Department of labour inspection (Cyprus, 7/2021).** STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes. TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours.
n-Butyl acetate	**Department of labour inspection (Cyprus, 7/2021).** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours.
Ethylbenzene	**Department of labour inspection (Cyprus, 7/2021). Absorbed through skin.** STEL: 884 mg/m³ 15 minutes. TWA: 100 ppm 8 hours. TWA: 442 mg/m³ 8 hours. STEL: 200 ppm 15 minutes.
Xylene	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). [xylene, technical mixture of isomers and all isomers] Absorbed through skin.** TWA: 200 mg/m³ 8 hours. TWA: 45.4 ppm 8 hours. STEL: 400 mg/m³ 15 minutes. STEL: 90.8 ppm 15 minutes.
iso-butanol	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). [Butanol (all isomers)] Absorbed through skin.** TWA: 300 mg/m³ 8 hours. TWA: 97.5 ppm 8 hours. STEL: 600 mg/m³ 15 minutes. STEL: 195 ppm 15 minutes.
Butanone	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022).** TWA: 600 mg/m³ 8 hours. TWA: 200.4 ppm 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300.6 ppm 15 minutes.
n-Butyl acetate	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022).** TWA: 241 mg/m³ 8 hours. STEL: 723 mg/m³ 15 minutes. STEL: 149.661 ppm 15 minutes. TWA: 49.887 ppm 8 hours.
crystalline silica, respirable powder	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). [Quartz]** TWA: 0.1 mg/m³ 8 hours. Form: fibers, respirable fraction (Fr) Fr = 100 %
Ethylbenzene	**Government regulation of Czech Republic PEL/NPK-P (Czech**

	Republic, 10/2022). Absorbed through skin. TWA: 200 mg/m³ 8 hours. TWA: 45.4 ppm 8 hours. STEL: 500 mg/m³ 15 minutes. STEL: 113.5 ppm 15 minutes.
Xylene	**Working Environment Authority (Denmark, 6/2022). [Xylenes, all isomers] Absorbed through skin.** TWA: 25 ppm 8 hours. TWA: 109 mg/m³ 8 hours. STEL: 442 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes.
iso-butanol	**Working Environment Authority (Denmark, 6/2022). [Butanol, all isomers] Absorbed through skin.** CEIL: 50 ppm CEIL: 150 mg/m³
Butanone	**Working Environment Authority (Denmark, 6/2022). Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 145 mg/m³ 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Working Environment Authority (Denmark, 6/2022). [Butyl acetate, all isomers]** TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours. STEL: 723 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes.
crystalline silica, respirable powder	**Working Environment Authority (Denmark, 6/2022). Carcinogen.** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction STEL: 0.2 mg/m³ 15 minutes. Form: Respirable fraction
Ethylbenzene	**Working Environment Authority (Denmark, 6/2022). Absorbed through skin. Carcinogen.** TWA: 50 ppm 8 hours. TWA: 217 mg/m³ 8 hours. STEL: 434 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes.
Xylene	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). [Xylenes] Absorbed through skin.** TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes. STEL: 450 mg/m³ 15 minutes. TWA: 200 mg/m³ 8 hours.
iso-butanol	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022).** TWA: 150 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
Butanone	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022).** TWA: 600 mg/m³ 8 hours. TWA: 200 ppm 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022).** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours.
crystalline silica, respirable powder	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). [respirable crystalline silica dust]** TWA: 0.1 mg/m³ 8 hours. Form: Respirable dust
Ethylbenzene	**Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). Absorbed through skin. Skin sensitiser.**

	TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours. STEL: 884 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes.
Xylene	**EU OEL (Europe, 1/2022). [xylene, mixed isomers pure] Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
Butanone	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
Ethylbenzene	**EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 100 ppm 8 hours. TWA: 442 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 884 mg/m³ 15 minutes.
Xylene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). [Xylenes] Absorbed through skin.** STEL: 440 mg/m³ 15 minutes. TWA: 220 mg/m³ 8 hours. TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes.
iso-butanol	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). [Butanols] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours. STEL: 75 ppm 15 minutes. STEL: 230 mg/m³ 15 minutes.
Butanone	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin.** STEL: 100 ppm 15 minutes. STEL: 300 mg/m³ 15 minutes. TWA: 60 mg/m³ 8 hours. TWA: 20 ppm 8 hours.
n-Butyl acetate	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021).** TWA: 150 ppm 8 hours. TWA: 720 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 960 mg/m³ 15 minutes.
crystalline silica, respirable powder	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). [Silica, crystalline]** TWA: 0.05 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 880 mg/m³ 15 minutes.

Xylene	**Ministry of Labor (France, 10/2022). [xylenes, mixed isomers, pure] Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)** STEL: 442 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 221 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
iso-butanol	**Ministry of Labor (France, 10/2022). Notes: Permissible limit values (circulars)** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours.
Butanone	**Ministry of Labor (France, 10/2022). Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Ministry of Labor (France, 10/2022). Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)** TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes.
crystalline silica, respirable powder	**Ministry of Labor (France, 10/2022). Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**Ministry of Labor (France, 10/2022). Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)** TWA: 20 ppm 8 hours. TWA: 88.4 mg/m³ 8 hours. STEL: 442 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes.
Bis[4-(2,3-epoxypropoxy)phenyl]propane	**DFG MAC-values list (Germany, 7/2022). Skin sensitiser.**
Xylene	**TRGS 900 OEL (Germany, 6/2022). [xylene] Absorbed through skin.** TWA: 220 mg/m³ 8 hours. PEAK: 440 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. PEAK: 100 ppm 15 minutes. **DFG MAC-values list (Germany, 7/2022). [Xylene (all isomers)] Absorbed through skin.** TWA: 50 ppm 8 hours. PEAK: 100 ppm, 4 times per shift, 15 minutes. TWA: 220 mg/m³ 8 hours. PEAK: 440 mg/m³, 4 times per shift, 15 minutes.
iso-butanol	**TRGS 900 OEL (Germany, 6/2022).** TWA: 310 mg/m³ 8 hours. PEAK: 310 mg/m³ 15 minutes. TWA: 100 ppm 8 hours. PEAK: 100 ppm 15 minutes. **DFG MAC-values list (Germany, 7/2022).** TWA: 100 ppm 8 hours. PEAK: 100 ppm, 4 times per shift, 15 minutes. TWA: 310 mg/m³ 8 hours. PEAK: 310 mg/m³, 4 times per shift, 15 minutes.
Butanone	**TRGS 900 OEL (Germany, 6/2022). Absorbed through skin.** TWA: 600 mg/m³ 8 hours. PEAK: 600 mg/m³ 15 minutes. TWA: 200 ppm 8 hours. PEAK: 200 ppm 15 minutes. **DFG MAC-values list (Germany, 7/2022). Absorbed through skin.**

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	TWA: 200 ppm 8 hours. PEAK: 200 ppm, 4 times per shift, 15 minutes. TWA: 600 mg/m³ 8 hours. PEAK: 600 mg/m³, 4 times per shift, 15 minutes.
n-Butyl acetate	**DFG MAC-values list (Germany, 7/2022).** TWA: 100 ppm 8 hours. PEAK: 200 ppm, 4 times per shift, 15 minutes. TWA: 480 mg/m³ 8 hours. PEAK: 960 mg/m³, 4 times per shift, 15 minutes. **TRGS 900 OEL (Germany, 6/2022).** TWA: 300 mg/m³ 8 hours. TWA: 62 ppm 8 hours. PEAK: 600 mg/m³ 15 minutes. PEAK: 124 ppm 15 minutes.
Ethylbenzene	**TRGS 900 OEL (Germany, 6/2022). Absorbed through skin.** TWA: 88 mg/m³ 8 hours. PEAK: 176 mg/m³ 15 minutes. TWA: 20 ppm 8 hours. PEAK: 40 ppm 15 minutes. **DFG MAC-values list (Germany, 7/2022). Absorbed through skin.** PEAK: 40 ppm, 4 times per shift, 15 minutes. PEAK: 176 mg/m³, 4 times per shift, 15 minutes. TWA: 88 mg/m³ 8 hours. TWA: 20 ppm 8 hours.
Xylene	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021). [Xylenes (all isomers)] Absorbed through skin.** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 650 mg/m³ 15 minutes.
iso-butanol	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).** TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 300 mg/m³ 15 minutes.
Butanone	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).** TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes.
crystalline silica, respirable powder	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021). [Crystalline silica]** TWA: 0.1 mg/m³ 8 hours. Form: respirable dust
Ethylbenzene	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours. STEL: 125 ppm 15 minutes. STEL: 545 mg/m³ 15 minutes.

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Xylene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). [xylene, mixture of isomers] Absorbed through skin.** TWA: 221 mg/m³ 8 hours. PEAK: 442 mg/m³ 15 minutes. PEAK: 100 ppm 15 minutes. TWA: 50 ppm 8 hours.
Butanone	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.** TWA: 600 mg/m³ 8 hours. PEAK: 900 mg/m³ 15 minutes. PEAK: 300 ppm 15 minutes. TWA: 200 ppm 8 hours.
n-Butyl acetate	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Skin sensitiser. Inhalation sensitiser.** TWA: 241 mg/m³ 8 hours. PEAK: 723 mg/m³ 15 minutes. PEAK: 150 ppm 15 minutes. TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). [crystalline silicon dioxide (including quartz, cristobalite, tridymite and other forms)]** TWA: 0.1 mg/m³ 8 hours. Form: respirable powder
Ethylbenzene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.** TWA: 442 mg/m³ 8 hours. PEAK: 884 mg/m³ 15 minutes. PEAK: 200 ppm 15 minutes. TWA: 100 ppm 8 hours.
Xylene	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). [xylene, all isomers] Absorbed through skin.** STEL: 442 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 109 mg/m³ 8 hours. TWA: 25 ppm 8 hours.
iso-butanol	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). [butanol, all isomers, except n-butanol] Absorbed through skin.** STEL: 150 mg/m³ 15 minutes. STEL: 50 ppm 15 minutes.
Butanone	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). Absorbed through skin.** STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes. TWA: 145 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
n-Butyl acetate	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). [butyl acetate, all isomers]** TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours. STEL: 723 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes.
crystalline silica, respirable powder	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021).** TWA: 0.1 mg/m³ 8 hours. Form: respirable dust
Ethylbenzene	**Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). Absorbed through skin.** STEL: 884 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 200 mg/m³ 8 hours. TWA: 50 ppm 8 hours.

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Xylene	**NAOSH (Ireland, 5/2021). [xylene mixed isomers] Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 50 ppm 8 hours. OELV-8hr: 221 mg/m³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 442 mg/m³ 15 minutes.
iso-butanol	**NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 50 ppm 8 hours. OELV-8hr: 150 mg/m³ 8 hours. OELV-15min: 75 ppm 15 minutes. OELV-15min: 225 mg/m³ 15 minutes.
Butanone	**NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 200 ppm 8 hours. OELV-8hr: 600 mg/m³ 8 hours. OELV-15min: 300 ppm 15 minutes. OELV-15min: 900 mg/m³ 15 minutes.
n-Butyl acetate	**NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 50 ppm 8 hours. OELV-8hr: 241 mg/m³ 8 hours. OELV-15min: 150 ppm 15 minutes. OELV-15min: 723 mg/m³ 15 minutes.
crystalline silica, respirable powder	**NAOSH (Ireland, 5/2021). [silica, crystalline respirable dust] Notes: EU derived Occupational Exposure Limit Values; List of Carcinogenic Substances, Mixtures and Processes** OELV-8hr: 0.1 mg/m³ 8 hours. Form: respirable dust
Ethylbenzene	**NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 100 ppm 8 hours. OELV-8hr: 442 mg/m³ 8 hours. OELV-15min: 200 ppm 15 minutes. OELV-15min: 884 mg/m³ 15 minutes.
Xylene	**Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). [Xylenes, mixed isomers, pure] Absorbed through skin.** 8 hours: 50 ppm 8 hours. 8 hours: 221 mg/m³ 8 hours. Short Term: 100 ppm 15 minutes. Short Term: 442 mg/m³ 15 minutes.
Butanone	**Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020).** 8 hours: 200 ppm 8 hours. 8 hours: 600 mg/m³ 8 hours. Short Term: 300 ppm 15 minutes. Short Term: 900 mg/m³ 15 minutes.
n-Butyl acetate	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). [Crystalline silica]** 8 hours: 0.1 mg/m³ 8 hours. Form: respirable fraction
Ethylbenzene	**Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). Absorbed through skin.** 8 hours: 100 ppm 8 hours. 8 hours: 442 mg/m³ 8 hours. Short Term: 200 ppm 15 minutes.

	Short Term: 884 mg/m³ 15 minutes.
Xylene	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). [Xylenes] Absorbed through skin.** TWA: 221 mg/m³ 8 hours. TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
iso-butanol	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). [Butylalcohol]** TWA: 10 mg/m³ 8 hours.
Butanone	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021).** STEL: 300 ppm 15 minutes. TWA: 67 ppm 8 hours. STEL: 900 mg/m³ 15 minutes. TWA: 200 mg/m³ 8 hours.
n-Butyl acetate	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021).** TWA: 241 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). [respirable crystalline silica dust]** TWA: 0.1 mg/m³ 8 hours. Form: Inhalable fraction
Ethylbenzene	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). Absorbed through skin.** TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours. STEL: 200 ppm 15 minutes. STEL: 884 mg/m³ 15 minutes.
Xylene	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). [xylene, mixed isomers, pure] Absorbed through skin.** STEL: 442 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes. TWA: 221 mg/m³ 8 hours.
iso-butanol	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin.** TWA: 10 mg/m³ 8 hours.
Butanone	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022).** TWA: 600 mg/m³ 8 hours. TWA: 200 ppm 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022).** TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours. STEL: 723 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes.
crystalline silica, respirable powder	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022).** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin.** TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours. STEL: 884 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes.
Xylene	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021). [xylenes, mixed isomers, pure] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.

Butanone	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021).** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021).** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours.
crystalline silica, respirable powder	**Grand-Duchy Regulation 2016. Carcinogens or mutagens agents. Annex III (Luxembourg, 3/2021). [respirable crystalline silica dust]** TWA: 0.1 mg/m³ 8 hours. Form: respirable dust
Ethylbenzene	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021). Absorbed through skin.** TWA: 100 ppm 8 hours. TWA: 442 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 884 mg/m³ 15 minutes.
Xylene	**EU OEL (Europe, 1/2022). [xylene, mixed isomers pure] Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
Butanone	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes. TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
Ethylbenzene	**EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 100 ppm 8 hours. TWA: 442 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 884 mg/m³ 15 minutes.
Xylene	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). [xylenes (all isomers)] Absorbed through skin.** OEL, 8-h TWA: 210 mg/m³ 8 hours. STEL,15-min: 442 mg/m³ 15 minutes. STEL,15-min: 100 ppm 15 minutes. OEL, 8-h TWA: 47.5 ppm 8 hours.
Butanone	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). Absorbed through skin.** OEL, 8-h TWA: 590 mg/m³ 8 hours. STEL,15-min: 900 mg/m³ 15 minutes. OEL, 8-h TWA: 197 ppm 8 hours. STEL,15-min: 300 ppm 15 minutes.
n-Butyl acetate	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022).** OEL, 8-h TWA: 241 mg/m³ 8 hours. STEL,15-min: 723 mg/m³ 15 minutes.

	STEL,15-min: 150 ppm 15 minutes. OEL, 8-h TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022).** OEL, 8-h TWA: 0.075 mg/m³ 8 hours. Form: Respirable dust
Ethylbenzene	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). Absorbed through skin.** OEL, 8-h TWA: 215 mg/m³ 8 hours. STEL,15-min: 430 mg/m³ 15 minutes. STEL,15-min: 97.3 ppm 15 minutes. OEL, 8-h TWA: 48.6 ppm 8 hours.
Xylene	**FOR-2011-12-06-1358 (Norway, 12/2022). [Xylene, all isomers] Absorbed through skin. Notes: indicative limit value** TWA: 25 ppm 8 hours. TWA: 108 mg/m³ 8 hours.
iso-butanol	**FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin.** CEIL: 75 mg/m³ CEIL: 25 ppm
Butanone	**FOR-2011-12-06-1358 (Norway, 12/2022). Notes: indicative limit value** TWA: 75 ppm 8 hours. TWA: 220 mg/m³ 8 hours.
n-Butyl acetate	**FOR-2011-12-06-1358 (Norway, 12/2022).** STEL: 723 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. **FOR-2011-12-06-1358 (Norway, 12/2022). Notes: indicative limit value** TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
crystalline silica, respirable powder	**FOR-2011-12-06-1358 (Norway, 12/2022). Carcinogen. Notes: binding limit value** TWA: 0.05 mg/m³ 8 hours. Form: Respirable dust
Ethylbenzene	**FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin. Carcinogen. Notes: indicative limit value** TWA: 5 ppm 8 hours. TWA: 20 mg/m³ 8 hours.
Xylene	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). [xylene – mixed isomers (1,2-, 1,3-, 1,4-)] Absorbed through skin.** TWA: 100 mg/m³ 8 hours. STEL: 200 mg/m³ 15 minutes.
iso-butanol	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). Absorbed through skin.** TWA: 100 mg/m³ 8 hours. STEL: 200 mg/m³ 15 minutes.
Butanone	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). Absorbed through skin.** TWA: 450 mg/m³ 8 hours. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland,**

	2/2021). TWA: 240 mg/m³ 8 hours. STEL: 720 mg/m³ 15 minutes.
crystalline silica, respirable powder	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). [crystalline silica]** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). Absorbed through skin.** TWA: 200 mg/m³ 8 hours. STEL: 400 mg/m³ 15 minutes.
Xylene	**Portuguese Institute of Quality (Portugal, 11/2014). [Xylene]** TWA: 100 ppm 8 hours. STEL: 150 ppm 15 minutes.
iso-butanol	**Portuguese Institute of Quality (Portugal, 11/2014).** TWA: 50 ppm 8 hours.
Butanone	**Portuguese Institute of Quality (Portugal, 11/2014).** TWA: 200 ppm 8 hours. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Portuguese Institute of Quality (Portugal, 11/2014).** TWA: 150 ppm 8 hours. STEL: 200 ppm 15 minutes.
crystalline silica, respirable powder	**Portuguese Institute of Quality (Portugal, 11/2014).** TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**Portuguese Institute of Quality (Portugal, 11/2014).** TWA: 20 ppm 8 hours.
Xylene	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). [Xylene] Absorbed through skin.** VLA: 221 mg/m³ 8 hours. VLA: 50 ppm 8 hours. Short term: 442 mg/m³ 15 minutes. Short term: 100 ppm 15 minutes.
iso-butanol	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021).** VLA: 100 mg/m³ 8 hours. VLA: 33 ppm 8 hours. Short term: 200 mg/m³ 15 minutes. Short term: 66 ppm 15 minutes.
Butanone	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021).** VLA: 600 mg/m³ 8 hours. VLA: 200 ppm 8 hours. Short term: 900 mg/m³ 15 minutes. Short term: 300 ppm 15 minutes.
n-Butyl acetate	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021).** VLA: 241 mg/m³ 8 hours. VLA: 50 ppm 8 hours. Short term: 723 mg/m³ 15 minutes. Short term: 150 ppm 15 minutes.
crystalline silica, respirable powder	**HG 1218/2006, Annex 4, with subsequent modifications and additions (Romania, 3/2021).** VLA: 0.1 mg/m³ 8 hours. Form: Respirable dust
Ethylbenzene	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). Absorbed through skin.** VLA: 442 mg/m³ 8 hours. VLA: 100 ppm 8 hours. Short term: 884 mg/m³ 15 minutes.

Xylene	Short term: 200 ppm 15 minutes. **Government regulation SR c. 355/2006 (Slovakia, 9/2020). [xylene, mixed isomers] Absorbed through skin.** TWA: 221 mg/m³, (xylene, mixed isomers) 8 hours. TWA: 50 ppm, (xylene, mixed isomers) 8 hours. STEL: 442 mg/m³, (xylene, mixed isomers) 15 minutes. STEL: 100 ppm, (xylene, mixed isomers) 15 minutes.
iso-butanol	**Government regulation SR c. 355/2006 (Slovakia, 9/2020). [Butyl alkohols]** TWA: 310 mg/m³, (Butyl alkohols) 8 hours. TWA: 100 ppm, (Butyl alkohols) 8 hours.
Butanone	**Government regulation SR c. 355/2006 (Slovakia, 9/2020).** TWA: 600 mg/m³ 8 hours. TWA: 200 ppm 8 hours. STEL: 900 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes.
n-Butyl acetate	**Government regulation SR c. 355/2006 (Slovakia, 9/2020). [Butyl acetates]** TWA: 241 mg/m³, (Butyl acetates) 8 hours. TWA: 50 ppm, (Butyl acetates) 8 hours. STEL: 723 mg/m³, (Butyl acetates) 15 minutes. STEL: 150 ppm, (Butyl acetates) 15 minutes.
crystalline silica, respirable powder	**Government regulation SR c. 355/2006 (Slovakia, 9/2020).** TWA: 0.1 mg/m³ 8 hours. Form: respirable fiber **Government regulation SR c. 356/2006 (Slovakia, 9/2020).** Technical guidance value: 0.1 mg/m³ 8 hours. Form: respirable fraction
Ethylbenzene	**Government regulation SR c. 355/2006 (Slovakia, 9/2020). Absorbed through skin.** TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours. STEL: 884 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes.
Xylene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). [xylene (mixture of isomers)] Absorbed through skin.** TWA: 221 mg/m³ 8 hours. TWA: 50 ppm 8 hours. KTV: 442 mg/m³, 4 times per shift, 15 minutes. KTV: 100 ppm, 4 times per shift, 15 minutes.
iso-butanol	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021).** TWA: 310 mg/m³ 8 hours. TWA: 100 ppm 8 hours. KTV: 310 mg/m³, 4 times per shift, 15 minutes. KTV: 100 ppm, 4 times per shift, 15 minutes.
Butanone	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). Absorbed through skin.** TWA: 600 mg/m³ 8 hours. TWA: 200 ppm 8 hours. KTV: 900 mg/m³, 4 times per shift, 15 minutes. KTV: 300 ppm, 4 times per shift, 15 minutes.
n-Butyl acetate	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021).** TWA: 241 mg/m³ 8 hours. TWA: 50 ppm 8 hours. KTV: 723 mg/m³, 4 times per shift, 15 minutes. KTV: 150 ppm, 4 times per shift, 15 minutes.
Ethylbenzene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). Absorbed through skin.** TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours.

	KTV: 884 mg/m³, 4 times per shift, 15 minutes. KTV: 200 ppm, 4 times per shift, 15 minutes.
Xylene	**National institute of occupational safety and health (Spain, 4/2022). [Xylene, mixture of isomers] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
iso-butanol	**National institute of occupational safety and health (Spain, 4/2022).** TWA: 50 ppm 8 hours. TWA: 154 mg/m³ 8 hours.
Butanone	**National institute of occupational safety and health (Spain, 4/2022).** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**National institute of occupational safety and health (Spain, 4/2022).** TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes.
crystalline silica, respirable powder	**National institute of occupational safety and health (Spain, 4/2022). [Silica, crystalline]** TWA: 0.05 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**National institute of occupational safety and health (Spain, 4/2022). Absorbed through skin.** TWA: 100 ppm 8 hours. TWA: 441 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 884 mg/m³ 15 minutes.
Xylene	**Work environment authority Regulation 2018:1 (Sweden, 9/2021). [xylene] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.
iso-butanol	**Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours. STEL: 75 ppm 15 minutes. STEL: 250 mg/m³ 15 minutes.
Butanone	**Work environment authority Regulation 2018:1 (Sweden, 9/2021).** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
n-Butyl acetate	**Work environment authority Regulation 2018:1 (Sweden, 9/2021). [butyl acetate]** TWA: 50 ppm 8 hours. TWA: 241 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 723 mg/m³ 15 minutes.
crystalline silica, respirable powder	**Work environment authority Regulation 2018:1 (Sweden, 9/2021).** TWA: 0.1 mg/m³ 8 hours. Form: respirable fraction
Ethylbenzene	**Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 200 ppm 15 minutes.

SECTION 8: Exposure controls/personal protection

	STEL: 884 mg/m³ 15 minutes.
Xylene	**SUVA (Switzerland, 1/2023). [Xylenes (all isomers)] Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 440 mg/m³ 15 minutes.
iso-butanol	**SUVA (Switzerland, 1/2023).** TWA: 50 ppm 8 hours. TWA: 150 mg/m³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 150 mg/m³ 15 minutes.
Butanone	**SUVA (Switzerland, 1/2023). Absorbed through skin.** TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours. STEL: 200 ppm 15 minutes. STEL: 590 mg/m³ 15 minutes.
n-Butyl acetate	**SUVA (Switzerland, 1/2023).** TWA: 50 ppm 8 hours. TWA: 240 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 720 mg/m³ 15 minutes.
crystalline silica, respirable powder	**SUVA (Switzerland, 1/2023). [Silicium dioxide (crystalline) (CH-OEL specific)]** TWA: 0.15 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**SUVA (Switzerland, 1/2023). Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 220 mg/m³ 15 minutes.
Xylene	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [xylene, o-,m-, p- or mixed isomers] Absorbed through skin.** STEL: 441 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 100 ppm 15 minutes.
iso-butanol	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** STEL: 231 mg/m³ 15 minutes. STEL: 75 ppm 15 minutes. TWA: 154 mg/m³ 8 hours. TWA: 50 ppm 8 hours.
Butanone	**EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.** STEL: 899 mg/m³ 15 minutes. STEL: 300 ppm 15 minutes. TWA: 600 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
n-Butyl acetate	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** STEL: 966 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 724 mg/m³ 8 hours. TWA: 150 ppm 8 hours.
crystalline silica, respirable powder	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [silica, respirable crystalline respirable fraction]** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction
Ethylbenzene	**EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.** STEL: 552 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours. TWA: 441 mg/m³ 8 hours.

Biological exposure indices

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure indices
Xylene	**VGU BEI (Austria, 9/2020) [xylenes]** BEI Fitness: 1000 µg/l, xylene [in blood]. Sampling time: one year. BEI Fitness: 1.5 g/l, methylhippuricacid [in urine]. Sampling time: one year.
No exposure indices known.	
Ethylbenzene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021) Notes: significant skin resorption possible** BLV: 2000 mg/g creatinine, mandelic acid and phenylglyoxylic acid – in total [in urine]. Sampling time: after the end of the exposure or the end of the work shift.
Xylene	**Ministry of Economy, Labour and Entrepreneurship ILV/STEL (Croatia, 10/2018) [xylene]** BEI: 1.5 mg/l, xylene [in blood]. Sampling time: at the end of the work shift. BEI: 14.13 µmol/l, xylene [in blood]. Sampling time: at the end of the work shift. BEI: 0.88 mol/mol creatinine, methylhippuric acid [in urine]. Sampling time: at the end of the work shift. BEI: 1.5 g/g creatinine, methylhippuric acid [in urine]. Sampling time: at the end of the work shift.
Butanone	**Ministry of Economy, Labour and Entrepreneurship ILV/STEL (Croatia, 10/2018)** BEI: 2.6 mg/g creatinine, ethyl-methyl ketone [in urine]. Sampling time: at the end of the work shift. BEI: 4.08 mmol/mol creatinine, ethyl-methyl ketone [in urine]. Sampling time: at the end of the work shift.
Ethylbenzene	**Ministry of Economy, Labour and Entrepreneurship ILV/STEL (Croatia, 10/2018)** BEI: 1.5 mg/l, ethylbenzene [in blood]. Sampling time: during exposure. BEI: 14.1 µmol/l, ethylbenzene [in blood]. Sampling time: during exposure. BEI: 1.12 mol/mol creatinine, almond acid [in urine]. Sampling time: at the end of the work shift and at the end of the working week. BEI: 1.5 g/g creatinine, almond acid [in urine]. Sampling time: at the end of the work shift and at the end of the working week.
No exposure indices known.	
Xylene	**Government regulation of Czech Republic Limit Values of Biological Exposure Tests (Czech Republic, 9/2015) [Xylene]** Biological limit values: 820 µmol/mmol creatinine, methylhippuric acid [in urine]. Sampling time: end of the shift. Biological limit values: 1400 mg/g creatinine, methylhippuric acid [in urine]. Sampling time: end of the shift.
Ethylbenzene	**Government regulation of Czech Republic Limit Values of Biological Exposure Tests (Czech Republic, 9/2015)** Biological limit values: 1100 µmol/mmol creatinine, almond acid [in urine]. Sampling time: end of the shift. Biological limit values: 1500 mg/g creatinine, almond acid [in urine]. Sampling time: end of the shift.
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	

Xylene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 9/2020) [Xylene]** BEI: 5 mmol/l, methylhippuricacid [in urine]. Sampling time: at the end of the work shift.
Ethylbenzene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 9/2020)** BEI: 5.2 mmol/l, mandelic acid [in urine]. Sampling time: after work shift at the end of the working week or exposure period.
No exposure indices known.	
Xylene	**DFG BEI-values list (Germany, 7/2022) [Xylene (all isomers)] Notes: danger from percutaneous absorption (see p. 211 and p. 228).** BEI: 2000 mg/l, methylhippuric acid (toluric acid) (all isomers) [in urine]. Sampling time: end of exposure or end of shift. **TRGS 903 - BEI Values (Germany, 2/2022) [Xylene (all isomers)]** BEI: 2000 mg/l, methylhippuric acid [in urine]. Sampling time: end of exposure or end of shift.
Butanone	**DFG BEI-values list (Germany, 7/2022) Notes: danger from percutaneous absorption (see p. 211 and p. 228).** BEI: 2 mg/l, 2-butanone [in urine]. Sampling time: end of exposure or end of shift. **TRGS 903 - BEI Values (Germany, 2/2022)** BEI: 2 mg/l, 2-butanone [in urine]. Sampling time: end of exposure or end of shift.
Ethylbenzene	**DFG BEI-values list (Germany, 7/2022) Notes: danger from percutaneous absorption (see p. 211 and p. 228).** BEI: 250 mg/g creatinine, mandelic acid plus phenyl glyoxylic acid [in urine]. Sampling time: end of exposure or end of shift. **TRGS 903 - BEI Values (Germany, 2/2022)** BEI: 250 mg/g creatinine, mandelic acid plus phenylglyoxylic acid [in urine]. Sampling time: end of exposure or end of shift.
No exposure indices known.	
Xylene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022) [xylene]** BEI: 1500 mg/g creatinine, methylhippuric acid [in urine]. Sampling time: at the end of the shift. BEI: 860 µmol/mmol creatinine, methylhippuric acid [in urine]. Sampling time: at the end of the shift.
Butanone	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022)** BEI: 28 µmol/l, methyl-ethyl-ketone [in urine]. Sampling time: at the end of the shift. BEI: 2 mg/l, methyl-ethyl-ketone [in urine]. Sampling time: at the end of the shift.
Ethylbenzene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2022)** BEI: 1500 mg/g creatinine, mandelic acid [in urine]. Sampling time: at the end of the working week; at the end of the shift. BEI: 1110 µmol/mmol creatinine, mandelic acid [in urine]. Sampling time: at the end of the working week; at the end of the shift.
No exposure indices known.	
Xylene	**NAOSH (Ireland, 1/2011) [Xylene]** BMGV: 1.5 g/g creatinine, methylhippuric acids [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.
Butanone	**NAOSH (Ireland, 1/2011)** BMGV: 70 µmol/l, butan-2- one [in urine]. Sampling time: post shift.

Ethylbenzene	**NAOSH (Ireland, 1/2011)** BMGV: Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question., ethylbenzene [in endexhaled air]. Sampling time: not critical. BMGV: 0.7 g/g creatinine [Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: end of shift at end of workweek.
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
No exposure indices known.	
Xylene	**Portuguese Institute of Quality (Portugal, 11/2014) [Xylenes]** BEI: 1.5 g/g creatinine, (o, m, p) -methyl-boronic acids [in urine]. Sampling time: end of shift.
Butanone	**Portuguese Institute of Quality (Portugal, 11/2014)** BEI: 2 mg/l, methyl ethyl ketone (MEK) [in urine]. Sampling time: end of shift.
Ethylbenzene	**Portuguese Institute of Quality (Portugal, 11/2014)** BEI: 0.7 g/g creatinine, sum of mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: end of shift.
Xylene	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2020) [Xylene]** OBLV: 3 g/l, methylhippuric acid [in urine]. Sampling time: end of shift.
Butanone	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2020)** OBLV: 2 mg/l, methyl ethyl ketone [in urine]. Sampling time: end of shift.
Ethylbenzene	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2020)** OBLV: 1.5 g/g creatinine, mandelic acid [in urine]. Sampling time: end of the week.
Xylene	**Government regulation SR c. 355/2006 (Slovakia, 9/2020) [xylene, all isomers]** BLV: 781 µmol/mmol creatinine, sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 1334 mg/g creatinine, sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 10355 µmol/l, sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 14.6 µmol/l, xylene [in blood]. Sampling time: at the end of exposure or work shift.

	BLV: 2000 mg/l, sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 1.5 mg/l, xylene [in blood]. Sampling time: at the end of exposure or work shift.
Ethylbenzene	**Government regulation SR c. 355/2006 (Slovakia, 9/2020)** BLV: 799 µmol/mmol creatinine, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 7.44 µmol/mmol creatinine, 2 or 4-etylfenol [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 1067 mg/g creatinine, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 8.03 mg/g creatinine, 2 or 4-etylfenol [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 10590 µmol/l, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 98.6 µmol/l, 2 or 4-etylfenol [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 1600 mg/l, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts. BLV: 12 mg/l, 2 or 4-etylfenol [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts.
Xylene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021) [xylene (all isomers)]** BAT: 2 g/l, methylhippuric acid (all isomers) [in urine]. Sampling time: at the end of the work shift.
Butanone	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021)** BAT: 2 mg/l, 2-butanone [in urine]. Sampling time: at the end of the work shift.
Ethylbenzene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021)** BAT: 250 mg/g creatinine, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of the work shift.
Xylene	**National institute of occupational safety and health (Spain, 4/2022) [Xylenes]** VLB: 1 g/g creatinine, methylhippuric acids [in urine]. Sampling time: end of shift.
Butanone	**National institute of occupational safety and health (Spain, 4/2022)** VLB: 2 mg/l, methyl ethyl ketone [in urine]. Sampling time: end of shift.
Ethylbenzene	**National institute of occupational safety and health (Spain, 4/2022)** VLB: 700 mg/g creatinine, sum of mandelic acid and acid and phenylglyoxylic acid [in urine]. Sampling time: end of workweek.
No exposure indices known.	

Xylene	**SUVA (Switzerland, 1/2023) [Xylene, all isomers]** BEI: 2 g/l, methyl hippuric acid [in urine]. Sampling time: immediately after exposure or after working hours.
Butanone	**SUVA (Switzerland, 1/2023)** BEI: 2 mg/l, 2-butanone (MEK) [in urine]. Sampling time: before the next shift or 4pm. BEI: 27.7 µmol/l, 2-butanone (MEK) [in urine]. Sampling time: before the next shift or 4pm.
Ethylbenzene	**SUVA (Switzerland, 1/2023)** BEI: 600 mg/g creatinine, mandelic acid + phenylglyoxylic acid [in urine]. Sampling time: immediately after exposure or after working hours.
Xylene	**EH40/2005 BMGVs (United Kingdom (UK), 8/2018) [Xylene, o-, m-, p- or mixed isomers]** BGV: 650 mmol/mol creatinine, methyl hippuric acid [in urine]. Sampling time: post shift.
Butanone	**EH40/2005 BMGVs (United Kingdom (UK), 8/2018)** BGV: 70 µmol/l, butan-2-one [in urine]. Sampling time: post shift.

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

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Bis[4-(2,3-epoxypropoxy)phenyl] propane	DNEL	Long term Dermal	89.3 µg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.75 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.87 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	4.93 mg/m³	Workers	Systemic
Xylene	DNEL	Long term Inhalation	65.3 mg/m³	General population	Local
	DNEL	Short term Inhalation	260 mg/m³	General population	Local
	DNEL	Short term Inhalation	260 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	221 mg/m³	Workers	Local
	DNEL	Long term Oral	12.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	65.3 mg/m³	General population	Systemic
	DNEL	Long term Dermal	125 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	212 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	221 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	442 mg/m³	Workers	Local

	DNEL	Short term Inhalation	442 mg/m³	Workers	Systemic
iso-butanol	DNEL	Long term Inhalation	55 mg/m³	General population	Local
	DNEL	Long term Inhalation	310 mg/m³	Workers	Local
Butanone	DNEL	Long term Oral	31 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	106 mg/m³	General population	Systemic
	DNEL	Long term Dermal	412 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	600 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	1161 mg/kg bw/day	Workers	Systemic
n-Butyl acetate	DNEL	Short term Oral	2 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	2 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	6 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	11 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	35.7 mg/m³	General population	Local
	DNEL	Short term Inhalation	300 mg/m³	General population	Local
	DNEL	Short term Inhalation	300 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	300 mg/m³	Workers	Local
	DNEL	Short term Inhalation	600 mg/m³	Workers	Local
	DNEL	Short term Inhalation	600 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	3.4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	7 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	12 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	48 mg/m³	Workers	Systemic
Oxirane, mono[(C12-14-alkyloxy) methyl]derivs.	DNEL	Long term Oral	0.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.87 mg/m³	General population	Systemic
	DNEL	Long term Dermal	1 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	3.6 mg/m³	Workers	Systemic
Phenol, methylstyrenated	DNEL	Long term Oral	0.2 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.348 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	1.41 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	1.67 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	3.5 mg/kg bw/day	Workers	Systemic
Ethylbenzene	DNEL	Long term Oral	1.6 mg/kg bw/day	General population	Systemic

	DNEL	Long term Inhalation	15 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	77 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	180 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	293 mg/m³	Workers	Local
	DMEL	Long term Inhalation	442 mg/m³	Workers	Local
	DMEL	Short term Inhalation	884 mg/m³	Workers	Systemic
Salicylic Acid	DNEL	Long term Oral	1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	2.3 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Oral	4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	4 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m³	Workers	Local
	DNEL	Long term Inhalation	5 mg/m³	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

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

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Recommendations : Wear suitable gloves tested to EN374.

< 1 hour (breakthrough time): Nitrile gloves. thickness > 0.3 mm

> 8 hours (breakthrough time): 4H / Silver Shield® gloves.

Wash hands before breaks and immediately after handling the product.

SECTION 8: Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Filter type: A

Filter type (spray application): A P

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.

Colour : Various

Odour : Slight

Odour threshold : Not available.

Melting point/freezing point : Not available.

Initial boiling point and boiling range :

Ingredient name	°C	°F	Method
Butanone	79.59	175.3	
iso-butanol	108	226.4	OECD 103

Flammability : Not available.

Lower and upper explosion limit : Lower: 0.8% (xylene)
Upper: 11.5% (butanone)

Flash point : Closed cup: 21°C (69.8°F)

Auto-ignition temperature :

Ingredient name	°C	°F	Method
Butanone	404	759.2	
iso-butanol	415	779	

Decomposition temperature : Not available.

pH : Not applicable.

Viscosity : Kinematic (40°C): >20.5 mm^2/s

Solubility(ies) :

Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not applicable.

Vapour pressure :

SECTION 9: Physical and chemical properties

Ingredient name	Vapour Pressure at 20˚C			Vapour pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Butanone	78.7564	10.5				
n-Butyl acetate	11.25096	1.5	DIN EN 13016-2			

Relative density : Not available.

Density : 1.7 g/cm³

Vapour density : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Particle characteristics

Median particle size : Not applicable.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials : Reactive or incompatible with the following materials: oxidising materials

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Bis[4-(2,3-epoxypropoxy) phenyl]propane	LD50 Dermal	Rabbit	20 g/kg	-
Xylene	LC50 Inhalation Vapour	Rat	21.7 mg/l	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
iso-butanol	LC50 Inhalation Vapour	Rat	19200 mg/m³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
Butanone	LD50 Dermal	Rabbit	6480 mg/kg	-
	LD50 Oral	Rat	2737 mg/kg	-
n-Butyl acetate	LC50 Inhalation Vapour	Rat	0.74 mg/l	4 hours
	LD50 Dermal	Rabbit	14112 mg/kg	-
	LD50 Oral	Rat	10760 mg/kg	-
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	LD50 Oral	Rat	17100 mg/kg	-
Ethylbenzene	LC50 Inhalation Dusts and mists	Rat	29000 mg/l	4 hours
	LD50 Dermal	Rabbit	15400 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
Salicylic Acid	LC50 Inhalation Dusts and mists	Rat	>0.9 mg/l	1 hours
	LD50 Oral	Rat	891 mg/kg	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Acute toxicity estimates

Route	ATE value
Dermal	18349.96 mg/kg
Inhalation (vapours)	150.47 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Bis[4-(2,3-epoxypropoxy) phenyl]propane	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
Xylene	Eyes - Mild irritant	Rabbit	-	87 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 uL	-
	Skin - Moderate irritant	Rabbit	-	100 %	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
titanium dioxide	Skin - Mild irritant	Human	-	72 hours 300 ug l	-
Butanone	Skin - Mild irritant	Rabbit	-	24 hours 14 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
n-Butyl acetate	Eyes - Moderate irritant	Rabbit	-	100 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	Skin - Moderate irritant	Rabbit	-	24 hours 500 uL	-
Ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-

Conclusion/Summary : Causes skin irritation.

Sensitisation

Conclusion/Summary : May cause an allergic skin reaction.

Mutagenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

It has been observed that the carcinogenic hazard of this product arises when respirable dust is inhaled in quantities leading to significant impairment of particle clearance mechanisms in the lung.

Conclusion/Summary : Based on available data, the classification criteria are not met.

Reproductive toxicity

Conclusion/Summary : May damage fertility.

Teratogenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Xylene	Category 3	-	Respiratory tract irritation
iso-butanol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
Butanone	Category 3	-	Narcotic effects
n-Butyl acetate	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
Xylene	Category 2	oral, inhalation	-
crystalline silica, respirable powder	Category 1	inhalation	-
Ethylbenzene	Category 2	oral, inhalation	hearing organs

Aspiration hazard

Product/ingredient name	Result
Xylene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

SECTION 11: Toxicological information

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : May damage fertility.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
titanium dioxide	Acute LC50 3 mg/l Fresh water	Crustaceans - *Ceriodaphnia dubia* - Neonate	48 hours
	Acute LC50 6.5 mg/l Fresh water	Daphnia - *Daphnia pulex* - Neonate	48 hours
	Acute LC50 >1000000 µg/l Marine water	Fish - *Fundulus heteroclitus*	96 hours
iso-butanol	Acute LC50 600 mg/l Marine water	Crustaceans - *Artemia salina*	48 hours
	Acute LC50 1030000 µg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 1330000 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
Butanone	Acute EC50 >500000 µg/l Marine water	Algae - *Skeletonema costatum*	96 hours
	Acute EC50 5091000 µg/l Fresh water	Daphnia - *Daphnia magna* - Larvae	48 hours
	Acute LC50 3220000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
n-Butyl acetate	Acute LC50 32 mg/l Marine water	Crustaceans - *Artemia salina*	48 hours
	Acute LC50 18000 µg/l Fresh water	Fish - *Pimephales promelas*	96 hours
Phenol, methylstyrenated	Acute EC50 15 mg/l	Algae	72 hours
	Acute EC50 14 mg/l	Daphnia	48 hours
	Acute LC50 25.8 mg/l	Fish	96 hours
Salicylic Acid	Acute EC50 >100 mg/l	Algae - *Desmodesmus subspicatus*	72 hours
	Acute LC50 111.7 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	48 hours
	Acute LC50 1380 mg/l	Fish - *Pimephales promelas*	96 hours
	Chronic NOEC 5.6 mg/l Fresh water	Daphnia - *Daphnia magna* - Neonate	21 days
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	Acute LC50 10 mg/l	Fish	4 days

Conclusion/Summary : Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
iso-butanol	-	74 % - Readily - 28 days	-	-

Conclusion/Summary : This product has not been tested for biodegradation.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
iso-butanol	-	-	Readily

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Xylene	3.12	8.1 to 25.9	Low
iso-butanol	1	-	Low
Butanone	0.3	-	Low
n-Butyl acetate	2.3	-	Low
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	3.77	160 to 263	Low
Phenol, methylstyrenated	3.627	-	Low
Ethylbenzene	3.6	-	Low
Salicylic Acid	2.21 to 2.26	-	Low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Bis[4-(2,3-epoxypropoxy) phenyl]propane	No	N/A	N/A	No	N/A	N/A	N/A
Xylene	No	N/A	No	Yes	No	N/A	No
iso-butanol	No	N/A	N/A	No	N/A	N/A	N/A
Butanone	No	N/A	N/A	No	N/A	N/A	N/A
n-Butyl acetate	No	N/A	N/A	No	N/A	N/A	N/A
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	No	N/A	No	Yes	No	N/A	No
Phenol, methylstyrenated	No	N/A	N/A	No	SVHC (Candidate)	Specified	Specified
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	No	N/A	N/A	No	N/A	N/A	N/A

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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

European waste catalogue (EWC) : 080111*, 200127*

Packaging

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

SECTION 13: Disposal considerations

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

SECTION 14: Transport information

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

Additional information

ADR/RID : **Tunnel code** (D/E)

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

14.7 Maritime transport in bulk according to IMO instruments : Not relevant/applicable due to nature of the product.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
vPvB	Phenol, methylstyrenated	Candidate	D(2023) 8585-DC	-

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

Product/ingredient name	%	Designation [Usage]
EPIRUSTIK 2000	≥90	3 30
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	≤3	30

SECTION 15: Regulatory information

Labelling : Restricted to professional users.

Other EU regulations

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

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

Explosive precursors : Not applicable.

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c

National regulations

Austria

VbF class : A II
Very dangerous flammable liquid.

Limitation of the use of organic solvents : Permitted.

Czech Republic

Storage code : II

Denmark

Danish fire class : I-1

Executive Order No. 1795/2015

Ingredient name	Annex I Section A	Annex I Section B
titanium dioxide	Listed	-
Ethylbenzene	Listed	-

MAL-code : 3-6

Protection based on MAL : **According to the regulations on work involving coded products, the following stipulations apply to the use of personal protective equipment:**

General: Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. A face shield must be worn in work involving spattering if a full mask is not required. In this case, other recommended use of eye protection is not required.

In all spraying operations in which there is return spray, respiratory protection with air supply and arm protectors/apron/coveralls/protective clothing must be worn as appropriate or as instructed.

MAL-code: 3-6

Application: When using scraper or knife, brush, roller etc. for pre- and post-treatments in a spray booth where the operator is outside the spray zone and when working in similar new* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone. When spraying in new* booths and cabins with non-atomizing guns.

- Protective clothing must be worn.

During downtimes, cleaning and repair in closed facilities, spray booths or cabins, if there is a risk of contact with wet paint or organic solvents. When using scraper or knife, brush, roller, etc, for pre- and post-treatments in cabins or booths of the existing* facility type, if the operator is inside the spray zone. When using scraper or knife, brush, roller, etc. for pre- and post-treatments outside a closed facility, spray booth or spray cabin.

- Air-supplied half mask, protective clothing and eye protection must be worn.

When spraying in new* booths if the operator is outside the spray zone.

- Air-supplied half mask and eye protection must be worn.

When spraying in existing* spray booths, if the operator is outside the spray zone. During non-atomising spraying in existing* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone.

- Air-supplied full mask and protective clothing must be worn.

During all spraying where atomisation occurs in cabins or spray booths where the operator is inside the spray zone and during spraying outside a closed facility, cabin or booth.

- Air-supplied full mask, protective clothing and hood must be worn.

Drying: Items for drying/drying ovens that are temporarily placed on such things as rack trolleys, etc, must be equipped with a mechanical exhaust system to prevent fumes from wet items from passing through workers' inhalation zone.

Polishing: When polishing treated surfaces, a mask with dust filter must be worn. When machine grinding, eye protection must be worn. Work gloves must always be worn.

Caution The regulations contain other stipulations in addition to the above.

*See Regulations.

Low-boiling liquids : This product contains low-boiling point liquids. Any respiratory protective equipment should be air-fed.

Restrictions on use : Not to be used by professional users below 18 years of age. See the National Working Environment Authorities Executive Order regarding Young People At Work.

List of undesirable substances : Not listed

Carcinogenic waste : Waste containers must be labeled: Contains a substance or substances regulated by Danish working environment legislation on cancer risks.

Finland

France

SECTION 15: Regulatory information

Social Security Code, Articles L 461-1 to L 461-7 :

Xylene	RG 4bis, RG 84
iso-butanol	RG 84
Butanone	RG 84
n-Butyl acetate	RG 84
Oxirane, mono[(C12-14-alkyloxy)methyl]derivs.	RG 84
crystalline silica, respirable powder	RG 25
Ethylbenzene	RG 84

Reinforced medical surveillance : Act of July 11, 1977 determining the list of activities which require reinforced medical surveillance: not applicable

Germany

Storage class (TRGS 510) : 3

Hazardous incident ordinance

This product is controlled under the Germany Hazardous Incident Ordinance.

Danger criteria

Category	Reference number
P5c	1.2.5.3

Hazard class for water : 2

Technical instruction on air quality control : TA-Luft Number 5.2.5: 37.5%
TA-Luft Class I - Number 5.2.5: 1.3%

AOX : The product contains organically bound halogens and can contribute to the AOX value in waste water.

Italy

D.Lgs. 152/06 : Not determined.

Netherlands

Ministry of Social Affairs and Employment (SZW) - Carcinogenic substances and processes, mutagenic or reprotoxic substances

Ingredient name	Carcinogen	Mutagen	Reproductive toxicity - Fertility	Reproductive toxicity - Development	Harmful via breastfeeding
silica, crystalline (NL-carcinogen specific)	Listed	-	-	-	-
xylene	-	-	-	Development 2	-
silica, crystalline (NL-carcinogen specific)	Listed	-	-	-	-
salicylzuur	-	-	-	Development 2	-
Naphtha (petroleum), hydrotreated heavy	Listed	Listed	-	-	-

Water Discharge Policy (ABM) : Z(1) Non biodegradable substances with hazardous properties for humans and the environment (carcinogenicity/ mutagenicity/ reprotoxicity/ bioacumulative potential/ toxicity or persistence). Decontamination effort: Z

Norway

Sweden

Flammable liquid class (SRVFS 2005:10) : 2a

Switzerland

VOC content : VOC (w/w): 13.2%

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

SECTION 15: Regulatory information

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

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

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
Repr. 1B, H360F	Calculation method
STOT RE 2, H373	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H360F	May damage fertility.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
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.

Full text of classifications [CLP/GHS]

SECTION 16: Other information

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

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Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.