

Safety Data Sheet

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date: 15-May-2026

Version 1

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

1.1. Product identifier

SDS # ISSI-012-EU
Product Name **UniTemp Temperature Sensitive Paint (Liquid)**

Other means of identification

Pure substance/mixture Mixture

Contains Toluene; Ethyl benzene; p-Xylene; o-Xylene

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

Recommended use Wind tunnel testing

1.3. Details of the supplier of the safety data sheet

Supplier

Innovative Scientific Solutions, Inc.
7610 McEwen Road
Dayton, OH 45459

For further information, please contact

Contact Point Innovative Scientific Solutions, Inc. Phone: (937) 630-3012
Fax: (937) 630-3015
Email Address painting@innssi.com

1.4. Emergency telephone number

Emergency Telephone (24 hr) (937) 630-3012 x100

Emergency Telephone Number - §45 - (EC)1272/2008

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids	Category 2 - (H225)
Skin irritation	Category 2 - (H315)
Reproductive toxicity	Category 2 - (H361d)
Specific target organ toxicity (single exposure)	Category 3 - (H336)
Category 3 Target organ effects: Narcotic effects.	
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Aspiration hazard	Category 1 - (H304)
Hazardous to the aquatic environment - chronic	Category 3 - (H412)

2.2. Label elements

Contains Toluene; Ethyl benzene; p-Xylene; o-Xylene



Signal word
Danger

Hazard statements

- H304 - May be fatal if swallowed and enters airways
- H315 - Causes skin irritation
- H336 - May cause drowsiness or dizziness
- H361d - Suspected of damaging the unborn child
- H373 - May cause damage to organs through prolonged or repeated exposure
- H412 - Harmful to aquatic life with long lasting effects
- H225 - Highly flammable liquid and vapour

Precautionary Statements - EU (§28, 1272/2008)

- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P233 - Keep container tightly closed
- P240 - Ground/bond container and receiving equipment
- P241 - Use explosion-proof electrical, ventilating and lighting equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge
- P260 - Do not breathe dust, fume, gas, mist, vapors and spray
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P271 - Use only outdoors or in a well-ventilated area
- P273 - Avoid release to the environment
- P280 - Wear protective gloves, protective clothing, eye protection and face protection
- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- P331 - Do NOT induce vomiting
- P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- P362 - Take off contaminated clothing and wash before reuse
- P332 + P313 - If skin irritation occurs: Get medical advice/attention
- P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell
- P308 + P313 - IF exposed or concerned: Get medical advice/attention
- P314 - Get medical advice/attention if you feel unwell
- P370 + P378 - In case of fire: Use CO2, dry chemical, or foam to extinguish
- P403 + P235 - Store in a well-ventilated place. Keep cool
- P405 - Store locked up
- P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information

This product requires tactile warnings if supplied to the general public. This product requires child resistant fastenings if supplied to the general public.

2.3. Other hazards

No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No. (Index No.)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Toluene 108-88-3	25	No data available	203-625-9 (601-021-00-3)	Flam. Liq. 2 (H225) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Repr. 2 (H361d) STOT RE 2 (H373)	-	-	-
m-Xylene 108-38-3	5-10	No data available	203-576-3 (601-022-00-9)	Flam. Liq. 3 (H226) Acute Tox. 4 (H312) Skin Irrit. 2 (H315) Acute Tox. 4 (H332)	-	-	-
p-Xylene 106-42-3	1-5	No data available	203-396-5 (601-022-00-9)	Flam. Liq. 3 (H226) Acute Tox. 4 (H312) Skin Irrit. 2 (H315) Acute Tox. 4 (H332)	-	-	-
o-Xylene 95-47-6	1-5	No data available	202-422-2 (601-022-00-9)	Flam. Liq. 3 (H226) Acute Tox. 4 (H312) Skin Irrit. 2 (H315) Acute Tox. 4 (H332)	-	-	-
Ethylbenzene 100-41-4	1-5	No data available	202-849-4 (601-023-00-4)	Flam. Liq. 2 (H225) Asp. Tox. 1 (H304) Acute Tox. 4 (H332) STOT RE 2 (H373)	-	-	-

Titanium dioxide 13463-67-7	0.1-1	No data available	236-675-5	No data available	-	-	-
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Full text of H- and EUH-phrases: see section 16**Acute Toxicity Estimate**

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Toluene 108-88-3	5000	12000	12.5	No data available	No data available
m-Xylene 108-38-3	5000	12180	27.124	No data available	No data available
p-Xylene 106-42-3	4029	12126	No data available	No data available	No data available
o-Xylene 95-47-6	3608	14100	No data available	23.0258	No data available
Ethylbenzene 100-41-4	3500	15400	17.4	No data available	No data available
Titanium dioxide 13463-67-7	2000	No data available	5.0951	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Additional Information

Substances without a classification are included, because they have established occupational exposure limits

SECTION 4: First aid measures**4.1. Description of first aid measures****General advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation

Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Get medical attention if irritation develops and persists.

Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical attention.
Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not breathe vapour or mist.

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

Symptoms	Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Erythema (skin redness). May cause redness and tearing of the eyes. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
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4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	Because of the danger of aspiration, emesis or gastric lavage should not be used unless the risk is justified by the presence of additional toxic substances.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated. Ruptured cylinders may rocket.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Contents under pressure. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture

or weld containers. Do not breathe vapour or mist.

Other information

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up

Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections

See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Contents under pressure. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash it before reuse. Do not breathe vapour or mist. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing. Do not breathe vapour or mist. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Protect from sunlight. Store locked

up. Keep out of the reach of children. Store away from other materials.

Storage class (TRGS 510)

LGK 2A.

7.3. Specific end use(s)

Specific Use(s)

Wind tunnel testing.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Toluene 108-88-3	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA-TMW: 50 ppm; TWA-TMW: 190 mg/m ³ ; STEL-KZGW: 100 ppm (4 X 15 min); STEL-KZGW: 380 mg/m ³ (4 X 15 min); Sk	TWA: 20 ppm; TWA: 77 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; Sd	TWA: 50 ppm; TWA: 192.0 mg/m ³ ; STEL: 100 ppm; STEL: 384.0 mg/m ³ ; Sk	TWA-GVI: 50 ppm; TWA-GVI: 192 mg/m ³ ; STEL-KGVI: 100 ppm; STEL-KGVI: 384 mg/m ³ ; Sk
m-Xylene 108-38-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-TMW: 50 ppm; TWA-TMW: 221 mg/m ³ ; STEL-KZGW: 100 ppm (4 X 15 min); STEL-KZGW: 442 mg/m ³ (4 X 15 min);	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sd	TWA: 50 ppm; TWA: 221.0 mg/m ³ ; STEL: 100 ppm; STEL: 442.0 mg/m ³ ; Sk	TWA-GVI: 50 ppm; TWA-GVI: 221 mg/m ³ ; STEL-KGVI: 100 ppm; STEL-KGVI: 442 mg/m ³ ; Sk
p-Xylene 106-42-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-TMW: 50 ppm; TWA-TMW: 221 mg/m ³ ; STEL-KZGW: 100 ppm (4 X 15 min); STEL-KZGW: 442 mg/m ³ (4 X 15 min);	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sd	TWA: 50 ppm; TWA: 221.0 mg/m ³ ; STEL: 100 ppm; STEL: 442.0 mg/m ³ ; Sk	TWA-GVI: 50 ppm; TWA-GVI: 221 mg/m ³ ; STEL-KGVI: 100 ppm; STEL-KGVI: 442 mg/m ³ ; Sk
o-Xylene 95-47-6	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-TMW: 50 ppm; TWA-TMW: 221 mg/m ³ ; STEL-KZGW: 100 ppm (4 X 15 min); STEL-KZGW: 442 mg/m ³ (4 X 15 min);	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sd	TWA: 50 ppm; TWA: 221.0 mg/m ³ ; STEL: 100 ppm; STEL: 442.0 mg/m ³ ; Sk	TWA-GVI: 50 ppm; TWA-GVI: 221 mg/m ³ ; STEL-KGVI: 100 ppm; STEL-KGVI: 442 mg/m ³ ; Sk
Ethylbenzene 100-41-4	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA-TMW: 100 ppm; TWA-TMW: 440 mg/m ³ ; STEL-KZGW: 200 ppm (8 X 5 min); STEL-KZGW: 880 mg/m ³ (8 X 5 min); Sk	TWA: 20 ppm; TWA: 87 mg/m ³ ; STEL: 125 ppm; STEL: 551 mg/m ³ ; Sd	TWA: 435 mg/m ³ ; STEL: 545 mg/m ³ ; Sk	TWA-GVI: 100 ppm; TWA-GVI: 442 mg/m ³ ; STEL-KGVI: 200 ppm; STEL-KGVI: 884 mg/m ³ ; Sk

Titanium dioxide 13463-67-7	-	TWA-TMW: 5 mg/m ³ ; alveolar dust, respirable fraction STEL-KZGW: 10 mg/m ³ (2 X 60 min); alveolar dust, respirable fraction	TWA: 10 mg/m ³ ;	TWA: 10.0 mg/m ³ ; respirable dust	TWA-GVI: 10 mg/m ³ ; total dust, inhalable particles TWA-GVI: 4 mg/m ³ ; respirable dust
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Toluene 108-88-3	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA: 200 mg/m ³ ; Ceiling: 500 mg/m ³ ; pSk	TWA: 25 ppm; TWA: 94 mg/m ³ ; STEL: 384 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; Sk	TWA: 25 ppm; TWA: 81 mg/m ³ ; STEL: 100 ppm; STEL: 380 mg/m ³ ; pSk
m-Xylene 108-38-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 200 mg/m ³ ; Ceiling: 400 mg/m ³ ; pSk	TWA: 25 ppm; TWA: 109 mg/m ³ ; STEL: 442 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 50 ppm; TWA: 200 mg/m ³ ; STEL: 100 ppm; STEL: 450 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 440 mg/m ³ ; pSk
p-Xylene 106-42-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 200 mg/m ³ ; Ceiling: 400 mg/m ³ ; pSk	TWA: 25 ppm; TWA: 109 mg/m ³ ; STEL: 442 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 50 ppm; TWA: 200 mg/m ³ ; STEL: 100 ppm; STEL: 450 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 440 mg/m ³ ; pSk
o-Xylene 95-47-6	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 200 mg/m ³ ; Ceiling: 400 mg/m ³ ; pSk	TWA: 25 ppm; TWA: 109 mg/m ³ ; STEL: 442 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 50 ppm; TWA: 200 mg/m ³ ; STEL: 100 ppm; STEL: 450 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 440 mg/m ³ ; pSk
Ethylbenzene 100-41-4	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA: 200 mg/m ³ ; Ceiling: 500 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 217 mg/m ³ ; STEL: 434 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; Sk S	TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 200 ppm; STEL: 880 mg/m ³ ; pSk
Titanium dioxide 13463-67-7	-	-	TWA: 6 mg/m ³ ; STEL: 12 mg/m ³ ;	TWA: 5 mg/m ³ ;	-
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Toluene 108-88-3	TWA- VME (restrictif): 20 p pm; TWA- VME (restrictif): 76.8 mg/m ³ ; STEL- VLCT (restrictif): 10 0 ppm; STEL- VLCT (restrictif): 38 4 mg/m ³ ; dSk	TWA-AGW; 50 ppm (2(II)); TWA-AGW; 190 mg/m ³ (2(II)); Sk	TWA-MAK: 50 ppm; II(2); TWA-MAK: 190 mg/m ³ ; II(2); Peak: 100 ppm; Peak: 380 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA-AK: 190 mg/m ³ ; TWA-AK: 50 ppm; STEL-CK: 384 mg/m ³ ; STEL-CK: 100 ppm; pSk
m-Xylene 108-38-3	TWA- VME (restrictif): 50 p pm; TWA- VME (restrictif): 221 mg/m ³ ; STEL- VLCT (restrictif): 10	TWA-AGW; 50 ppm (2(II)); TWA-AGW; 220 mg/m ³ (2(II)); Sk	-	TWA: 100 ppm; TWA: 435 mg/m ³ ; STEL: 150 ppm; STEL: 650 mg/m ³ ; pSk	TWA-AK: 221 mg/m ³ ; TWA-AK: 50 ppm; STEL-CK: 442 mg/m ³ ; STEL-CK: 100 ppm; pSk

	0 ppm; STEL- VLCT (restrictif): 44 2 mg/m ³ ; dSk				
p-Xylene 106-42-3	TWA- VME (restrictif): 50 p pm; TWA- VME (restrictif): 221 mg/m ³ ; STEL- VLCT (restrictif): 10 0 ppm; STEL- VLCT (restrictif): 44 2 mg/m ³ ; dSk	TWA-AGW; 50 ppm (2(II)); TWA-AGW; 220 mg/m ³ (2(II)); Sk	-	TWA: 100 ppm; TWA: 435 mg/m ³ ; STEL: 150 ppm; STEL: 650 mg/m ³ ; pSk	TWA-AK: 221 mg/m ³ ; TWA-AK: 50 ppm; STEL-CK: 442 mg/m ³ ; STEL-CK: 100 ppm; pSk
o-Xylene 95-47-6	TWA- VME (restrictif): 50 p pm; TWA- VME (restrictif): 221 mg/m ³ ; STEL- VLCT (restrictif): 10 0 ppm; STEL- VLCT (restrictif): 44 2 mg/m ³ ; dSk	TWA-AGW; 50 ppm (2(II)); TWA-AGW; 220 mg/m ³ (2(II)); Sk	-	TWA: 100 ppm; TWA: 435 mg/m ³ ; STEL: 150 ppm; STEL: 650 mg/m ³ ; pSk	TWA-AK: 221 mg/m ³ ; TWA-AK: 50 ppm; STEL-CK: 100 ppm; STEL-CK: 442 mg/m ³ ; pSk
Ethylbenzene 100-41-4	TWA- VME (restrictif): 20 p pm; TWA- VME (restrictif): 88.4 mg/m ³ ; STEL- VLCT (restrictif): 10 0 ppm; STEL- VLCT (restrictif): 44 2 mg/m ³ ; dSk	TWA-AGW; 20 ppm (2(II)); TWA-AGW; 88 mg/m ³ (2(II)); Sk	TWA-MAK: 20 ppm; II(2); TWA-MAK: 88 mg/m ³ ; II(2); Peak: 40 ppm; Peak: 176 mg/m ³ ; Sk	TWA: 100 ppm; TWA: 435 mg/m ³ ; STEL: 125 ppm; STEL: 545 mg/m ³ ;	TWA-AK: 100 ppm; TWA-AK: 442 mg/m ³ ; STEL-CK: 200 ppm; STEL-CK: 884 mg/m ³ ; pSk
Titanium dioxide 13463-67-7	TWA-VME: 10 mg/m ³ ;	TWA-AGW; 10 mg/m ³ (2(II)); inhalable fraction TWA-AGW; 1.25 mg/m ³ (); respirable fraction	TWA-MAK: 0.3 mg/m ³ ; II(8);respirab le fraction Peak: 2.4 mg/m ³ ; respirable fraction	TWA: 10 mg/m ³ ; inhalable fraction TWA: 5 mg/m ³ ; respirable fraction	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Toluene 108-88-3	TWA: 192 mg/m ³ ; TWA: 50 ppm; STEL: 384 mg/m ³ ; STEL: 100 ppm; pSk	TWA: 50 ppm; TWA: 192 mg/m ³ ; pSk	TWA: 20 ppm; TWA: 75.4 mg/m ³ ;	TWA: 14 ppm; TWA: 50 mg/m ³ ; STEL: 40 ppm; STEL: 150 mg/m ³ ; pSk	TWA-IPRD: 50 ppm; TWA-IPRD: 192 mg/m ³ ; STEL-TPRD: 100 ppm; STEL-TPRD: 384 mg/m ³ ; Sk

m-Xylene 108-38-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 434 mg/m ³ ; STEL (REL): 150 ppm; STEL (REL): 651 mg/m ³ ;	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-IPRD: 221 mg/m ³ ; TWA-IPRD: 50 ppm; STEL-TPRD: 442 mg/m ³ ; STEL-TPRD: 100 ppm; Sk
p-Xylene 106-42-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 434 mg/m ³ ; STEL (REL): 150 ppm; STEL (REL): 651 mg/m ³ ;	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-IPRD: 221 mg/m ³ ; TWA-IPRD: 50 ppm; STEL-TPRD: 442 mg/m ³ ; STEL-TPRD: 100 ppm; Sk
o-Xylene 95-47-6	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 434 mg/m ³ ; STEL (REL): 150 ppm; STEL (REL): 651 mg/m ³ ;	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-IPRD: 221 mg/m ³ ; TWA-IPRD: 50 ppm; STEL-TPRD: 442 mg/m ³ ; STEL-TPRD: 100 ppm; Sk
Ethylbenzene 100-41-4	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA: 20 ppm; TWA: 87 mg/m ³ ;	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA-IPRD: 100 ppm; TWA-IPRD: 442 mg/m ³ ; STEL-TPRD: 200 ppm; STEL-TPRD: 884 mg/m ³ ; Sk
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³ ; total inhalable dust TWA: 4 mg/m ³ ; respirable dust STEL: 30 mg/m ³ (calculated); respirable dust STEL: 12 mg/m ³ (calculated);	-	TWA: 10 mg/m ³ ;	TWA: 10 mg/m ³ ;	TWA-IPRD: 5 mg/m ³ ;
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Toluene 108-88-3	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA: 39 ppm; TWA: 150 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ;	TWA: 25 ppm; TWA: 94 mg/m ³ ; STEL: 37.5 ppm (value calculated); STEL: 141 mg/m ³ (value calculated); Sk	TWA-NDS: 100 mg/m ³ ; STEL-NDSch: 200 mg/m ³ ; Sk
m-Xylene 108-38-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 47.5 ppm; TWA: 210 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 25 ppm; TWA: 108 mg/m ³ ; STEL: 37.5 ppm (value calculated); STEL: 135 mg/m ³ (value	TWA-NDS: 100 mg/m ³ ; STEL-NDSch: 200 mg/m ³ ; Sk

				calculated); Sk	
p-Xylene 106-42-3	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 47.5 ppm; TWA: 210 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 25 ppm; TWA: 108 mg/m ³ ; STEL: 37.5 ppm (value calculated); STEL: 135 mg/m ³ (value calculated); Sk	TWA-NDS: 100 mg/m ³ ; STEL-NDSch: 200 mg/m ³ ; Sk
o-Xylene 95-47-6	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA: 47.5 ppm; TWA: 210 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 25 ppm; TWA: 108 mg/m ³ ; STEL: 37.5 ppm (value calculated); STEL: 135 mg/m ³ (value calculated); Sk	TWA-NDS: 100 mg/m ³ ; STEL-NDSch: 200 mg/m ³ ; Sk
Ethylbenzene 100-41-4	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA: 48.6 ppm; TWA: 215 mg/m ³ ; STEL: 97.3 ppm; STEL: 430 mg/m ³ ; Sk	TWA: 5 ppm; TWA: 20 mg/m ³ ; STEL: 10 ppm (value calculated); STEL: 30 mg/m ³ (value calculated); Sk	TWA-NDS: 200 mg/m ³ ; STEL-NDSch: 400 mg/m ³ ; Sk
Titanium dioxide 13463-67-7	-	-	-	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ (value calculated);	TWA-NDS: 10 mg/m ³ ; inhalable fraction STEL-NDSch: 30 mg/m ³ ;
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Toluene 108-88-3	TWA (VLE-MP): 50 ppm; TWA (VLE-MP): 192 mg/m ³ ; STEL (VLE-CD): 100 ppm; STEL (VLE-CD): 384 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 192 mg/m ³ ; Ceiling: 384 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 192 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk	TWA-(VLA-ED): 50 ppm; TWA-(VLA-ED): 192 mg/m ³ ; STEL (VLA-EC): 100 ppm; STEL (VLA-EC): 384 mg/m ³ ; pSk
m-Xylene 108-38-3	TWA (VLE-MP): 50 ppm; TWA (VLE-MP): 221 mg/m ³ ; STEL (VLE-CD): 100 ppm; STEL (VLE-CD): 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 221 mg/m ³ ; Ceiling: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-(VLA-ED): 50 ppm; TWA-(VLA-ED): 221 mg/m ³ ; STEL (VLA-EC): 100 ppm; STEL (VLA-EC): 442 mg/m ³ ; pSk
p-Xylene 106-42-3	TWA (VLE-MP): 50 ppm; TWA (VLE-MP): 221 mg/m ³ ; STEL (VLE-CD): 100 ppm;	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 221 mg/m ³ ; Ceiling: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-(VLA-ED): 50 ppm; TWA-(VLA-ED): 221 mg/m ³ ; STEL (VLA-EC): 100 ppm;

	STEL (VLE-CD): 442 mg/m ³ ; pSk				STEL (VLA-EC): 442 mg/m ³ ; pSk
o-Xylene 95-47-6	TWA (VLE-MP): 50 ppm; TWA (VLE-MP): 221 mg/m ³ ; STEL (VLE-CD): 100 ppm; STEL (VLE-CD): 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; Sk	TWA: 50 ppm; TWA: 221 mg/m ³ ; Ceiling: 442 mg/m ³ ; pSk	TWA: 50 ppm; TWA: 221 mg/m ³ ; STEL: 100 ppm; STEL: 442 mg/m ³ ; pSk	TWA-(VLA-ED): 50 ppm; TWA-(VLA-ED): 221 mg/m ³ ; STEL (VLA-EC): 100 ppm; STEL (VLA-EC): 442 mg/m ³ ; pSk
Ethylbenzene 100-41-4	TWA (VLE-MP): 100 ppm; TWA (VLE-MP): 442 mg/m ³ ; STEL (VLE-CD): 200 ppm; STEL (VLE-CD): 884 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; Sk	TWA: 100 ppm; TWA: 442 mg/m ³ ; Ceiling: 884 mg/m ³ ; pSk	TWA: 100 ppm; TWA: 442 mg/m ³ ; STEL: 200 ppm; STEL: 884 mg/m ³ ; pSk	TWA-(VLA-ED): 100 ppm; TWA-(VLA-ED): 441 mg/m ³ ; STEL (VLA-EC): 200 ppm; STEL (VLA-EC): 884 mg/m ³ ; pSk
Titanium dioxide 13463-67-7	TWA (VLE-MP): 10 mg/m ³ ;	TWA: 10 mg/m ³ ; STEL: 15 mg/m ³ ;	TWA: 5 mg/m ³ ;	-	TWA-(VLA-ED): 10 mg/m ³ ;
Chemical name	Sweden		Switzerland		United Kingdom
Toluene 108-88-3	TLV-NGV: 50 ppm; TLV-NGV: 192 mg/m ³ ; STEL (Bindande KGV): 100 ppm; STEL (Bindande KGV): 384 mg/m ³ ; Sk		TWA-MAK: 50 ppm; TWA-MAK: 190 mg/m ³ ; STEL-KZGW: 200 ppm; STEL-KZGW: 760 mg/m ³ ; Sk		TWA: 50 ppm; TWA: 191 mg/m ³ ; STEL: 100 ppm; STEL: 384 mg/m ³ ; pSk
m-Xylene 108-38-3	TLV-NGV: 50 ppm; TLV-NGV: 221 mg/m ³ ; STEL (Bindande KGV): 100 ppm; STEL (Bindande KGV): 442 mg/m ³ ; Sk		-		TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 441 mg/m ³ ; pSk
p-Xylene 106-42-3	TLV-NGV: 50 ppm; TLV-NGV: 221 mg/m ³ ; STEL (Bindande KGV): 100 ppm; STEL (Bindande KGV): 442 mg/m ³ ; Sk		-		TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 441 mg/m ³ ; pSk
o-Xylene 95-47-6	TLV-NGV: 50 ppm; TLV-NGV: 221 mg/m ³ ; STEL (Bindande KGV): 100 ppm; STEL (Bindande KGV): 442 mg/m ³ ; Sk		-		TWA: 50 ppm; TWA: 220 mg/m ³ ; STEL: 100 ppm; STEL: 441 mg/m ³ ; pSk
Ethylbenzene 100-41-4	TLV-NGV: 50 ppm; TLV-NGV: 220 mg/m ³ ; STEL (Bindande KGV): 200 ppm; STEL (Bindande KGV): 884 mg/m ³ ; Sk		TWA-MAK: 50 ppm; TWA-MAK: 220 mg/m ³ ; STEL-KZGW: 50 ppm; STEL-KZGW: 220 mg/m ³ ; Sk		TWA: 100 ppm; TWA: 441 mg/m ³ ; STEL: 125 ppm; STEL: 552 mg/m ³ ; pSk

Titanium dioxide 13463-67-7	TLV-NGV: 5 mg/m ³ ; total dust	TWA-MAK: 3 mg/m ³ ; respirable dust	TWA: 10 mg/m ³ ; total inhalable TWA: 4 mg/m ³ ; respirable STEL: 30 mg/m ³ ; total inhalable STEL: 12 mg/m ³ ; respirable
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Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Toluene 108-88-3	-	10 g/dL Hemoglobin - blood (Blood count) - by the first screening and once yearly 12 g/dL Hemoglobin - blood (Blood count) - by the first screening and once yearly 3.2 million/ μ L Erythrocytes - blood (Blood count) - by the first screening and once yearly 3.8 million/ μ L Erythrocytes - blood (Blood count) - by the first screening and once yearly 4000 Leukocytes/ μ L - blood (Blood count) - by the first screening and once yearly 13000 Leukocytes/ μ L - blood (Blood count) - by the first screening and once yearly 130000 Thrombocytes/ μ L - blood (Blood count) - by the first screening and once yearly 150000 Thrombocytes/ μ L - blood (Blood count) - by the first screening and once yearly 0.8 mg/L - urine (o-Cresol) - after end of work day, at the end of a work week/end of the shift	1.6 mmol/mmol Creatinine - urine (Hippuric acid) - at the end of exposure or end of work shift	1.0 mg/L - blood (Toluene) - at the end of the work shift 20 ppm - final exhaled air (Toluene) - during exposure 2.50 g/g Creatinine - urine (Hippuric acid) - at the end of the work shift 1.0 mg/g Creatinine - urine (o-Cresol) - at the end of the work shift	1.6 μ mol/mmol Creatinine (urine - o-Cresol end of shift) 1000 μ mol/mmol Creatinine (urine - Hippuric acid end of shift) 1.5 mg/g Creatinine (urine - o-Cresol end of shift) 1600 mg/g Creatinine (urine - Hippuric acid end of shift)
Ethylbenzene	-	-	2000 mg/g	1.50 mg/L - blood	1100 μ mol/mmol

100-41-4			Creatinine - urine (Mandelic acid and Phenylglyoxylic acid - total) - at the end of exposure or end of work shift	(Ethylbenzene) - during exposure 1.50 g/g Creatinine - urine (Mandelic acid) - at the end of the work shift and at the end of the working week	Creatinine (urine - Mandelic acid end of shift) 1500 mg/g Creatinine (urine - Mandelic acid end of shift)
Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
Toluene 108-88-3	-	500 nmol/L (blood - Toluene in the morning after a working day)	20 µg/L - blood (Toluene) - end of workweek - urine (Hippuric acid) - end of shift	600 µg/L (whole blood - Toluene immediately after exposure) 75 µg/L (urine - Toluene end of exposure or shift) 1.5 mg/L (urine - o-Cresol (after hydrolysis) at the end of the shift, in case of long-term exposure after several previous shifts) 600 µg/L - BAT (immediately after exposure) blood 75 µg/L - BAT (end of exposure or end of shift) urine 1.5 mg/L - BAT (end of exposure or end of shift) urine	600 µg/L (whole blood - Toluene immediately after exposure) 75 µg/L (urine - Toluene end of exposure or shift) 1.5 mg/L (urine - o-Cresol (after hydrolysis) at the end of the shift, in case of long-term exposure after several previous shifts)
m-Xylene 108-38-3	-	-	- urine (Methylhippuric acid) - end of shift	-	-
p-Xylene 106-42-3	-	-	- urine (Methylhippuric acid) - end of shift	-	-
o-Xylene 95-47-6	-	-	- urine (Methylhippuric acid) - end of shift	-	-
Ethylbenzene 100-41-4	-	5.2 mmol/L (urine - Mandelic acid after the shift after a working week or exposure period)	- urine (Mandelic acid) - end of shift at end of workweek	250 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of exposure or shift) 250 mg/g Creatinine - BAT (end of exposure or end of shift) urine 130 mg/g Creatinine - (end of exposure or end of shift) - urine 250 mg/g Creatinine - (end of exposure or end of shift) -	250 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of exposure or shift)

				urine 330 mg/g Creatinine - (end of exposure or end of shift) - urine 670 mg/g Creatinine - (end of exposure or end of shift) - urine 1300 mg/g Creatinine - (end of exposure or end of shift) - urine	
Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII	
Toluene 108-88-3	1 mg/g Creatinine (urine - o-Cresol end of shift) 1 µmol/mmol Creatinine (urine - o-Cresol end of shift)	0.02 mg/L (blood - Toluene prior to last shift of workweek) 0.03 mg/L (urine - Toluene end of shift) 0.3 mg/g Creatinine (urine - o-Cresol end of shift)	-	0.3 mg/g Creatinine - urine (o-Cresol (with hydrolysis)) - end of shift 0.03 mg/L - urine (Toluene) - end of shift 0.02 mg/L - blood (Toluene) - prior to last shift of workweek	
m-Xylene 108-38-3	-	-	-	1.5 g/g Creatinine - urine (Methylhippuric acids) - end of shift	
p-Xylene 106-42-3	-	-	-	1.5 g/g Creatinine - urine (Methylhippuric acids) - end of shift	
o-Xylene 95-47-6	-	-	-	1.5 g/g Creatinine - urine (Methylhippuric acids) - end of shift	
Ethylbenzene 100-41-4	1500 mg/g Creatinine (urine - Mandelic acid at end of workweek, end of shift) 1110 µmol/mmol Creatinine (urine - Mandelic acid at end of workweek, end of shift)	0.7 g/g Creatinine (urine - sum of Mandelic acid and Phenylglyoxylic acid end of shift at end of workweek) 0.7 g (end-exhaled air - not critical)	-	0.15 g/g Creatinine - urine (Sum of Mandelic acid and Phenylglyoxylic acid) - end of shift at end of workweek	
Chemical name	Latvia	Luxembourg	Romania	Slovakia	
Toluene 108-88-3	600 µg/L - blood (Toluene) - at the end of exposure 75 µg/L - urine (Toluene) - end of shift 1.5 mg/L - urine (o- Cresol) - at the end of exposure or shift	-	2 g/L - urine (Hippuric acid) - end of shift 3 mg/L - urine (o-Cresol) - end of shift	600 µg/L (blood - Toluene end of exposure or work shift) 1.5 mg/L (urine - o-Cresol after all work shifts) 1.5 mg/L (urine - o-Cresol end of exposure or work shift) 2401 mg/g creatinine (- Hippuric acid end of exposure or work shift)	
Ethylbenzene 100-41-4	-	-	1.5 g/g Creatinine - urine (Mandelic acid) - end of work week	12 mg/L (urine - 2 and 4- Ethylphenol end of exposure or work shift) 1600 mg/L (urine - Mandelic acid and acid Phenylglyoxyl end of exposure or work shift)	
Chemical name	Slovenia	Spain	Switzerland	United Kingdom	

Toluene 108-88-3	600 µg/L - blood (Toluene) - immediately after exposure 1.5 mg/L - urine (o-Cresol (after hydrolysis)) - at the end of the work shift; for long-term exposure: at the end of the work shift after several consecutive workdays 75 µg/L - urine (Toluene) - at the end of the work shift	0.6 mg/L (urine - o-Cresol end of shift) 0.05 mg/L (blood - Toluene start of last shift of workweek) 0.08 mg/L (urine - Toluene end of shift)	600 µg/L (whole blood - Toluene end of shift) 6.48 µmol/L (whole blood - Toluene end of shift) 2 g/g creatinine (urine - Hippuric acid end of shift, and after several shifts (for long-term exposures)) 1.26 mmol/mmol creatinine (urine - Hippuric acid end of shift, and after several shifts (for long-term exposures)) 0.5 mg/L (urine - o-Cresol end of shift, and after several shifts (for long-term exposures)) 4.62 µmol/L (urine - o-Cresol end of shift, and after several shifts (for long-term exposures)) 75 µg/L (urine - Toluol end of shift)	-
m-Xylene 108-38-3	-	-	-	650 mmol/mol creatinine - urine (Methyl hippuric acid) - post shift
p-Xylene 106-42-3	-	-	-	650 mmol/mol creatinine - urine (Methyl hippuric acid) - post shift
o-Xylene 95-47-6	-	-	-	650 mmol/mol creatinine - urine (Methyl hippuric acid) - post shift
Ethylbenzene 100-41-4	250 mg/g Creatinine - urine (Mandelic acid and Phenylglyoxylic acid) - at the end of the work shift	700 mg/g Creatinine (urine - Mandelic acid plus Phenylglyoxylic acid end of workweek)	600 mg/g creatinine (urine - Mandelic acid and Phenylglyoxylacid end of shift)	-

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Toluene 108-88-3	-	150 mg/kg bw/day [4] [6] 0.188 mg/cm ² [5] [6]	75.37 mg/m ³ [4] [6] 377 mg/m ³ [4] [7] 75.37 mg/m ³ [5] [6] 377 mg/m ³ [5] [7]
m-Xylene 108-38-3	-	212 mg/kg bw/day [4] [6]	221 mg/m ³ [4] [6] 442 mg/m ³ [4] [7] 221 mg/m ³ [5] [6] 442 mg/m ³ [5] [7]
Ethylbenzene 100-41-4	-	180 mg/kg bw/day [4] [6]	77 mg/m ³ [4] [6] 293 mg/m ³ [5] [7]
p-Xylene 106-42-3	-	212 mg/kg bw/day [4] [6]	221 mg/m ³ [4] [6] 442 mg/m ³ [4] [7] 221 mg/m ³ [5] [6] 442 mg/m ³ [5] [7]

Notes

- [4] Systemic health effects.
- [5] Local health effects.
- [6] Long term.
- [7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Toluene 108-88-3	2.69 mg/kg bw/day [4] [6]	0.1 mg/cm ² [5] [6]	18.9 mg/m ³ [4] [6] 188.5 mg/m ³ [4] [7] 18.9 mg/m ³ [5] [6] 188.5 mg/m ³ [5] [7]
m-Xylene 108-38-3	2.5 mg/kg bw/day [4] [6]	-	65.3 mg/m ³ [4] [6] 260 mg/m ³ [4] [7] 65.3 mg/m ³ [5] [6] 260 mg/m ³ [5] [7]
Ethylbenzene 100-41-4	1.6 mg/kg bw/day [4] [6]	-	15 mg/m ³ [4] [6]
p-Xylene 106-42-3	2.5 mg/kg bw/day [4] [6]	-	65.3 mg/m ³ [4] [6] 260 mg/m ³ [4] [7] 65.3 mg/m ³ [5] [6] 260 mg/m ³ [5] [7]

Notes

- [4] Systemic health effects.
- [5] Local health effects.
- [6] Long term.
- [7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
m-Xylene 108-38-3	0.044 mg/L	0.01 mg/L	0.0044 mg/L	0.001 mg/L	-
Ethylbenzene 100-41-4	0.02 g/kg food 0.1 mg/L	0.1 mg/L	0.02 g/kg food 0.01 mg/L	-	-
p-Xylene 106-42-3	0.044 mg/L	0.01 mg/L	0.0044 mg/L	0.001 mg/L	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
m-Xylene 108-38-3	2.52 mg/kg sediment dw	0.252 mg/kg sediment dw	1.6 mg/L	0.852 mg/kg soil dw	-
Ethylbenzene 100-41-4	13.7 mg/kg sediment dw	1.37 mg/kg sediment dw	9.6 mg/L	2.68 mg/kg soil dw	-
p-Xylene 106-42-3	2.52 mg/kg sediment dw	0.252 mg/kg sediment dw	1.6 mg/L	0.852 mg/kg soil dw	-

8.2. Exposure controls

Engineering controls No information available.

Personal Protective Equipment

Eye/face protection	Tight sealing safety goggles.
Hand protection	Wear suitable gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing. Antistatic boots. Chemical resistant apron. Wear fire/flame resistant/retardant clothing.
Respiratory protection	Use appropriate respiratory protection.
General hygiene considerations	Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing. Do not breathe vapour or mist. Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Colorless liquid
Colour	Colourless
Odour	Smells like Toluene.
Odour Threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	No information available	
Initial boiling point and boiling range	No information available	
Flammability (Solid, Gas)	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No information available	
Lower flammability or explosive limits	No information available	
Flash point	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
pH	No information available	
pH (as aqueous solution)	No data available	
Kinematic viscosity	No information available	
Dynamic viscosity	No data available	
Water solubility	No information available	
Solubility(ies)	No data available	
Partition Coefficient	No data available	
Vapour Pressure	No data available	
Relative Density	No data available	
Bulk Density	No data available	
Liquid Density	No data available	
Relative vapour density	No information available	
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

9.2. Other information

9.2.1. Information with regards to physical hazard classes

Not applicable

9.2.2. Other safety characteristics

No information available

Sensitivity to mechanical impact Yes

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact Yes.

Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks. Excessive heat.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract. Toxic by inhalation. (based on components). May cause drowsiness or dizziness. May be harmful if inhaled.

Eye contact Specific test data for the substance or mixture is not available. May cause irritation.

Skin contact Repeated exposure may cause skin dryness or cracking. Specific test data for the

substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion

Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Please see section 4 of this SDS for symptoms.

Acute toxicity

Numerical measures of toxicity

The following ATE values have been calculated for the mixture

ATEmix (oral)	11,077.00 mg/kg
ATEmix (dermal)	6,296.40 mg/kg
ATEmix (inhalation-vapour)	552.60 mg/L
ATEmix (inhalation-dust/mist)	7.32 mg/L

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Toluene	= 5000 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h
m-Xylene	= 5 g/kg (Rat)	= 12.18 g/kg (Rabbit)	= 27124 mg/m ³ (Rat) 4 h
p-Xylene	= 4029 mg/kg (Rat)	= 12126 mg/kg (Rabbit)	= 4740 ppm (Rat) 4 h
o-Xylene	= 3608 mg/kg (Rat)	= 14100 mg/kg (Rabbit)	= 4330 ppm (Rat) 6 h
Ethylbenzene	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.4 mg/L (Rat) 4 h
Titanium dioxide	> 2000 mg/kg (Rat)	-	> 5.09 mg/L (Rat) 4 h

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

Skin corrosion/irritation

Classification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation

Not classified.

Respiratory or skin sensitisation

Not classified.

Germ cell mutagenicity

Not classified.

Carcinogenicity

Not classified.

Reproductive toxicity

Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. Suspected of damaging fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
Toluene	Repr. 2

STOT - single exposure May cause drowsiness or dizziness.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard May be fatal if swallowed and enters airways.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors.

11.2.2. Other information

Other Adverse Effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Toluene	EC50: >433mg/L (96h, Pseudokirchneriella subcapitata) EC50: =12.5mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 15.22 - 19.05mg/L (96h, Pimephales promelas) LC50: =12.6mg/L (96h, Pimephales promelas) LC50: 5.89 - 7.81mg/L (96h, Oncorhynchus mykiss) LC50: 14.1 - 17.16mg/L (96h, Oncorhynchus mykiss) LC50: =5.8mg/L (96h, Oncorhynchus mykiss) LC50: 11.0 - 15.0mg/L (96h, Lepomis macrochirus) LC50: =54mg/L (96h, Oryzias latipes) LC50: =28.2mg/L (96h, Poecilia reticulata) LC50: 50.87 - 70.34mg/L (96h, Poecilia reticulata)	EC50 = 19.7 mg/L 30 min	EC50: 5.46 - 9.83mg/L (48h, Daphnia magna) EC50: =11.5mg/L (48h, Daphnia magna)
m-Xylene	EC50: =4.9mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 14.3 - 18mg/L (96h, Pimephales promelas) LC50: =8.4mg/L (96h, Oncorhynchus mykiss) LC50: =12.9mg/L (96h,	-	EC50: 2.81 - 5.0mg/L (48h, Daphnia magna)

		Poecilia reticulata)		
p-Xylene	EC50: =3.2mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 7.2 - 9.9mg/L (96h, Pimephales promelas) LC50: =2.6mg/L (96h, Oncorhynchus mykiss) LC50: =8.8mg/L (96h, Poecilia reticulata)	EC50 = 5.7 mg/L 30 min	EC50: 3.55 - 6.31mg/L (48h, Daphnia magna)
o-Xylene	EC50: =4.7mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 11.6 - 22.4mg/L (96h, Pimephales promelas) LC50: 11.6 - 22.4mg/L (96h, Lepomis macrochirus) LC50: 5.59 - 11.6mg/L (96h, Oncorhynchus mykiss) LC50: =12mg/L (96h, Poecilia reticulata)	-	EC50: =3.2mg/L (48h, Daphnia magna) EC50: 2.61 - 5.59mg/L (48h, Daphnia magna) EC50: 0.78 - 2.51mg/L (48h, Daphnia magna)
Ethylbenzene	EC50: =4.6mg/L (72h, Pseudokirchneriella subcapitata) EC50: >438mg/L (96h, Pseudokirchneriella subcapitata) EC50: 2.6 - 11.3mg/L (72h, Pseudokirchneriella subcapitata) EC50: 1.7 - 7.6mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 11.0 - 18.0mg/L (96h, Oncorhynchus mykiss) LC50: =4.2mg/L (96h, Oncorhynchus mykiss) LC50: 7.55 - 11mg/L (96h, Pimephales promelas) LC50: =32mg/L (96h, Lepomis macrochirus) LC50: 9.1 - 15.6mg/L (96h, Pimephales promelas) LC50: =9.6mg/L (96h, Poecilia reticulata)	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	EC50: 1.8 - 2.4mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence/Degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation

Component Information

Chemical name	Partition coefficient
Toluene	2.73
m-Xylene	3.2
p-Xylene	3.2
o-Xylene	3.12
Ethylbenzene	3.6

12.4. Mobility in soil

Mobility in Soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
Toluene	Not PBT/vPvB
m-Xylene	Not PBT/vPvB
p-Xylene	Not PBT/vPvB
o-Xylene	Not PBT/vPvB
Ethylbenzene	Not PBT/vPvB
Titanium dioxide	Not PBT/vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

SECTION 14: Transport information

IMDG

14.1 UN number or ID number UN1268
 14.2 Proper Shipping Name Paint
 14.3 Transport hazard class(es) 3
 14.4 Packing Group II

RID

14.1 UN number or ID number UN1263
 14.2 Proper Shipping Name Paint
 14.3 Transport hazard class(es) 3
 14.4 Packing Group II

ADR

14.1 UN number or ID number UN1263
 14.2 Proper Shipping Name Paint
 14.3 Transport hazard class(es) 3
 14.4 Packing Group II

IATA

14.1 UN number or ID number UN1263
 14.2 Proper Shipping Name Paint
 14.3 Transport hazard class(es) 3
 14.4 Packing group II

SECTION 15: Regulatory information

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

National regulations

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
Toluene 108-88-3	RG 4bis, RG 84
m-Xylene 108-38-3	RG 4bis, RG 84
p-Xylene 106-42-3	RG 4bis, RG 84
o-Xylene 95-47-6	RG 4bis, RG 84
Ethylbenzene 100-41-4	RG 84

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
Toluene	-	-	Development Category 2

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Toluene - 108-88-3	48 75	-
m-Xylene - 108-38-3	75	-
p-Xylene - 106-42-3	75	-
o-Xylene - 95-47-6	75	-
Titanium dioxide - 13463-67-7	75	-

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

H2 - ACUTE TOXIC
P5a - FLAMMABLE LIQUIDS
P5b - FLAMMABLE LIQUIDS
P5c - FLAMMABLE LIQUIDS

Ozone-depleting substances (ODS) regulation (EC) 2024/590

Not applicable

International Inventories

Chemical name	TSCA	DSL/NDSL	EINECS/ELINCS	PICCS	ENCS	IECSC	AiIC	KECL

Toluene 108-88-3 (25)	X	X	X	X	X	X	X	X
m-Xylene 108-38-3 (5-10)	X	X	X	X	X	X	X	X
p-Xylene 106-42-3 (1-5)	X	X	X	X	X	X	X	X
o-Xylene 95-47-6 (1-5)	X	X	X	X	X	X	X	X
Ethylbenzene 100-41-4 (1-5)	X	X	X	X	X	X	X	X
Titanium dioxide 13463-67-7 (0.1-1)	X	X	X	X	X	X	X	X

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing Chemicals Inventory
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances
- NZIoC** - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No information available

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of any hazard and/or precautionary statements referred to under Sections 2-15

- 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
- H332 - Harmful if inhaled
- H336 - May cause drowsiness or dizziness
- H361d - Suspected of damaging the unborn child
- H373 - May cause damage to organs through prolonged or repeated exposure

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)

Ceiling Maximum limit value * Skin designation
+ Sensitisers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method
Flammable liquids	On basis of test data
Gases under pressure	On basis of test data

Key literature references and sources for data used to compile the SDS

U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
 European Chemicals Agency (ECHA) (ECHA_API)
 U.S. Environmental Protection Agency
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan National Institute of Technology and Evaluation (NITE)
 Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 U.S. National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
 International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
 International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
 United Nations World Health Organization (WHO)

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Revision Note: New

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)
Disclaimer**

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End of Safety Data Sheet