SAFETY DATA SHEET

TEKNOZINC 90 SE - All variants

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

1.1 Product identifier

Product name : TEKNOZINC 90 SE - 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. 3, H226
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Skin Sens. 1, H317
STOT RE 2, H373
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

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 : Warning

Hazard statements : H226 - Flammable liquid and vapour.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

SECTION 2: Hazards identification

Prevention : P280 - Wear protective gloves. Wear eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 - Avoid release to the environment.
P260 - Do not breathe vapour.

Response : P391 - Collect spillage.

Storage : Not applicable.

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

Hazardous ingredients : Contains: Xylene; reaction product: bisphenol-A-(epichlorhydrin); epoxy resin and Fatty acids, tall-oil, compds. with oleylamine

Supplemental label elements :

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

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Zinc powder - zinc dust (stabilized)	REACH #: 01-2119467174-37 EC: 231-175-3 CAS: 7440-66-6	≥75 - ≤90	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1]
Xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥10 - ≤17	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]
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	EC: 500-033-5 CAS: 25068-38-6	≤10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317	-	[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]
iso-butanol	REACH #: 01-2119484609-23	≤2.3	Flam. Liq. 3, H226 Skin Irrit. 2, H315	-	[1]

SECTION 3: Composition/information on ingredients

	EC: 201-148-0 CAS: 78-83-1 Index: 603-108-00-1		Eye Dam. 1, H318 STOT SE 3, H335 STOT SE 3, H336		
Fatty acids, tall-oil, compds. with oleylamine	REACH #: 01-2119974148-28 EC: 288-315-1 CAS: 85711-55-3	<0.1	Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT RE 2, H373	-	[1]
Lead (Pb)	EC: 231-100-4 CAS: 7439-92-1 Index: 082-013-00-1	<0.01	Repr. 1A, H360FD Lact., H362 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 **See Section 16 for the full text of the H statements declared above.**	Repr. 1A, H360D: C ≥ 0.03% M [Acute] = 10 M [Chronic] = 100	[1] [2] [3]

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 with carcinogenic, mutagenic or reproductive toxicity properties

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 following exposure or if feeling unwell. 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 following exposure or if feeling unwell. 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. 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

SECTION 4: First aid measures

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

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : 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 : 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 very toxic 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".

SECTION 6: Accidental release measures

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. Collect spillage.

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. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. 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.

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. 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. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonnes	50000 tonnes
E1	100 tonnes	200 tonnes

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The 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
Xylene	**Regulation on Limit Values - MAC (Austria, 4/2021) [Xylol (alle Isomeren, rein)]** PEAK 15 minutes: 442 mg/m³ 4 times per shift. TWA 8 hours: 50 ppm. PEAK 15 minutes: 100 ppm 4 times per shift. TWA 8 hours: 221 mg/m³.
Ethylbenzene	**Regulation on Limit Values - MAC (Austria, 4/2021)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 440 mg/m³. CEIL 5 minutes: 200 ppm 8 times per shift. CEIL 5 minutes: 880 mg/m³ 8 times per shift.
iso-butanol	**Regulation on Limit Values - MAC (Austria, 4/2021) [Butanol (alle Isomeren außer 2-Methyl-2-propanol)]** PEAK 15 minutes: 200 ppm 4 times per shift. TWA 8 hours: 150 mg/m³. TWA 8 hours: 50 ppm. PEAK 15 minutes: 600 mg/m³ 4 times per shift.
Lead (Pb)	**Regulation on Limit Values - MAC (Austria, 4/2021) [Blei und seine Verbindungen außer Bleiarsenat, Bleichromat, Bleichromatoxid und Alkylbleiverbindungen]** F, D, L. TWA 8 hours: 0.1 mg/m³ (measured as Pb). Form: Inhalable fraction. PEAK 15 minutes: 0.4 mg/m³ (measured as Pb), 4 times per shift. Form: Inhalable fraction.
Xylene	**Limit values (Belgium, 12/2023) [Xyleen]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**Limit values (Belgium, 12/2023)** Absorbed through skin. TWA 8 hours: 20 ppm. TWA 8 hours: 87 mg/m³. STEL 15 minutes: 125 ppm. STEL 15 minutes: 551 mg/m³.
iso-butanol	**Limit values (Belgium, 12/2023)** TWA 8 hours: 50 ppm. TWA 8 hours: 154 mg/m³.
Lead (Pb)	**Biological limit values (Belgium, 12/2023) [Lood en ionenverbindingen van lood]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Limit values (Belgium, 12/2023) [Anorganisch lood en verbindingen daarvan]** TWA 8 hours: 0.15 mg/m³ (as Pb).

SECTION 8: Exposure controls/personal protection

Xylene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 4/2024) [Xylene]** Absorbed through skin. Limit value 8 hours: 221 mg/m³. Limit value 15 minutes: 442 mg/m³. Limit value 15 minutes: 100 ppm. Limit value 8 hours: 50 ppm.
Ethylbenzene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 4/2024)** Absorbed through skin. Limit value 8 hours: 435 mg/m³. Limit value 15 minutes: 545 mg/m³.
Lead (Pb)	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 10/2003 (BEI). (Bulgaria, 4/2024) [lead and its ionic compounds]** OEL surveillance 8 hours: 0.05 mg/m³ (lead). **Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 10/2003 (OEL). (Bulgaria, 4/2024) [inorganic lead and its compounds]** Limit value 8 hours: 0.05 mg/m³.
Xylene	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, exposure limit values (Annex I) (Croatia, 12/2023) [ksilen]** Absorbed through skin. STELV 15 minutes: 442 mg/m³. STELV 15 minutes: 100 ppm. ELV 8 hours: 221 mg/m³. ELV 8 hours: 50 ppm.
Ethylbenzene	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, exposure limit values (Annex I) (Croatia, 12/2023)** Absorbed through skin. STELV 15 minutes: 884 mg/m³. STELV 15 minutes: 200 ppm. ELV 8 hours: 442 mg/m³. ELV 8 hours: 100 ppm.
iso-butanol	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, exposure limit values (Annex I) (Croatia, 12/2023)** Absorbed through skin. STELV 15 minutes: 231 mg/m³. STELV 15 minutes: 75 ppm. ELV 8 hours: 154 mg/m³. ELV 8 hours: 50 ppm.
Lead (Pb)	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, biological limit values (Annex IV) (Croatia, 12/2023) [olovo i njegovi ionski spojevi]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Ordinance on the protection of workers from exposure to hazardous chemicals at work, exposure limit values (Annex I) (Croatia, 12/2023) [olovo i njegovi anorganski spojevi]** Repr 1A. ELV 8 hours: 0.15 mg/m³.
Xylene	**Department of labour inspection (Cyprus, 7/2021) [Ξυλένιο, μικτά ισομερή, καθαρά]** Absorbed through skin. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³.
Ethylbenzene	**Department of labour inspection (Cyprus, 7/2021)** Absorbed through skin. STEL 15 minutes: 884 mg/m³. TWA 8 hours: 100 ppm. TWA 8 hours: 442 mg/m³. STEL 15 minutes: 200 ppm.
Lead (Pb)	**Department of labour inspection (Cyprus, 7/2021) [Ανόργανος**

	μόλυβδος και οι ενώσεις του] TWA 8 hours: 0.15 mg/m³.
Xylene	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 12/2023) [xylen]** Absorbed through skin. TWA 8 hours: 200 mg/m³. TWA 8 hours: 45.33 ppm. STEL 15 minutes: 400 mg/m³. STEL 15 minutes: 90.66 ppm.
Ethylbenzene	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 12/2023)** Absorbed through skin. TWA 8 hours: 200 mg/m³. TWA 8 hours: 45.33 ppm. STEL 15 minutes: 500 mg/m³. STEL 15 minutes: 113.32 ppm.
iso-butanol	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 12/2023) [butanol]** TWA 8 hours: 300 mg/m³. TWA 8 hours: 97 ppm. STEL 15 minutes: 600 mg/m³. STEL 15 minutes: 194 ppm.
Lead (Pb)	**Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 12/2023)** Repr. TWA 8 hours: 0.05 mg/m³. STEL 15 minutes: 0.2 mg/m³.
Xylene	**Working Environment Authority (Denmark, 3/2024) [xylen, alle isomere]** Absorbed through skin. TWA 8 hours: 25 ppm. TWA 8 hours: 109 mg/m³. STEL 15 minutes: 442 mg/m³. STEL 15 minutes: 100 ppm.
Ethylbenzene	**Working Environment Authority (Denmark, 3/2024)** K. Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 217 mg/m³. STEL 15 minutes: 434 mg/m³. STEL 15 minutes: 100 ppm.
iso-butanol	**Working Environment Authority (Denmark, 3/2024) [butanol, alle isomere]** Absorbed through skin. CEIL: 50 ppm. CEIL: 150 mg/m³.
Lead (Pb)	**Working Environment Authority (Denmark, 3/2024)** TWA 8 hours: 0.05 mg/m³ (calculated as Pb). Form: powder, dust, fume. STEL 15 minutes: 0.1 mg/m³ (calculated as Pb). Form: powder, dust, fume.
Xylene	**Occupational exposure limits, Regulation No. 293 (Estonia, 4/2024) [ksüleen]** Absorbed through skin. TWA 8 hours: 50 ppm. STEL 15 minutes: 100 ppm. STEL 15 minutes: 450 mg/m³. TWA 8 hours: 200 mg/m³.
Ethylbenzene	**Occupational exposure limits, Regulation No. 293 (Estonia, 4/2024)** Absorbed through skin , Sensitiser. TWA 8 hours: 442 mg/m³. TWA 8 hours: 100 ppm. STEL 15 minutes: 884 mg/m³. STEL 15 minutes: 200 ppm.
iso-butanol	**Occupational exposure limits, Regulation No. 293 (Estonia, 4/2024)** TWA 8 hours: 150 mg/m³. TWA 8 hours: 50 ppm.
Lead (Pb)	**Biological exposure limits, Regulation number 193 (Estonia,**

SECTION 8: Exposure controls/personal protection

	4/2024) [Plii ja selle ioonsete ühendite] OEL surveillance 8 hours: 75 µg/m³ (lead). **Occupational exposure limits, Regulation No. 293 (Estonia, 4/2024) [plii ja anorgaanilised ühendid]** Repr. TWA 8 hours: 0.1 mg/m³ (calculated as Pb). Form: Total dust. TWA 8 hours: 0.05 mg/m³ (calculated as Pb). Form: Respirable dust.
Xylene	**EU OEL (Europe, 1/2022) [xylene, mixed isomers]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 442 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
Lead (Pb)	**EU Biological limit values (Europe, 3/2024) [lead and its inorganic compounds]** OEL surveillance 8 hours: 0.015 mg/m³ (lead). **EU OEL (Europe, 3/2024) [lead and its inorganic compunds]** Non-threshold reprotoxic substance.. TWA 8 hours: 0.03 mg/m³.
Xylene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Ksyleeni]** Absorbed through skin. STEL 15 minutes: 440 mg/m³. TWA 8 hours: 220 mg/m³. TWA 8 hours: 50 ppm. STEL 15 minutes: 100 ppm.
Ethylbenzene	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021)** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 880 mg/m³.
iso-butanol	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Butanoli]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 150 mg/m³. STEL 15 minutes: 75 ppm. STEL 15 minutes: 230 mg/m³.
Lead (Pb)	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021)** CARC. Ototoxicant. TWA 8 hours: 0.1 mg/m³ (calculated as Pb).
Xylene	**Ministry of Labor (France, 6/2024) [xylènes, isomères mixtes, purs]** Absorbed through skin. STEL 15 minutes: 442 mg/m³. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code) STEL 15 minutes: 100 ppm. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code) TWA 8 hours: 221 mg/m³. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code) TWA 8 hours: 50 ppm. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)
Ethylbenzene	**Ministry of Labor (France, 6/2024)** Absorbed through skin. TWA 8 hours: 20 ppm. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code) TWA 8 hours: 88.4 mg/m³. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code) STEL 15 minutes: 442 mg/m³. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)

SECTION 8: Exposure controls/personal protection

	STEL 15 minutes: 100 ppm. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)
iso-butanol	**Ministry of Labor (France, 6/2024)** TWA 8 hours: 50 ppm. Notes: Permissible limit values (circulars) TWA 8 hours: 150 mg/m³. Notes: Permissible limit values (circulars)
Lead (Pb)	**Ministry of Labor (France, 6/2024) [Plomb métallique et composés]** TWA 8 hours: 0.1 mg/m³ (as Pb). Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)
Xylene	**TRGS 900 OEL (Germany, 6/2024) [Xylol]** Absorbed through skin. TWA 8 hours: 220 mg/m³. PEAK 15 minutes: 440 mg/m³. TWA 8 hours: 50 ppm. PEAK 15 minutes: 100 ppm. **DFG MAC-values list (Germany, 7/2023) [Xylene]** Develop D. Absorbed through skin. TWA 8 hours: 50 ppm. PEAK 15 minutes: 100 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 220 mg/m³. PEAK 15 minutes: 440 mg/m³ 4 times per shift [Interval: 1 hour].
Ethylbenzene	**TRGS 900 OEL (Germany, 6/2024)** Absorbed through skin. TWA 8 hours: 88 mg/m³. PEAK 15 minutes: 176 mg/m³. TWA 8 hours: 20 ppm. PEAK 15 minutes: 40 ppm. **DFG MAC-values list (Germany, 7/2023)** Carc 4, Develop C. Absorbed through skin. PEAK 15 minutes: 40 ppm 4 times per shift [Interval: 1 hour]. PEAK 15 minutes: 176 mg/m³ 4 times per shift [Interval: 1 hour]. TWA 8 hours: 88 mg/m³. TWA 8 hours: 20 ppm.
iso-butanol	**TRGS 900 OEL (Germany, 6/2024)** TWA 8 hours: 310 mg/m³. PEAK 15 minutes: 310 mg/m³. TWA 8 hours: 100 ppm. PEAK 15 minutes: 100 ppm. **DFG MAC-values list (Germany, 7/2023)** Develop C. TWA 8 hours: 100 ppm. PEAK 15 minutes: 100 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 310 mg/m³. PEAK 15 minutes: 310 mg/m³ 4 times per shift [Interval: 1 hour].
Lead (Pb)	**DFG MAC-values list (Germany, 7/2023) [Lead and its inorganic compounds except lead arsenate and lead chromate]** Carc 4, Muta 3A, Develop A. PEAK 15 minutes: 0.032 mg/m³ (as Pb), 4 times per shift [Interval: 1 hour]. Form: inhalable dust. TWA 8 hours: 0.004 mg/m³ (as Pb). Form: inhalable dust.
Xylene	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021) [ξυλόλια (όλα τα ισομερή)]** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 435 mg/m³. STEL 15 minutes: 150 ppm. STEL 15 minutes: 650 mg/m³.
Ethylbenzene	**Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021)** TWA 8 hours: 100 ppm. TWA 8 hours: 435 mg/m³. STEL 15 minutes: 125 ppm. STEL 15 minutes: 545 mg/m³.
iso-butanol	**Presidential Decree 307/1986: Occupational exposure limit**

	values (Greece, 9/2021) TWA 8 hours: 100 ppm. TWA 8 hours: 300 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 300 mg/m³.
Lead (Pb)	**Presidential Decree 338/2001: Biological limit values (Greece, 7/2015) [lead and its ionic compounds]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021) [ανόργανος μόλυβδος και ενώσεις του]** TWA 8 hours: 0.15 mg/m³.
Xylene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023) [xilol izomerek keveréke]** Absorbed through skin. TWA 8 hours: 221 mg/m³. PEAK 15 minutes: 442 mg/m³. PEAK 15 minutes: 100 ppm. TWA 8 hours: 50 ppm.
Ethylbenzene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023)** Absorbed through skin. TWA 8 hours: 442 mg/m³. PEAK 15 minutes: 884 mg/m³. PEAK 15 minutes: 200 ppm. TWA 8 hours: 100 ppm.
Lead (Pb)	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023) [ólom és szervetlen vegyületei]** TWA 8 hours: 0.15 mg/m³ (as Pb).
Xylene	**Ministry of Welfare, List of Exposure Limits (Iceland, 11/2023) [Xýlen, allir ísómerar]** Absorbed through skin. STEL 15 minutes: 442 mg/m³. STEL 15 minutes: 100 ppm. TWA 8 hours: 109 mg/m³. TWA 8 hours: 25 ppm.
Ethylbenzene	**Ministry of Welfare, List of Exposure Limits (Iceland, 11/2023)** Absorbed through skin. STEL 15 minutes: 884 mg/m³. STEL 15 minutes: 200 ppm. TWA 8 hours: 200 mg/m³. TWA 8 hours: 50 ppm.
iso-butanol	**Ministry of Welfare, List of Exposure Limits (Iceland, 11/2023) [Bútanól, allir ísomerar nema n-bútanól]** Absorbed through skin. STEL 15 minutes: 150 mg/m³. STEL 15 minutes: 50 ppm.
Lead (Pb)	**Ministry of Welfare, List of Exposure Limits (Iceland, 11/2023) [Blý, ólífræn sambönd]** TWA 8 hours: 0.05 mg/m³ (as Pb). Form: powder, dust and fume.
Xylene	**NAOSH (Ireland, 4/2024) [xylene]** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 50 ppm. OELV 8 hours: 221 mg/m³. OELV 15 minutes: 100 ppm. OELV 15 minutes: 442 mg/m³.
Ethylbenzene	**NAOSH (Ireland, 4/2024)** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 100 ppm. OELV 8 hours: 442 mg/m³. OELV 15 minutes: 200 ppm. OELV 15 minutes: 884 mg/m³.
iso-butanol	**NAOSH (Ireland, 4/2024)** Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV 8 hours: 150 ppm. OELV 8 hours: 700 mg/m³.

Lead (Pb)	**NAOSH (Ireland, 4/2024) [inorganic lead and its compounds]** Repr 1A. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 0.15 mg/m³.
Xylene	**Legislative Decree No. 81/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020) [Xilene, isomeri misti, puro]** Absorbed through skin. Limit value 8 hours: 50 ppm. Limit value 8 hours: 221 mg/m³. Short Term 15 minutes: 100 ppm. Short Term 15 minutes: 442 mg/m³.
Ethylbenzene	**Legislative Decree No. 81/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020)** Absorbed through skin. Limit value 8 hours: 100 ppm. Limit value 8 hours: 442 mg/m³. Short Term 15 minutes: 200 ppm. Short Term 15 minutes: 884 mg/m³.
Lead (Pb)	**Legislative Decree No. 81/2008. Annex XXXIX. Mandatory biological limit values (Italy, 8/2009) [piombo e suoi composti ionici]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Legislative Decree No. 81/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020) [Piombo inorganico e suoi composti]** Limit value 8 hours: 0.15 mg/m³.
Xylene	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 3/2024) [Ksilols]** Absorbed through skin. TWA 8 hours: 221 mg/m³. TWA 8 hours: 50 ppm. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 3/2024)** Absorbed through skin. TWA 8 hours: 442 mg/m³. TWA 8 hours: 100 ppm. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
iso-butanol	**Ministers Cabinet Regulations Nr.325 - AER (Latvia, 3/2024) [Butilspirti]** TWA 8 hours: 10 mg/m³.
Lead (Pb)	**EU Biological limit values (Europe, 3/2024) [lead and its inorganic compounds]** OEL surveillance 8 hours: 0.015 mg/m³ (lead). **EU OEL (Europe, 3/2024) [lead and its inorganic compunds]** Non-threshold reprotoxic substance.. TWA 8 hours: 0.03 mg/m³.
Xylene	**Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2024) [ksilenas, mišrūs izomerai, grynas]** Absorbed through skin. STEL 15 minutes: 442 mg/m³. TWA 8 hours: 50 ppm. STEL 15 minutes: 100 ppm. TWA 8 hours: 221 mg/m³.
Ethylbenzene	**Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2024)** Absorbed through skin. TWA 8 hours: 442 mg/m³. TWA 8 hours: 100 ppm. STEL 15 minutes: 884 mg/m³. STEL 15 minutes: 200 ppm.
iso-butanol	**Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2024)** Absorbed through skin. TWA 8 hours: 10 mg/m³.
Lead (Pb)	**Minister of Social Security and Labor and Minister of Health**

SECTION 8: Exposure controls/personal protection

	Protection, Order No. 97/406 (Lithuania, 1/2024) [Švinas ir jo joniniai junginiai] OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2024) [švinas ir jo neorganinai junginiai]** Repr. TWA 8 hours: 0.07 mg/m³ (as Pb). Form: Respirable fraction. TWA 8 hours: 0.15 mg/m³ (as Pb). Form: Inhalable fraction.
Xylene	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021) [xylène Isomères mixtes, pures]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 442 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
Lead (Pb)	**Grand-Duchy Regulation 2016. Biological limit values. Annex II (Luxembourg, 11/2016) [Plomb et ses composés ioniques]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021) [plomb métallique et ses composés]** TWA 8 hours: 0.15 mg/m³.
Xylene	**EU OEL (Europe, 1/2022) [xylene, mixed isomers]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 442 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
Lead (Pb)	**EU Biological limit values (Europe, 3/2024) [lead and its inorganic compounds]** OEL surveillance 8 hours: 0.015 mg/m³ (lead). **EU OEL (Europe, 3/2024) [lead and its inorganic compunds]** Non-threshold reprotoxic substance.. TWA 8 hours: 0.03 mg/m³.
Xylene	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 5/2024) [xyleen, o-, m-, p-isomeren]** Absorbed through skin. TWA 8 hours: 210 mg/m³. STEL 15 minutes: 442 mg/m³. STEL 15 minutes: 100 ppm. TWA 8 hours: 47.5 ppm.
Ethylbenzene	**Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 5/2024)** Absorbed through skin. TWA 8 hours: 215 mg/m³. STEL 15 minutes: 430 mg/m³. STEL 15 minutes: 97.3 ppm. TWA 8 hours: 48.6 ppm.
Lead (Pb)	**Ministry of Social Affairs and Employment, Biological limit values (Netherlands, 5/2024) [lood]** OEL for frequence of measurement 8 hours: 100 µg/m³ (lead). **Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 5/2024) [lood en anorganische loodverbindingen]** Rep_Tox.

SECTION 8: Exposure controls/personal protection

	TWA 8 hours: 0.15 mg/m³.
Xylene	**FOR-2011-12-06-1358 (Norway, 12/2022) [xylen]** Absorbed through skin. TWA 8 hours: 25 ppm. TWA 8 hours: 108 mg/m³.
Ethylbenzene	**FOR-2011-12-06-1358 (Norway, 12/2022)** Carc. Absorbed through skin. TWA 8 hours: 5 ppm. TWA 8 hours: 20 mg/m³.
iso-butanol	**FOR-2011-12-06-1358 (Norway, 12/2022)** Absorbed through skin. CEIL: 75 mg/m³. CEIL: 25 ppm.
Lead (Pb)	**FOR-2011-12-06-1358 (Norway, 12/2022) [bly og uorganiske blyforbindelser]** Repr. TWA 8 hours: 0.05 mg/m³ (calculated as Pb). Form: Dust and fumes.
Xylene	**Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286) (Poland, 8/2023) [xylene – mixed isomers (1,2-, 1,3-, 1,4-)]** Absorbed through skin. TWA 8 hours: 100 mg/m³. STEL 15 minutes: 200 mg/m³.
Ethylbenzene	**Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286) (Poland, 8/2023)** Absorbed through skin. TWA 8 hours: 200 mg/m³. STEL 15 minutes: 400 mg/m³.
iso-butanol	**Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286) (Poland, 8/2023)** Absorbed through skin. TWA 8 hours: 100 mg/m³. STEL 15 minutes: 200 mg/m³.
Lead (Pb)	**Regulation of the Ministry of Health of September 16, 2016, Safety and occupational health related to the presence of chemical agents in the workplace (Poland, 9/2016) [ołów i jego związki nieorganiczne]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). Form: inhalable fraction. **Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286) (Poland, 8/2023) [Lead – inorganic compounds]** TWA 8 hours: 0.05 mg/m³ (calculated as Pb). Form: Inhalable fraction.
Xylene	**Portuguese Institute of Quality (Portugal, 11/2014) [xileno (isómeros o, m & p)]** A4. TWA 8 hours: 100 ppm. STEL 15 minutes: 150 ppm.
Ethylbenzene	**Portuguese Institute of Quality (Portugal, 11/2014)** A3. TWA 8 hours: 20 ppm.
iso-butanol	**Portuguese Institute of Quality (Portugal, 11/2014)** TWA 8 hours: 50 ppm.
Lead (Pb)	**Portuguese Institute of Quality (Portugal, 11/2014) [chumbo elementar e compostos inorgânicos]** A3. TWA 8 hours: 0.05 mg/m³ (expressed as Pb).

Xylene	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2024) [xilen]** Absorbed through skin. VLA 8 hours: 221 mg/m³. VLA 8 hours: 50 ppm. Short term 15 minutes: 442 mg/m³. Short term 15 minutes: 100 ppm.
Ethylbenzene	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2024)** Absorbed through skin. VLA 8 hours: 442 mg/m³. VLA 8 hours: 100 ppm. Short term 15 minutes: 884 mg/m³. Short term 15 minutes: 200 ppm.
iso-butanol	**HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2024)** VLA 8 hours: 100 mg/m³. VLA 8 hours: 33 ppm. Short term 15 minutes: 200 mg/m³. Short term 15 minutes: 66 ppm.
Lead (Pb)	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2024) [plumbul și compușii săi ionici]** OEL surveillance 8 hours: 0.075 mg/m³ (lead). **HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2024) [Plumb şi compuşi]** VLA 8 hours: 0.05 mg/m³. Short term 15 minutes: 0.1 mg/m³. **HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2024) [plumb și compușii săi anorganici]** R1A. VLA 8 hours: 0.15 mg/m³ (expressed in Pb).
Xylene	**Government regulation SR c. 355/2006 (Slovakia, 7/2024) [xylén, zmiešané izoméry]** Absorbed through skin , Inhalation sensitiser. TWA 8 hours: 221 mg/m³ (xylene, mixed isomers). TWA 8 hours: 50 ppm (xylene, mixed isomers). STEL 15 minutes: 442 mg/m³ (xylene, mixed isomers). STEL 15 minutes: 100 ppm (xylene, mixed isomers).
Ethylbenzene	**Government regulation SR c. 355/2006 (Slovakia, 7/2024)** Absorbed through skin , Inhalation sensitiser. TWA 8 hours: 442 mg/m³. TWA 8 hours: 100 ppm. STEL 15 minutes: 884 mg/m³. STEL 15 minutes: 200 ppm.
iso-butanol	**Government regulation SR c. 355/2006 (Slovakia, 7/2024) [butylalkoholy]** Inhalation sensitiser. TWA 8 hours: 310 mg/m³ (Butyl alkohols). TWA 8 hours: 100 ppm (Butyl alkohols).
Lead (Pb)	**Government regulation SR c. 355/2006 (Slovakia, 5/2024) [olovo a jeho zlúčeniny]** Repr_1A. OEL surveillance 8 hours: 0.075 mg/m³ (as lead). **Government regulation SR c. 355/2006 (Slovakia, 7/2024) [olovo a jeho organické zlúčeniny]** Inhalation sensitiser. TWA 8 hours: 0.05 mg/m³ (Lead and its organic compounds).
Xylene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 4/2024) [ksilen]** Absorbed through skin. TWA 8 hours: 221 mg/m³. TWA 8 hours: 50 ppm. KTV 15 minutes: 442 mg/m³ 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes]. KTV 15 minutes: 100 ppm 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes].
Ethylbenzene	**Regulation on protection of workers from the risks related to**

	exposure to chemical substances at work (Slovenia, 4/2024) Absorbed through skin. TWA 8 hours: 442 mg/m³. TWA 8 hours: 100 ppm. KTV 15 minutes: 884 mg/m³ 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes]. KTV 15 minutes: 200 ppm 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes].
iso-butanol	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 4/2024)** TWA 8 hours: 310 mg/m³. TWA 8 hours: 100 ppm. KTV 15 minutes: 310 mg/m³ 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes]. KTV 15 minutes: 100 ppm 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes].
Lead (Pb)	**Regulation on the protection of workers from the risks related to exposure to carcinogens, mutagens or reprotoxic substances at work (Slovenia, 4/2024) [svinec, anorganski in njegove spojine]** Repr Fer 1A, Repr Dev 1A. Peak 15 minutes: 0.4 mg/m³ (calculated as Pb), 4 times per shift [time between two exposure events at this concentration must be at least 60 minutes]. Form: Inhalable fraction. TWA 8 hours: 0.1 mg/m³ (calculated as Pb). Form: Inhalable fraction.
Xylene	**National institute of occupational safety and health (Spain, 1/2024) [xileno, mezcla isómeros]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**National institute of occupational safety and health (Spain, 1/2024)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 441 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
iso-butanol	**National institute of occupational safety and health (Spain, 1/2024)** TWA 8 hours: 50 ppm. TWA 8 hours: 154 mg/m³.
Lead (Pb)	**National institute of occupational safety and health (Spain, 1/2024)** Develop 1A. TWA 8 hours: 0.15 mg/m³.
Xylene	**Work environment authority Regulation 2018:1 (Sweden, 11/2022) [xylene]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Ethylbenzene	**Work environment authority Regulation 2018:1 (Sweden, 11/2022)** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
iso-butanol	**Work environment authority Regulation 2018:1 (Sweden, 11/2022)** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 150 mg/m³. STEL 15 minutes: 75 ppm. STEL 15 minutes: 250 mg/m³.

Lead (Pb)	**Work environment authority Regulation 2018:1 (Sweden, 11/2022) [lead, and inorg. compounds]** Repr. Ototoxicant. TWA 8 hours: 0.1 mg/m³ (as Pb). Form: inhalable fraction. TWA 8 hours: 0.05 mg/m³ (as Pb). Form: respirable fraction.
Xylene	**SUVA (Switzerland, 1/2024) [Xylol]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 440 mg/m³.
Ethylbenzene	**SUVA (Switzerland, 1/2024)** Absorbed through skin , Ototoxicant. TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m³. STEL 15 minutes: 50 ppm. STEL 15 minutes: 220 mg/m³.
iso-butanol	**SUVA (Switzerland, 1/2024)** TWA 8 hours: 50 ppm. TWA 8 hours: 150 mg/m³. STEL 15 minutes: 50 ppm. STEL 15 minutes: 150 mg/m³.
Lead (Pb)	**SUVA (Switzerland, 1/2024) [Blei und seine Verbindungen, ausser Alkylverbindungen]** Carc 2, Repr 1A. STEL 15 minutes: 0.8 mg/m³ (calculated as Pb). Form: Inhalable fraction. TWA 8 hours: 0.1 mg/m³ (calculated as Pb). Form: Inhalable fraction.
Xylene	**EH40/2005 WELs (United Kingdom (UK), 1/2020) [xylene, o-,m-, p- or mixed isomers]** Absorbed through skin. STEL 15 minutes: 441 mg/m³. TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m³. STEL 15 minutes: 100 ppm.
Ethylbenzene	**EH40/2005 WELs (United Kingdom (UK), 1/2020)** Absorbed through skin. STEL 15 minutes: 552 mg/m³. STEL 15 minutes: 125 ppm. TWA 8 hours: 100 ppm. TWA 8 hours: 441 mg/m³.
iso-butanol	**EH40/2005 WELs (United Kingdom (UK), 1/2020)** STEL 15 minutes: 231 mg/m³. STEL 15 minutes: 75 ppm. TWA 8 hours: 154 mg/m³. TWA 8 hours: 50 ppm.
Lead (Pb)	**EH40/2005 WELs (United Kingdom (UK), 1/2020)** Carc. TWA 8 hours: 0.15 mg/m³.

Biological exposure indices

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.
Lead (Pb)	**VGU BEI (Austria, 9/2020) [lead, its alloys or compounds]** BEI Inadequacy - women under 50: 10 mg/l, urinary delta-aminolevulinic acid [in urine]. Sampling time: three months, for glass and accumulator works six weeks, for rust prevention work two weeks. BEI Inadequacy - men, women over 50: 20 mg/l, urinary delta-aminolevulinic acid [in urine]. Sampling time: three months, for glass and accumulator works six weeks, for rust prevention work two weeks. BEI Inadequacy - women under 50: 45 µg/100 ml, blood lead [in

	blood]. Sampling time: three months, for glass and accumulator works six weeks, for rust prevention work two weeks. BEI Inadequacy - men, women over 50: 70 µg/100 ml, blood lead [in blood]. Sampling time: three months, for glass and accumulator works six weeks, for rust prevention work two weeks. BEI Fitness - women under 50: 6 mg/l, urinary delta-aminolevulinic acid [in urine]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - men, women over 50: 10 mg/l, urinary delta-aminolevulinic acid [in urine]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness: 30 µg/100 ml, blood lead [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness: 120 µg/100 ml RBC, erythrocyte protoporphyrin [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - men: 35 %, hematocrit [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - women: 30 %, hematocrit [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - men: 12 g/dl, hemoglobin [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - women: 10 g/dl, hemoglobin [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - men: 3.8 million/µl, erythrocytes [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks. BEI Fitness - women: 3.2 million/µl, erythrocytes [in blood]. Sampling time: one year, For glass and accumulator works: three month, For anti-rust works (including cutting and cutting anti-rust coated parts): four weeks.
Lead (Pb)	**Biological limit values (Belgium, 12/2023) [Lead and ionic compounds of lead]** BEI surveillance: 40 µg /100 ml, lead [in blood]. BLV: 70 µg /100 ml, lead [in blood].
Ethylbenzene	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 4/2024)** Notes: significant skin resorption possible BLV: 2000 mg/g creatinine, mandelic acid and phenylglyoxylic acid – in total [in urine]. Sampling time: at the end of the exposure or at the end of the work shift.
Lead (Pb)	**Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 10/2003 (BEI). (Bulgaria, 4/2024) [lead and its ionic compounds]** BEI surveillance: <40 µg/100 ml, lead [in blood]. BEI: 400 µg/l, lead [in blood]. BEI - women under 45: 300 µg/l, lead [in blood].

SECTION 8: Exposure controls/personal protection

Xylene	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, biological limit values (Annex IV) (Croatia, 12/2023) [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.
Ethylbenzene	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, biological limit values (Annex IV) (Croatia, 12/2023)** 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.
Lead (Pb)	**Ordinance on the protection of workers from exposure to hazardous chemicals at work, biological limit values (Annex IV) (Croatia, 12/2023) [lead elemental and inorganic compounds]** BEI - men: 400 µg/l, lead [in blood]. Sampling time: not critical. BEI: 2.67 µmol/l E, protoporphyrin in erythrocytes [in blood]. Sampling time: after exposure for 2-3 months (sample protected from light). BEI: 1.5 mg/l E, protoporphyrin in erythrocytes [in blood]. Sampling time: after exposure for 2-3 months (sample protected from light). BEI: 15 µ/l E, δ-aminolevulinic acid anhydride [in blood]. Sampling time: not critical. BEI - women under 45: 300 µg/l, lead [in blood]. Sampling time: not critical. **Ordinance on the protection of workers from exposure to hazardous chemicals at work, biological limit values (Annex IV) (Croatia, 12/2023) [lead and its ionic compounds]** BEI surveillance: >40 µg/100 ml, lead [in blood]. BEI: 70 µg/100 ml, lead [in blood].
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.
Lead (Pb)	**Government regulation of Czech Republic Limit Values of Biological Exposure Tests (Czech Republic, 9/2015) [Lead Compounds]**

SECTION 8: Exposure controls/personal protection

	Biological limit values: 0.035 µmol/mmol creatinine, koproporphyrin [in urine]. Sampling time: not set. Biological limit values: 0.2 mg/g creatinine, koproporphyrin [in urine]. Sampling time: not set. Biological limit values: 13 µmol/mmol creatinine, 5-aminolevulic acid [in urine]. Sampling time: not set. Biological limit values: 15 mg/g creatinine, 5-aminolevulic acid [in urine]. Sampling time: not set. Biological limit values: 0.4 mg/l, lead [in blood]. Sampling time: not set.
No exposure indices known.	
Lead (Pb)	**Biological exposure limits, Regulation number 193 (Estonia, 4/2024) [lead and its ionic compounds]** BEI: <6 european units, deltaaminolevulinic acid dehydratase activity in the blood [in blood]. BEI: 20 µg/g hemoglobin, zinc prototoporphyrin in blood [in blood]. BEI: <20 mg/g creatinine, delta aminolevulinic acid in urine [in urine]. BEI: 70 µg Pb/100 ml, lead [in blood]. BEI surveillance: <50 µg Pb/100 ml, lead [in blood].
Lead (Pb)	**EU Biological limit values (Europe, 3/2024) [lead and its inorganic compounds]** BEI surveillance: 30 µg/100 ml, lead [in blood]. BLV: 70 µg/100 ml, lead [in blood]. BEI surveillance - females of reproductive capacity: 4.5 µg/100 ml, lead [in blood].
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.
Lead (Pb)	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 9/2020) [Lead and its inorganic compounds]** BEI: 1.4 µmol/l, lead [in blood]. Sampling time: not criticial. BEI surveillance: 40 µg/dl, lead [in blood]. BEI removal: 50 µg/dl, lead [in blood].
Lead (Pb)	**Biological limit values (BLV) - Labour Code / ANSES (France, 4/2023) [lead and compounds]** BLV surveillance - women: >100 µg/l, lead [in blood]. Sampling time: sample time not specified. BLV surveillance - men: >200 µg/l, lead [in blood]. Sampling time: sample time not specified. BLV binding - women: 300 µg/l, lead [in blood]. Sampling time: sample time not specified. BLV binding - men: 400 µg/l, lead [in blood]. Sampling time: sample time not specified.
Xylene	**DFG BEI-values list (Germany, 7/2023) [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, 2/2024) [Xylene (all isomers)]** BEI: 2000 mg/l, methylhippuric acid [in urine]. Sampling time: end of exposure or end of shift.
Ethylbenzene	**DFG BEI-values list (Germany, 7/2023)** Notes: danger from percutaneous absorption (see p. 211 and p. 228).

SECTION 8: Exposure controls/personal protection

	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, 2/2024)** BEI: 250 mg/g creatinine, mandelic acid plus phenylglyoxylic acid [in urine]. Sampling time: end of exposure or end of shift.
Lead (Pb)	**DFG BEI-values list (Germany, 7/2023) [Lead and its compounds (except lead arsenate, lead chromate and alkyl lead compounds)]** BEI - women: 30 µg/l, lead [in blood]. Sampling time: no restriction in the steady state. BEI: 150 µg/l, lead [in blood]. Sampling time: no restriction in the steady state. BEI - men: 40 µg/l, lead [in blood]. Sampling time: no restriction in the steady state. **TRGS 903 - BEI Values (Germany, 2/2024)** BEI: 150 µg/l, lead [in whole blood]. Sampling time: not fixed.
Lead (Pb)	**Presidential Decree 338/2001: Biological limit values (Greece, 7/2015) [lead and its ionic compounds]** BLV: 70 µg/100 ml, lead [in blood]. BLV surveillance: 40 µg/100 ml, lead [in blood].
Xylene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023) [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.
Ethylbenzene	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023)** 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.
Lead (Pb)	**5/2020. (II. 6.) ITM Decree (Hungary, 12/2023) [Lead (inorganic)]** BEI - men and women over 45: 300 µg/l, lead [in blood]. Sampling time: not critical. BEI - men and women over 45: 1.5 µmol/l, lead [in blood]. Sampling time: not critical. BEI - women under 45: 200 µg/l, lead [in blood]. Sampling time: not critical. BEI - women under 45: 1 µmol/l, lead [in blood]. Sampling time: not critical. BEI - men and women over 45: 100 µmol/mol Hb, zinc-protoporphyrin prescreening [in blood]. Sampling time: applied 3 months after prolonged exposure. BEI - women under 45: 80 µmol/mol Hb, zinc-protoporphyrin prescreening [in blood]. Sampling time: applied 3 months after prolonged exposure.
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.
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.
Lead (Pb)	**NAOSH (Ireland, 1/2011)** BMGV: 30 µg/100 ml, Pb [in blood]. Sampling time: not critical. BLV health surveillance: >40 µg/100 ml, Pb [in blood]. Sampling time: not critical. BLV: 70 µg/100 ml, Pb [in blood]. Sampling time: not critical.
Lead (Pb)	**Legislative Decree No. 81/2008. Annex XXXIX. Mandatory biological limit values (Italy, 8/2009) [lead and its ionic compounds]** BEI surveillance: 40 µg/100 ml, lead [in blood]. BEI - female workers of a fertile age: 40 µg/100 ml, lead [in blood]. BEI: 60 µg/100 ml, lead [in blood].
Xylene	**Minister Cabinet Regulations No.325 - BEI (Latvia, 3/2024) [xylenes (all isomers)]** BEI: 2000 mg/l, methylhippuric (toluric) acid (all isomers) [in urine]. Sampling time: at the end of the exposure or at the end of the shift.
Lead (Pb)	**Minister of Social Security and Labor and Minister of Health Protection, Order No. 97/406 (Lithuania, 1/2024) [Lead and its ionic compounds]** BLV surveillance: 40 µg/100ml, lead [in blood]. Sampling time: sample time not specified. BLV: 70 µg/100ml, lead [in blood]. Sampling time: sample time not specified.
Lead (Pb)	**Grand-Duchy Regulation 2016. Biological limit values. Annex II (Luxembourg, 11/2016) [Lead and its ionic compounds]** BEI surveillance: 40 µg /100 ml, lead [in blood]. BLV: 70 µg /100 ml, lead [in blood].
No exposure indices known.	
Lead (Pb)	**Ministry of Social Affairs and Employment, Biological limit values (Netherlands, 5/2024) [lead and lead compounds]** BLV: 70 µg/100 ml, lead [in blood]. BLV for frequence of measurement: 50 µg/100 ml, lead [in blood].
No exposure indices known.	
Lead (Pb)	**Regulation of the Ministry of Health of September 16, 2016, Safety and occupational health related to the presence of chemical agents in the workplace (Poland, 9/2016) [lead and its inorganic compounds]** BLV: 50 µg Pb/100 ml, lead [in blood]. Form: Inhalable fraction. BEI surveillance: 40 µg Pb/100 ml, lead [in blood]. Form: Inhalable fraction.
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.
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.
Lead (Pb)	**Portuguese Institute of Quality (Portugal, 11/2014)** BEI: 30 µg/100 ml, lead [in blood]. Sampling time: not critical.

Xylene	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2024) [Xylene]** OBLV: 3 g/l, methylhippuric acid [in urine]. Sampling time: end of shift.
Ethylbenzene	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2024)** OBLV: 1.5 g/g creatinine, mandelic acid [in urine]. Sampling time: end of the week.
Lead (Pb)	**HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2024) [Lead and its ionic compounds]** OBLV: 100 µg/100 ml erythrocytes, free protoporphyrin erythrocytes [in blood]. Sampling time: end of shift. OBLV: 300 µg/l, coproporphyrins [in urine]. Sampling time: end of shift. OBLV: 10 mg/l, deltaaminolevulinic acid [in urine]. Sampling time: end of shift. OBLV: 3 µg/cm, lead [in hair]. Sampling time: end of shift. OBLV: 70 µg/100 ml, lead [in blood]. Sampling time: end of shift. OBLV: 150 µg/l, lead [in urine]. Sampling time: end of shift. BEI supervision: >40 µg/100 ml, lead [in blood]. **HG 1218/2006, Annex 2, with subsequent modifications and additions (Romania, 3/2024) [Lead, non-ionic compounds]** OBLV: 100 µg/100 ml erythrocytes, free protoporphyrin erythrocytes [in blood]. Sampling time: end of shift. OBLV: 300 µg/l, coproporphyrins [in urine]. Sampling time: end of shift. OBLV: 10 mg/l, deltaaminolevulinic acid [in urine]. Sampling time: end of shift. OBLV: 3 µg/cm, lead [in hair]. Sampling time: end of shift. OBLV: 70 µg/100 ml, lead [in blood]. Sampling time: end of shift. OBLV: 150 µg/l, lead [in urine]. Sampling time: end of shift.
Xylene	**Government regulation SR c. 355/2006 (Slovakia, 5/2024) [xylene, all isomers]** BLV: 781 µmol/mmol creatinine, as sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 1334 mg/g creatinine, as sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 10355 µmol/l, as sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 14.6 µmol/l, as xylene [in blood]. Sampling time: at the end of exposure or work shift. BLV: 2000 mg/l, as sum of 2,3,4-methylhippuroic acids [in urine]. Sampling time: at the end of exposure or work shift. BLV: 1.5 mg/l, as xylene [in blood]. Sampling time: at the end of exposure or work shift.
Ethylbenzene	**Government regulation SR c. 355/2006 (Slovakia, 5/2024)** BLV: 799 µmol/mmol creatinine, as 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, as 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, as 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, as 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, as 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, as 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, as 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, as 2 or 4-etylfenol [in urine]. Sampling time: at the end of exposure or work shift; long-term exposure: after several work shifts.
Lead (Pb)	**Government regulation SR c. 355/2006 (Slovakia, 5/2024) [lead and its compounds]** BLV: 3.4 µmol/l, as lead [in blood]. Sampling time: no limitation. BLV: 700 µg/l, as lead [in blood]. BLV surveillance: 400 µg/l, as lead [in blood]. BLV: 43 nmol/mmol creatinine, as coproporphyrins [in urine]. Sampling time: no limitation. BLV - women under 45: 3.48 µmol/mmol creatinine, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 8.65 µmol/mmol creatinine, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 0.2 mg/g creatinine, as coproporphyrins [in urine]. Sampling time: no limitation. BLV - women under 45: 4.03 mg/g creatinine, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 10.03 mg/g creatinine, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 0.45 µmol/l, as coproporphyrins [in urine]. Sampling time: no limitation. BLV - women under 45: 46.1 µmol/l, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 114.7 µmol/l, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV - women under 45: 485 nmol/l, as lead [in blood]. Sampling time: no limitation. BLV: 1933 nmol/l, as lead [in blood]. Sampling time: no limitation. BLV: 0.3 mg/l, as coproporphyrins [in urine]. Sampling time: no limitation. BLV - women under 45: 6 mg/l, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV: 15 mg/l, as δ-aminolevulinic acid [in urine]. Sampling time: no limitation. BLV - women under 45: 100 µg/l, as lead [in blood]. Sampling time: no limitation. BLV: 400 µg/l, as lead [in blood]. Sampling time: no limitation.
Xylene	**Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 4/2024) [xylene (all isomers)]** BAT: 2 g/l, methylhippuric acid (all isomers) [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, 4/2024)** BAT: 250 mg/g creatinine, mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: at the end of the work shift.
Lead (Pb)	**Regulation on the protection of workers from the risks related to exposure to carcinogens, mutagens or reprotoxic substances at work (Slovenia, 4/2024) [lead and its ionic compounds]** BAT - women under 45: 300 µg/l, lead [in blood]. Sampling time:

	not relevant. BAT - men: 400 µg/l, lead [in blood]. Sampling time: not relevant.
Xylene	**National institute of occupational safety and health (Spain, 1/2024) [Xylenes]** VLB: 1 g/g creatinine, methylhippuric acids [in urine]. Sampling time: end of shift.
Ethylbenzene	**National institute of occupational safety and health (Spain, 1/2024)** VLB: 700 mg/g creatinine, sum of mandelic acid and acid and phenylglyoxylic acid [in urine]. Sampling time: end of workweek.
Lead (Pb)	**National institute of occupational safety and health (Spain, 1/2024) [lead and ionic derivatives]** VLB: 70 µg/dl, lead [in blood]. Sampling time: not critical.
Lead (Pb)	**Work environment authority Regulation 2005:6 (Sweden, 6/2023)** BEI Stop Working - women under 50: >0.5 µmol/l, lead [in blood]. Sampling time: prior to the work and every 6 months. BEI Monitoring Every 6 Months - men, women over 50: <0.8 µmol/l, lead [in blood]. Sampling time: prior to the work and every 6 months. BEI Stop Working - men, women over 50: >1.5 µmol/l, lead [in blood]. Sampling time: prior to the work and every 3 years. BEI Investigate - men, women over 50: >1 µmol/l, lead [in blood]. Sampling time: prior to the work and every 3 years. BEI No Recurring Control - men, women over 50: <0.4 µmol/l, lead [in blood]. Sampling time: prior to the work and every 3 years. BEI return - men, women over 50: <1.3 µmol/l, lead [in blood]. Sampling time: prior to the work and every 3 years.
Xylene	**SUVA (Switzerland, 1/2024) [Xylene, all isomers]** BEI: 2 g/l, methyl hippuric acid [in urine]. Sampling time: immediately after exposure or after working hours.
Ethylbenzene	**SUVA (Switzerland, 1/2024)** BEI: 600 mg/g creatinine, mandelic acid + phenylglyoxylic acid [in urine]. Sampling time: immediately after exposure or after working hours.
Lead (Pb)	**SUVA (Switzerland, 1/2024) [Lead and its compounds (other than alkyl compounds)]** BEI: 400 µg/l, lead [in blood]. Sampling time: not specified. BEI: 1.93 µmol/l, lead [in blood]. Sampling time: not specified.
Xylene	**EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Xylene, o-, m-, p- or mixed isomers]** BGV: 650 mmol/mol creatinine, methyl hippuric acid [in urine]. Sampling time: post shift.
Lead (Pb)	**EU Biological limit values (Europe, 3/2024) [lead and its inorganic compounds]** BEI surveillance: 30 µg/100 ml, lead [in blood]. BLV: 70 µg/100 ml, lead [in blood]. BEI surveillance - females of reproductive capacity: 4.5 µg/100 ml, lead [in blood].

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	Result
Xylene	**DNEL - General population - Long term - Oral** 5 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 65.3 mg/m³ Effects: Local **DNEL - General population - Long term - Inhalation** 65.3 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal** 125 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 212 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Inhalation** 221 mg/m³ Effects: Local **DNEL - Workers - Long term - Inhalation** 221 mg/m³ Effects: Systemic **DNEL - General population - Short term - Inhalation** 260 mg/m³ Effects: Local **DNEL - General population - Short term - Inhalation** 260 mg/m³ Effects: Systemic **DNEL - Workers - Short term - Inhalation** 442 mg/m³ Effects: Local **DNEL - Workers - Short term - Inhalation** 442 mg/m³ Effects: Systemic
Ethylbenzene	**DMEL - Workers - Long term - Inhalation** 442 mg/m³ Effects: Local **DMEL - Workers - Short term - Inhalation** 884 mg/m³ Effects: Systemic **DNEL - General population - Long term - Oral** 1.6 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 15 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Inhalation**

	77 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Dermal** 180 mg/kg bw/day Effects: Systemic **DNEL - Workers - Short term - Inhalation** 293 mg/m³ Effects: Local
iso-butanol	**DNEL - General population - Long term - Inhalation** 55 mg/m³ Effects: Local **DNEL - Workers - Long term - Inhalation** 310 mg/m³ Effects: Local
Fatty acids, tall-oil, compds. with oleylamine	**DNEL - General population - Long term - Oral** 0.012 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Dermal** 0.012 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 0.024 mg/kg bw/day Effects: Systemic

PNECs

Not 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.

SECTION 8: Exposure controls/personal protection

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.

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
iso-butanol	108	226.4	OECD 103
Ethylbenzene	136.1	277	OECD 104

Flammability : Not available.

Lower and upper explosion limit : Lower: 0.8% (xylene)
Upper: 6.7% (xylene)

Flash point : Closed cup: 24°C (75.2°F)

Auto-ignition temperature :

Ingredient name	°C	°F	Method
iso-butanol	415	779	
Xylene	432	809.6	

Decomposition temperature : Not available.

pH : Not applicable.

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

Solubility(ies) :

Not available.

SECTION 9: Physical and chemical properties

Solubility in water : Not available.

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

Vapour pressure :

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
iso-butanol	<12.00102	<1.6	DIN EN 13016-2			
Ethylbenzene	9.30076	1.2				

Relative density : Not available.

Density : 2.9 g/cm³

Vapour density : Not available.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.

Oxidising properties : Not available.

9.2.2 Other safety characteristics

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
Xylene	**Rat - Oral - LD50** 4300 mg/kg Toxic effects: Liver - Other changes Kidney, Ureter, and Bladder - Other changes **Rat - Inhalation - LC50 Vapour** 21.7 mg/l [4 hours]
Ethylbenzene	**Rat - Oral - LD50** 3500 mg/kg **Rabbit - Dermal - LD50**

15400 mg/kg

Rat - Inhalation - LC50 Dusts and mists
29000 mg/l [4 hours]

iso-butanol

Rat - Oral - LD50
2460 mg/kg

Rabbit - Dermal - LD50
3400 mg/kg

Rat - Inhalation - LC50 Vapour
19200 mg/m³ [4 hours]

Conclusion/Summary [Product] : Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
TEKNOZINC 90 SE	N/A	10524.0	N/A	86.3	N/A
Xylene	4300	1100	N/A	11	N/A
Ethylbenzene	3500	15400	N/A	11	29000
iso-butanol	2460	3400	N/A	N/A	N/A

Skin corrosion/irritation

Product/ingredient name	Result
Zinc powder - zinc dust (stabilized)	**Human - Skin - Mild irritant** Duration of treatment/exposure: 72 hours Amount/concentration applied: 300 ug I
Xylene	**Rat - Skin - Mild irritant** Duration of treatment/exposure: 8 hours Amount/concentration applied: 60 uL **Rabbit - Skin - Moderate irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 500 mg **Rabbit - Skin - Moderate irritant** Amount/concentration applied: 100 %
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	**Rabbit - Skin - Moderate irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 500 uL **Rabbit - Skin - Severe irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 2 mg
Ethylbenzene	**Rabbit - Skin - Mild irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 15 mg

Conclusion/Summary [Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name	Result

Xylene	**Rabbit - Eyes - Mild irritant** Amount/concentration applied: 87 mg **Rabbit - Eyes - Severe irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 5 mg
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	**Rabbit - Eyes - Mild irritant** Amount/concentration applied: 100 mg
Ethylbenzene	**Rabbit - Eyes - Severe irritant** Amount/concentration applied: 500 mg

Conclusion/Summary [Product] : Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary [Product] : Not available.

Respiratory

Conclusion/Summary [Product] : Not available.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
Xylene	STOT SE 3, H335 (Respiratory tract irritation)
iso-butanol	STOT SE 3, H335 (Respiratory tract irritation) STOT SE 3, H336 (Narcotic effects)

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result
Xylene	STOT RE 2, H373 (oral, inhalation)
Ethylbenzene	STOT RE 2, H373 (hearing organs) (oral, inhalation)
Fatty acids, tall-oil, compds. with oleylamine	STOT RE 2, H373

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 : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

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 [Product] : 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.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result
Zinc powder - zinc dust (stabilized)	**Acute - LC50 - Fresh water** Crustaceans - Water flea - *Ceriodaphnia dubia* - Neonate 65 µg/l [48 hours] Effect: Mortality **Acute - IC50 - Marine water** Algae - Diatom - *Nitzschia closterium* - Exponential growth phase 65 µg/l [4 days] Effect: Population **Chronic - EC10 - Fresh water** Algae - Green algae - *Pseudokirchneriella subcapitata* - Exponential growth phase 27.3 µg/l [72 hours] Effect: Population **Chronic - EC10 - Fresh water** Daphnia - Water flea - *Daphnia magna* Age: <24 hours 59.2 µg/l [21 days] Effect: Reproduction **Chronic - NOEC - Fresh water** Fish - common carp - *Cyprinus carpio* Age: 13 months; Size: 10.5 cm; Weight: 27.8 g 2.6 µg/l [4 weeks] Effect: Accumulation **Acute - LC50 - Marine water** Fish - Mudskipper - *Periophthalmus waltoni* - Adult 12.21 µg/l [96 hours] Effect: Mortality
iso-butanol	**Acute - LC50 - Fresh water** Fish - Rainbow trout,donaldson trout - *Oncorhynchus mykiss* Weight: 1.67 g 1330000 µg/l [96 hours] Effect: Mortality **Acute - LC50 - Marine water** Crustaceans - Brine shrimp - *Artemia salina* 600 mg/l [48 hours] Effect: Mortality
Lead (Pb)	**Acute - LC50 - Fresh water** Crustaceans - Water flea - *Ceriodaphnia reticulata* Age: <4 hours 530 µg/l [48 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - common carp - *Cyprinus carpio* - Juvenile (Fledgling, Hatchling, Weanling) Size: 3.5 cm 0.44 ppm [96 hours] Effect: Mortality **Chronic - NOEC - Marine water** Algae - Green algae - *Ulva pertusa* 0.25 mg/l [96 hours] Effect: Reproduction

Chronic - NOEC - Fresh water
Fish - common carp - *Cyprinus carpio*
Age: 13 months; Size: 10.5 cm; Weight: 27.8 g
0.03 µg/l [4 weeks]
Effect: Accumulation

Acute - EC50 - Marine water
Algae - Diatom - *Chaetoceros sp.* - Exponential growth phase
105 ppb [72 hours]
Effect: Population

Conclusion/Summary [Product] : Not available.

12.2 Persistence and degradability

Product/ingredient name	Result
iso-butanol	74% [28 days] - Readily

Conclusion/Summary [Product] : Not available.

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

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Xylene	3.12	8.1 to 25.9	Low
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	2.64 to 3.78	31	Low
Ethylbenzene	3.6	-	Low
iso-butanol	1	-	Low

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
Ethylbenzene	2.23	170.406
iso-butanol	1.08	12.0246

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No
Xylene	No	No	No	No	No	No	No
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	No	No	No	No	No	No	No
Ethylbenzene	No	No	No	No	No	No	No
iso-butanol	No	No	No	No	No	No	No
Fatty acids, tall-oil, compds. with oleylamine	No	No	No	No	No	No	No
Lead (Pb)	No	No	No	No	No	No	No

Mobility : Not available.

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No
Xylene	No	No	No	No	No	No	No
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	No	No	No	No	No	No	No
Ethylbenzene	No	No	No	No	No	No	No
iso-butanol	No	No	No	No	No	No	No
Fatty acids, tall-oil, compds. with oleylamine	No	No	No	No	No	No	No
Lead (Pb)	No	No	No	No	No	No	No

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No
Xylene	No	No	No	No	No	No	No
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	No	No	No	No	No	No	No
Ethylbenzene	No	No	No	No	No	No	No
iso-butanol	No	No	No	No	No	No	No
Fatty acids, tall-oil, compds. with oleylamine	No	No	No	No	No	No	No
Lead (Pb)	No	No	No	No	No	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

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	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Tunnel code (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

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
Toxic to reproduction	lead	Recommended	D(2021) 4569-DC	4/12/2023

SECTION 15: Regulatory information

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

Product/ingredient name	%	Designation [Usage]
TEKNOZINC 90 SE	≥90	3
Lead (Pb)	<0.01	72

Labelling :

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

Explosive precursors : Not applicable.

Ozone depleting substances (EU 2024/590)

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
E1

National regulations

Austria

VbF class : Category 3

Limitation of the use of organic solvents : Permitted.

Belgium

Book VI carcinogenic agents annex VI.2-1 - VI.2-3

Ingredient name	Status
Plomb et ses composés inorganiques	Listed
Silice	Listed

Czech Republic

Storage code : II

Denmark

Fire class : II-1

Executive Order No. 1795/2015

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

MAL-code : 4-5

SECTION 15: Regulatory information

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, the following must be worn: respiratory protection and arm protectors/apron/coveralls/protective clothing as appropriate or as instructed.

MAL-code: 4-5
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.

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. 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.

- 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.

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.

SECTION 15: Regulatory information

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

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

Xylene	RG 4bis, RG 84
Ethylbenzene	RG 84
iso-butanol	RG 84
Lead (Pb)	RG 1

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
E1	1.3.1

Hazard class for water : 2

Technical instruction on air quality control (TA Luft)

Number [Class]	Description	%
5.2.1	Total dust	2.1
5.2.2 [III]	Dusty inorganic substances	0.26
5.2.5	Organic substances	21.7
5.2.5 [I]	Organic substances	15.1
5.2.10	Soil polluting substances	76

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
xylene	-	-	-	Development 2	-
Solvent naphtha (petroleum), light arom.	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

Product registration number : 92831

Sweden

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

Switzerland

VOC content : VOC (w/w): 15.4%

SECTION 15: Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment : 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. 3, H226	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
STOT RE 2, H373	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.
H360FD	May damage fertility. May damage the unborn child.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

SECTION 16: Other information

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
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
Lact.	REPRODUCTIVE TOXICITY - Effects on or via lactation
Repr. 1A	REPRODUCTIVE TOXICITY - Category 1A
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
Skin Sens. 1A	SKIN SENSITISATION - Category 1A
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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Version : 10

TEKNOZINC 90 SE All variants

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.