PLASTI DIP® H.P. PRIMER F-938 CLEAR

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 3/4/2015 Revision date: 3/26/2026 Supersedes version of: 8/25/2025 Version: 3.0

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

1.1. Product identifier

Product form : Mixture
Product name : PLASTI DIP® H.P. PRIMER F-938 CLEAR
Product code : F93840109, F93840509, F93845409
Product group : Trade product

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

Relevant identified uses

Use of the substance/mixture : Coating

1.3. Details of the supplier of the safety data sheet

Manufacturer
Plasti Dip International, Inc.
3920 Pheasant Ridge Drive
Blaine, MN 55449
Phone - (763) 785-2156

Distributor
Global Express
7 Indian Path
Millstone, NJ 08535
(732) 977-0605

EU Importer of Record
Plasti Dip UK Ltd.
Unit 1 Harvesting Lane
EAST MEON GU32 1QR
United Kingdom

1.4. Emergency telephone number

Manufacturer Emergency number
CHEMTREC: 1-800-424-9300 (US);
+1 703-741-5970 (International)

Distributor Emergency Number
CHEMTREC: 1-800-424-9300 (US);
+1 703-741-5970 (International)

Importer Emergency Number
CHEMTREC: 1-800-424-9300 (US);
+1 703-741-5970 (International)

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 corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Carcinogenicity, Category 2	H351
Reproductive toxicity, Category 2	H361
Specific target organ toxicity – Single exposure, Category 3, Narcosis	H336
Specific target organ toxicity – Repeated exposure, Category 2	H373
Aspiration hazard, Category 1	H304

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS07 GHS08

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Toluene	CAS-No.: 108-88-3 EC-No.: 203-625-9 EC Index-No.: 601-021-00-3	80 – 100	Flam. Liq. 2, H225 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304
Xylene	CAS-No.: 1330-20-7 EC-No.: 215-535-7 EC Index-No.: 601-022-00-9	7 – 13	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315
Ethylbenzene	CAS-No.: 100-41-4 EC-No.: 202-849-4 EC Index-No.: 601-023-00-4	1 – 5	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

Full text of H- and EUH-statements: see section 16

SECTION 4: First Aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention. If breathing is difficult, supply oxygen. If breathing has stopped, give artificial respiration.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention immediately.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. If pain, blinking, or irritation develops or persists, get medical attention. Continue rinsing.

First-aid measures after ingestion : IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center or medical professional. Get medical attention immediately.

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

Symptoms/effects : May be fatal if swallowed and enters airways. Causes serious eye irritation. Causes skin irritation. May cause drowsiness or dizziness. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation : May be fatal if swallowed and enters airways. May cause drowsiness or dizziness.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be fatal if swallowed and enters airways.

Chronic symptoms : Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

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

No additional information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Carbon dioxide. Dry chemical.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.

Explosion hazard : Heating may cause an explosion.

Reactivity in case of fire : None known.

Hazardous decomposition products in case of fire : Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon oxides and other organic compounds will be evolved when this material undergoes thermal degradation.

5.3. Advice for firefighters

Precautionary measures fire : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment. Prevent human exposure to fire, fumes, smoke and products of combustion.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

Other information : This material is flammable and may be ignited by heat, sparks, or static electricity.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate area. Ventilate area. Keep upwind. Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.

For non-emergency personnel

Protective equipment : Wear Protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Prevent entry to sewers and public waters.

Methods for cleaning up : Exclude sources of ignition and ventilate the area. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

See Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Handle in accordance with good industrial hygiene and safety procedures. Do not breathe mist, vapours. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Keep away from sources of ignition - No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep the container tightly closed. Store in a dry, cool and well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.3. Specific end use(s)

Coating.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

Toluene (108-88-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	192 mg/m³
	50 ppm
IOEL STEL	384 mg/m³
	100 ppm
Remark	Possibility of significant uptake through the skin
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	190 mg/m³
	50 ppm
MAK (OEL STEL)	380 mg/m³
	100 ppm

Toluene (108-88-3)	
OEL chemical category	Skin notation
Belgium - Occupational Exposure Limits	
OEL TWA	77 mg/m³
	20 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Skin, Skin notation
Bulgaria - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
Bulgaria - Biological limit values	
BLV	1.6 mmol/mmol Creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: at the end of exposure or end of work shift
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	192 mg/m³
	50 ppm
KGVI (OEL STEL)	384 mg/m³
	100 ppm
OEL chemical category	Skin notation
Croatia - Biological limit values	
BLV	1 mg/l Parameter: Toluene - Medium: blood - Sampling time: at the end of the work shift 20 ppm Medium: final exhaled air - Sampling time: during exposure 2.5 g/g creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine) 1 mg/g creatinine Parameter: o-Cresol - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
Cyprus - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Skin-potential for cutaneous absorption
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	200 mg/m³
OEL chemical category	Potential for cutaneous absorption

Toluene (108-88-3)	
Czech Republic - Biological limit values	
BLV	1.6 µmol/mmol Creatinine Parameter: o-Cresol - Medium: urine - Sampling time: end of shift (after hydrolysis) 1000 µmol/mmol Creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift (exposure testing using the o-Cresol parameter to precisely measure Toluene exposure is needed if the value of Hippuric acid is between 1600 and 2500 mg/g of Creatinine, no additional testing is needed if the Hippuric acid value is >2500 mg/g of Creatinine as work exposure to Toluene will have highly exceeded the PEL value.) 1.5 mg/g creatinine Parameter: o-Cresol - Medium: urine - Sampling time: end of shift (after hydrolysis) 1600 mg/g creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift (exposure testing using the o-Cresol parameter to precisely measure Toluene exposure is needed if the value of Hippuric acid is between 1600 and 2500 mg/g of Creatinine, no additional testing is needed if the Hippuric acid value is >2500 mg/g of Creatinine as work exposure to Toluene will have highly exceeded the PEL value.)
Denmark - Occupational Exposure Limits	
OEL TWA	94 mg/m³
	25 ppm
OEL STEL	188 mg/m³
	50 ppm
OEL chemical category	Potential for cutaneous absorption
Estonia - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Skin notation
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	81 mg/m³
	25 ppm
HTP (OEL STEL)	380 mg/m³
	100 ppm
OEL chemical category	Potential for cutaneous absorption
Finland - Biological limit values	
BLV	500 nmol/L Parameter: Toluene - Medium: blood - Sampling time: in the morning after a working day
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	76.8 mg/m³ TWA [VME] (restrictive limit)
	20 ppm TWA [VME] (restrictive limit)
VLEP CT (OEL STEL)	384 mg/m³ STEL [VLCT] (restrictive limit)
	100 ppm STEL [VLCT] (restrictive limit)
OEL chemical category	risk of cutaneous absorption

Toluene (108-88-3)	
France - Biological limit values	
BLV	20 µg/l Parameter: Toluene - Medium: blood - Sampling time: end of workweek (Semi-quantitative (ambiguous interpretation)) Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	190 mg/m³
	50 ppm
AGW (OEL C)	760 mg/m³
AGW (OEL C) [ppm]	200 ppm
Chemical category	Skin notation
Germany - Biological limit values (TRGS 903)	
Biological limit value	600 µg/l Parameter: Toluene - Medium: whole blood - Sampling time: immediately after exposure 75 µg/l Parameter: Toluene - Medium: urine - Sampling time: end of shift 1.5 mg/l Parameter: o-Cresol (after hydrolysis) - Medium: urine - Sampling time: for long-term exposures: at the end of the shift after several shifts 1.5 mg/l Parameter: o-Cresol (after hydrolysis) - Medium: urine - Sampling time: end of shift
Gibraltar - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Skin notation
Greece - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	skin - potential for cutaneous absorption
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	190
CK (OEL STEL)	380 mg/m³
OEL chemical category	Potential for cutaneous absorption
Ireland - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Potential for cutaneous absorption

Toluene (108-88-3)	
Italy - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	50 mg/m³
	14 ppm
OEL STEL	150 mg/m³
	40 ppm
OEL chemical category	skin - potential for cutaneous exposure
Latvia - Biological Exposure Indices	
BEI	1.6 g/g creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift 0.05 mg/l Parameter: Toluene - Medium: blood - Sampling time: end of shift
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	192 mg/m³
	50 ppm
TPRV (OEL STEL)	384 mg/m³
	100 ppm
OEL chemical category	Reproductive toxin, Skin notation
Luxembourg - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Possibility of significant uptake through the skin
Malta - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Possibility of significant uptake through the skin
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	150 mg/m³
	39 ppm
TGG-15min (OEL STEL)	384 mg/m³
	100 ppm
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	100 mg/m³
NDSCh (OEL STEL)	200 mg/m³

Toluene (108-88-3)	
Portugal - Occupational Exposure Limits	
OEL TWA	192 mg/m³ (indicative limit value)
	50 ppm (indicative limit value)
OEL STEL	384 mg/m³ (indicative limit value)
	100 ppm (indicative limit value)
OEL chemical category	A4 - Not Classifiable as a Human Carcinogen, skin - potential for cutaneous exposure indicative limit value
Romania - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Skin notation
Romania - Biological limit values	
BLV	2 g/l Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift 3 mg/l Parameter: o-Cresol - Medium: urine - Sampling time: end of shift
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	192 mg/m³
	50 ppm
NPHV (OEL C)	384 mg/m³
OEL chemical category	Potential for cutaneous absorption
Slovakia - Biological limit values	
BLV	600 µg/l Parameter: Toluene - Medium: blood - Sampling time: end of exposure or work shift 1.5 mg/l Parameter: o-Cresol - Medium: urine - Sampling time: after all work shifts (for long-term exposure) 1.5 mg/l Parameter: o-Cresol - Medium: urine - Sampling time: end of exposure or work shift 1600 mg/g creatinine Parameter: Hippuric acid - Sampling time: end of exposure or work shift
Slovenia - Occupational Exposure Limits	
OEL TWA	192 mg/m³
	50 ppm
OEL STEL	384 mg/m³
	100 ppm
OEL chemical category	Category 2, Potential for cutaneous absorption
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	191 mg/m³
	50 ppm
VLA-EC (OEL STEL)	384 mg/m³
	100 ppm
OEL chemical category	skin - potential for cutaneous absorption

Toluene (108-88-3)	
Spain - Biological limit values	
BLV	0.6 mg/l Parameter: o-Cresol - Medium: urine - Sampling time: end of shift 0.05 mg/l Parameter: Toluene - Medium: blood - Sampling time: start of last shift of workweek 0.08 mg/l Parameter: Toluene - Medium: urine - Sampling time: end of shift
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	192 mg/m³
	50 ppm
KGV (OEL STEL)	384 mg/m³
	100 ppm
OEL chemical category	Skin notation
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	191 mg/m³
	50 ppm
WEL STEL (OEL STEL)	384 mg/m³
	100 ppm
WEL chemical category	Potential for cutaneous absorption
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	94 mg/m³
	25 ppm
Korttidsverdi (OEL STEL)	141 mg/m³ (value calculated)
	37.5 ppm (value calculated)
OEL chemical category	Skin notation
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	190 mg/m³
	50 ppm
KZGW (OEL STEL)	760 mg/m³
	200 ppm
OEL chemical category	Skin notation, Category 2 reproductive toxin
Switzerland - BAT	
BAT	600 µg/l Parameter: Toluene - Medium: whole blood - Sampling time: end of shift 6.48 µmol/l Parameter: Toluene - Medium: whole blood - Sampling time: end of shift 2 g/g creatinine Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures) Parameter: Hippuric acid - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures) 0.5 mg/l Parameter: o-Cresol - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures) 4.62 µmol/l Parameter: o-Cresol - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures) 75 µg/l Parameter: Toluol - Medium: urine - Sampling time: end of shift
USA - ACGIH - Occupational Exposure Limits	
Local name	Toluene

Toluene (108-88-3)	
ACGIH® TLV® TWA	20 ppm
Remark (ACGIH®)	TLV® Basis: CNS, visual & hearing impair; female repro system eff; pregnancy loss. Notations: OTO; A4 (Not classifiable as a Human Carcinogen); BEI
ACGIH® chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2025
USA - ACGIH - Biological Exposure Indices	
Local name	Toluene
BEI	0.02 mg/l Parameter: Toluene - Medium: blood - Sampling time: prior to last shift of workweek 0.03 mg/l Parameter: Toluene - Medium: urine - Sampling time: end of shift 0.3 mg/g creatinine Parameter: o-Cresol with hydrolysis - Medium: urine - Sampling time: end of shift (background)
Regulatory reference	ACGIH 2025

Benzene (71-43-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	3.25 mg/m³
	1 ppm
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	3.2 mg/m³
	1 ppm
MAK (OEL STEL)	12.8 mg/m³
	4 ppm
Belgium - Occupational Exposure Limits	
OEL TWA	3.25 mg/m³
	1 ppm
Denmark - Occupational Exposure Limits	
OEL TWA	1.6 mg/m³
	0.5 ppm
OEL STEL	3.2 mg/m³
	1 ppm
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	3.25 mg/m³
	1 ppm
BOEL TWA	3.25 mg/m³
	1 ppm
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	3.25 mg/m³
	1 ppm
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	1.9 mg/m³

Benzene (71-43-2)	
	0.6 ppm
AGW (OEL C)	15.2 mg/m³
AGW (OEL C) [ppm]	4.8 ppm
Hungary - Occupational Exposure Limits	
CK (OEL STEL)	3 mg/m³
Ireland - Occupational Exposure Limits	
OEL TWA	3 mg/m³
	1 ppm
Italy - Occupational Exposure Limits	
OEL TWA	3.25 mg/m³
	1 ppm
Latvia - Occupational Exposure Limits	
OEL TWA	3.25 mg/m³
	1 ppm
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	3.25 mg/m³
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	1.6 mg/m³
Romania - Occupational Exposure Limits	
OEL TWA	3.25 mg/m³
	1 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	3.25 mg/m³
	1 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	1.5 mg/m³
	0.5 ppm
KGV (OEL STEL)	9 mg/m³
	3 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	1 ppm
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	1.6 mg/m³
	0.5 ppm
USA - ACGIH - Occupational Exposure Limits	
Local name	Benzene
ACGIH® TLV® TWA	0.5 ppm
ACGIH® TLV® STEL	2.5 ppm

Benzene (71-43-2)	
Remark (ACGIH®)	TLV® Basis: Myelodysplastic syndrome; acute myeloid leukemia; leukemia; hematologic eff; chromosomal dam. Notations: Skin; A1 (Confirmed Human Carcinogen); BEI
Regulatory reference	ACGIH 2025
USA - ACGIH - Biological Exposure Indices	
Local name	Benzene
BEI	25 µg/g creatinine Parameter: S-Phenyl mercapturic acid - Medium: urine - Sampling time: End of shift - Notations: B 500 µg/g creatinine Parameter: t,t-Muconic acid - Medium: urine - Sampling time: End of shift - Notations: B
Regulatory reference	ACGIH 2025

Cumene (98-82-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	100 mg/m³
	20 ppm
IOEL STEL	250 mg/m³
	50 ppm
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	100 mg/m³
	20 ppm
MAK (OEL STEL)	250 mg/m³
	50 ppm
OEL chemical category	Skin notation
Belgium - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Skin, Skin notation
Bulgaria - Occupational Exposure Limits	
OEL TWA	50 mg/m³ (exposure monitoring should take into account the relevant biological monitoring methods of the Scientific Committee on Occupational Exposure Limits (SCOEL) under Annex 2)
	10 ppm (exposure monitoring should take into account the relevant biological monitoring methods of the Scientific Committee on Occupational Exposure Limits (SCOEL) under Annex 2)
OEL STEL	250 mg/m³ (exposure monitoring should take into account the relevant biological monitoring methods of the Scientific Committee on Occupational Exposure Limits (SCOEL) under Annex 2)
	50 ppm (exposure monitoring should take into account the relevant biological monitoring methods of the Scientific Committee on Occupational Exposure Limits (SCOEL) under Annex 2)

Cumene (98-82-8)	
Bulgaria - Biological limit values	
BLV	7 mg/g creatinine Parameter: 2-Phenol-2 propanol - Medium: urine - Sampling time: up to two hours after the end of work shift (possible significant absorption through the skin)
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	50 mg/m³ (during the monitoring of exposure the relevant value of biological monitoring shall be taken into account as suggested by the Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL) (Cumene)
	10 ppm (during the monitoring of exposure the relevant value of biological monitoring shall be taken into account as suggested by the Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL) (Cumene)
KGVI (OEL STEL)	250 mg/m³ (during the monitoring of exposure the relevant value of biological monitoring shall be taken into account as suggested by the Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL) (Cumene)
	50 ppm
OEL chemical category	Skin notation during the monitoring of exposure the relevant value of biological monitoring shall be taken into account as suggested by the Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL)
Cyprus - Occupational Exposure Limits	
OEL TWA	50 mg/m³ (inhalable fraction)
	10 ppm (inhalable fraction)
OEL STEL	250 mg/m³ (inhalable fraction)
	50 ppm (inhalable fraction)
OEL chemical category	Skin-potential for cutaneous absorption
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	100 mg/m³
OEL chemical category	Potential for cutaneous absorption
Denmark - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	200 mg/m³
	40 ppm
OEL chemical category	Potential for cutaneous absorption
Estonia - Occupational Exposure Limits	
OEL TWA	50 mg/m³
	10 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Skin notation
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	100 mg/m³
	20 ppm
HTP (OEL STEL)	250 mg/m³

Cumene (98-82-8)	
	50 ppm
OEL chemical category	Potential for cutaneous absorption
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	100 mg/m³
	20 ppm
VLEP CT (OEL STEL)	250 mg/m³
	50 ppm
OEL chemical category	Carcinogen category 1B, risk of cutaneous absorption
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	50 mg/m³
	10 ppm
AGW (OEL C)	200 mg/m³
AGW (OEL C) [ppm]	40 ppm
Chemical category	Skin notation
Germany - Biological limit values (TRGS 903)	
Biological limit value	10 mg/g creatinine Parameter: 2-Phenyl-2-propanol (after hydrolysis) - Medium: urine - Sampling time: end of shift
Gibraltar - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Skin notation
Greece - Occupational Exposure Limits	
OEL TWA	50 mg/m³ (during the monitoring of the exposure, the relevant biological monitoring values recommended by the Scientific Committee on Occupational Exposure Limit Values (SCOEL) should be taken under consideration)
	10 ppm (during the monitoring of the exposure, the relevant biological monitoring values recommended by the Scientific Committee on Occupational Exposure Limit Values (SCOEL) should be taken under consideration)
OEL STEL	250 mg/m³ (during the monitoring of the exposure, the relevant biological monitoring values recommended by the Scientific Committee on Occupational Exposure Limit Values (SCOEL) should be taken under consideration)
	50 ppm (during the monitoring of the exposure, the relevant biological monitoring values recommended by the Scientific Committee on Occupational Exposure Limit Values (SCOEL) should be taken under consideration)
OEL chemical category	skin - potential for cutaneous absorption during the monitoring of the exposure, the relevant biological monitoring values recommended by the Scientific Committee on Occupational Exposure Limit Values (SCOEL) should be taken under consideration
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	100 mg/m³
CK (OEL STEL)	250 mg/m³
OEL chemical category	Potential for cutaneous absorption

Cumene (98-82-8)	
Ireland - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Potential for cutaneous absorption
Italy - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	skin - potential for cutaneous exposure
Latvia - Biological Exposure Indices	
BEI	7 µg/g creatinine Parameter: Cumene - Medium: urine - Sampling time: no later than two hours after the end of the shift
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	50 mg/m³ (in addition to the indicative occupational exposure limit values, biological monitoring values must be taken into account when monitoring exposure)
	10 ppm (in addition to the indicative occupational exposure limit values, biological monitoring values must be taken into account when monitoring exposure)
TPRV (OEL STEL)	170 mg/m³ (in addition to the indicative occupational exposure limit values, biological monitoring values must be taken into account when monitoring exposure)
	35 ppm (in addition to the indicative occupational exposure limit values, biological monitoring values must be taken into account when monitoring exposure)
OEL chemical category	Skin notation
Luxembourg - Occupational Exposure Limits	
OEL TWA	50 mg/m³
	10 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Possibility of significant uptake through the skin
Malta - Occupational Exposure Limits	
OEL TWA	50 mg/m³
	10 ppm
OEL STEL	250 mg/m³

Cumene (98-82-8)	
	50 ppm
OEL chemical category	Possibility of significant uptake through the skin
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	100 mg/m³
	10 ppm
TGG-15min (OEL STEL)	250 mg/m³
	50 ppm
MAC chemical category	Skin notation
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	100 mg/m³
NDSCh (OEL STEL)	250 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	50 mg/m³ (indicative limit value)
	10 ppm (indicative limit value)
OEL STEL	250 mg/m³ (indicative limit value)
	50 ppm (indicative limit value)
OEL chemical category	skin - potential for cutaneous exposure indicative limit value
Romania - Occupational Exposure Limits	
OEL TWA	100 mg/m³
	20 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Skin notation
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	500 mg/m³
	20 ppm
NPHV (OEL C)	250 mg/m³
OEL chemical category	Potential for cutaneous absorption
Slovakia - Biological limit values	
BLV	10.6 mg/l Parameter: 2-Phenylpropane - Medium: urine - Sampling time: end of exposure or work shift
Slovenia - Occupational Exposure Limits	
OEL TWA	50 mg/m³
	10 ppm
OEL STEL	250 mg/m³
	50 ppm
OEL chemical category	Potential for cutaneous absorption
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	100 mg/m³

Cumene (98-82-8)	
	20 ppm
VLA-EC (OEL STEL)	250 mg/m³
	50 ppm
OEL chemical category	C1B, skin - potential for cutaneous absorption
Spain - Biological limit values	
BLV	7 mg/g creatinine Parameter: 2-Phenyl-2-propanol - Medium: urine - Sampling time: end of shift (with hydrolysis)
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	120 mg/m³
	25 ppm
KGV (OEL STEL)	250 mg/m³
	50 ppm
OEL chemical category	Skin notation
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	125 mg/m³
	25 ppm
WEL STEL (OEL STEL)	375 mg/m³
	75 ppm
WEL chemical category	Potential for cutaneous absorption
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	50 mg/m³
	10 ppm
Korttidsverdi (OEL STEL)	250 mg/m³ (value from the regulation)
	50 ppm (value from the regulation)
OEL chemical category	Skin notation, Carcinogen
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	100 mg/m³
	20 ppm
KZGW (OEL STEL)	400 mg/m³
	80 ppm
OEL chemical category	Skin notation, Category C2 carcinogen
Switzerland - BAT	
BAT	20 mg/g creatinine Parameter: 2-Phenyl-2-propanol after hydrolysis - Medium: urine - Sampling time: end of shift Parameter: 2-Phenyl-2-propanol after hydrolysis - Medium: urine - Sampling time: end of shift
USA - ACGIH - Occupational Exposure Limits	
Local name	Cumene
ACGIH® TLV® TWA	25 mg/m³
	50 ppm

Cumene (98-82-8)	
Remark (ACGIH®)	TLV® Basis: URT adenoma; neurological eff. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
ACGIH® chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2025

Ethylbenzene (100-41-4)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	442 mg/m³
	100 ppm
IOEL STEL	884 mg/m³
	200 ppm
Remark	Possibility of significant uptake through the skin
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	440 mg/m³
	100 ppm
MAK (OEL STEL)	880 mg/m³
	200 ppm
OEL chemical category	Skin notation
Belgium - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	551 mg/m³
	125 ppm
OEL chemical category	Skin, Skin notation
Bulgaria - Occupational Exposure Limits	
OEL TWA	435 mg/m³
OEL STEL	545 mg/m³
Bulgaria - Biological limit values	
BLV	2000 mg/g creatinine Parameter: Mandelic acid and Phenylglyoxylic acid - total - Medium: urine - Sampling time: at the end of exposure or end of work shift (possible significant absorption through the skin)
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	442 mg/m³
	100 ppm
KGVI (OEL STEL)	884 mg/m³
	200 ppm
OEL chemical category	Skin notation
Croatia - Biological limit values	
BLV	1.5 mg/l Parameter: Ethylbenzene - Medium: blood - Sampling time: during exposure 1.5 g/g creatinine Parameter: Mandelic acid - Medium: urine - Sampling time: at the end of the work shift and at the end of the working week (calculated on the average Creatinine value of 1.2 g/L urine)

Ethylbenzene (100-41-4)	
Cyprus - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Skin-potential for cutaneous absorption
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	200 mg/m³
OEL chemical category	Potential for cutaneous absorption
Czech Republic - Biological limit values	
BLV	1100 µmol/mmol Creatinine Parameter: Mandelic acid - Medium: urine - Sampling time: end of shift 1500 mg/g creatinine Parameter: Mandelic acid - Medium: urine - Sampling time: end of shift
Denmark - Occupational Exposure Limits	
OEL TWA	217 mg/m³
	50 ppm
OEL STEL	434 mg/m³
	100 ppm
OEL chemical category	Potential for cutaneous absorption
Estonia - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Skin notation, Sensitizer
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	220 mg/m³
	50 ppm
HTP (OEL STEL)	880 mg/m³
	200 ppm
OEL chemical category	Potential for cutaneous absorption
Finland - Biological limit values	
BLV	Parameter: Mandelic acid - Medium: urine - Sampling time: after the shift after a working week or exposure period
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	88.4 mg/m³ TWA [VME] (restrictive limit)
	20 ppm TWA [VME] (restrictive limit)
VLEP CT (OEL STEL)	442 mg/m³ STEL [VLCT] (restrictive limit)
	100 ppm STEL [VLCT] (restrictive limit)

Ethylbenzene (100-41-4)	
OEL chemical category	risk of cutaneous absorption
France - Biological limit values	
BLV	Parameter: Mandelic acid - Medium: urine - Sampling time: end of shift at end of workweek (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	88 mg/m³
	20 ppm
AGW (OEL C)	176 mg/m³
AGW (OEL C) [ppm]	40 ppm
Chemical category	Skin notation
Germany - Biological limit values (TRGS 903)	
Biological limit value	250 mg/g creatinine Parameter: Mandelic acid plus Phenylglyoxylic acid - Medium: urine - Sampling time: end of shift
Gibraltar - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Skin notation
Greece - Occupational Exposure Limits	
OEL TWA	435 mg/m³
	100 ppm
OEL STEL	545 mg/m³
	125 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	442 mg/m³
CK (OEL STEL)	884 mg/m³
OEL chemical category	Potential for cutaneous absorption
Ireland - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Potential for cutaneous absorption
Italy - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³

Ethylbenzene (100-41-4)	
	200 ppm
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	skin - potential for cutaneous exposure
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	442 mg/m³
	100 ppm
TPRV (OEL STEL)	884 mg/m³
	200 ppm
OEL chemical category	Skin notation
Luxembourg - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Possibility of significant uptake through the skin
Malta - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Possibility of significant uptake through the skin
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	215 mg/m³
	48.6 ppm
TGG-15min (OEL STEL)	430 mg/m³
	97.3 ppm
MAC chemical category	Skin notation
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	200 mg/m³
NDSCh (OEL STEL)	400 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	442 mg/m³ (indicative limit value)
	100 ppm (indicative limit value)
OEL STEL	884 mg/m³ (indicative limit value)

Ethylbenzene (100-41-4)	
	200 ppm (indicative limit value)
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, skin - potential for cutaneous exposure indicative limit value
Romania - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Skin notation
Romania - Biological limit values	
BLV	1.5 g/g creatinine Parameter: Mandelic acid - Medium: urine - Sampling time: end of work week
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	442 mg/m³
	100 ppm
NPHV (OEL C)	884 mg/m³
OEL chemical category	Potential for cutaneous absorption
Slovakia - Biological limit values	
BLV	12 mg/l Parameter: 2 and 4-Ethylphenol - Medium: urine - Sampling time: end of exposure or work shift (also after all work shifts for long-term exposure) 1600 mg/l Parameter: Mandelic acid and Phenylglycolic acid - Medium: urine - Sampling time: end of exposure or work shift (also after all work shifts for long-term exposure)
Slovenia - Occupational Exposure Limits	
OEL TWA	442 mg/m³
	100 ppm
OEL STEL	884 mg/m³
	200 ppm
OEL chemical category	Potential for cutaneous absorption
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	441 mg/m³
	100 ppm
VLA-EC (OEL STEL)	884 mg/m³
	200 ppm
OEL chemical category	skin - potential for cutaneous absorption
Spain - Biological limit values	
BLV	700 mg/g creatinine Parameter: Mandelic acid plus Phenylglyoxylic acid - Medium: urine - Sampling time: end of workweek
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	220 mg/m³
	50 ppm
KGV (OEL STEL)	884 mg/m³

Ethylbenzene (100-41-4)	
	200 ppm
OEL chemical category	Skin notation
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	441 mg/m³
	100 ppm
WEL STEL (OEL STEL)	552 mg/m³
	125 ppm
WEL chemical category	Potential for cutaneous absorption
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	20 mg/m³
	5 ppm
Korttidsverdi (OEL STEL)	30 mg/m³ (value calculated)
	10 ppm (value calculated)
OEL chemical category	Skin notation, Carcinogen
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	435 mg/m³
	100 ppm
KZGW (OEL STEL)	435 mg/m³
	100 ppm
OEL chemical category	Skin notation
Switzerland - BAT	
BAT	600 mg/g creatinine Parameter: Mandelic acid and Phenylglyoxylacid - Medium: urine - Sampling time: end of shift (see also Styrene)
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethyl benzene
ACGIH® TLV® TWA	20 ppm
Remark (ACGIH®)	TLV® Basis: URT & eye irr; ototoxicity; kidney eff; CNS impair. Notations: OTO (Ototoxicant); A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
ACGIH® chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2025
USA - ACGIH - Biological Exposure Indices	
Local name	Ethyl benzene
BEI	0.15 g/g creatinine Parameter: Sum of mandelic acid and phenylglyoxylic acid - Medium: urine - Sampling time: End of shift - Notations: Ns
Regulatory reference	ACGIH 2025

Xylene (1330-20-7)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	221 mg/m³
	50 ppm

Xylene (1330-20-7)	
IOEL STEL	442 mg/m³
	100 ppm
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	221 mg/m³
	50 ppm
MAK (OEL STEL)	442
	100 ppm
Belgium - Occupational Exposure Limits	
OEL TWA	221
	50 ppm
OEL STEL	442 mg/m³
	100 ppm
Denmark - Occupational Exposure Limits	
OEL TWA	109 mg/m³
	25 ppm
OEL STEL	218 mg/m³
	50 ppm
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	220 mg/m³
	50 ppm
HTP (OEL STEL)	440 mg/m³
	100 ppm
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	221 mg/m³ [VME] (restrictive limit)
	50 ppm [VME] (restrictive limit)
VLEP CT (OEL STEL)	442 mg/m³ [VLCT] (restrictive limit)
	100 ppm [VLCT] (restrictive limit)
OEL chemical category	risk of cutaneous absorption
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	440 mg/m³
	100 ppm
AGW (OEL C)	880 mg/m³
AGW (OEL C) [ppm]	200 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	221 mg/m³
CK (OEL STEL)	442 mg/m³
Ireland - Occupational Exposure Limits	
OEL TWA	221 mg/m³
	50 ppm

Xylene (1330-20-7)	
OEL STEL	442 mg/m³
	100 ppm
Italy - Occupational Exposure Limits	
OEL TWA	50 ppm TWA (pure)
OEL STEL	100 ppm STEL (pure)
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	221 mg/m³
	50 ppm
OEL STEL	442 mg/m³
	100 ppm
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	100 mg/m³
Romania - Occupational Exposure Limits	
OEL TWA	221 mg/m³
	50 ppm
OEL STEL	422 mg/m³
	100 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	221 mg/m³
	50 ppm
VLA-EC (OEL STEL)	442 mg/m³
	100 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	221 mg/m³
	50 ppm
KGV (OEL STEL)	442 mg/m³
	100 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	221 mg/m³
	50 ppm
WEL STEL (OEL STEL)	442 mg/m³
	100 ppm
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	435 mg/m³
	100 ppm
KZGW (OEL STEL)	870 mg/m³
	200 ppm

Xylene (1330-20-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Xylene, mixed isomers (Dimethylbenzene)
ACGIH® TLV® TWA	221 mg/m³
	50 ppm
ACGIH® TLV® STEL	442 mg/m³
	100 ppm
Remark (ACGIH®)	TLV® Basis: URT & eye irr; hematologic eff; ototoxycity (for mixtures containing p-xylene); CNS impair. Notations: OTO (for mixtures containing p-xylene); A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2025
USA - ACGIH - Biological Exposure Indices	
Local name	Xylene, all isomers (Dimethylbenzene)
BEI	0.3 g/g creatinine Parameter: Methylhippuric acids - Medium: urine - Sampling time: End of shift
Remark	Commercial or technical grade xylenes consist of mixtures of isomers and significant amounts of ethyl benzene as indicated under "Properties." Because ethyl benzene is known to reduce the metabolism of xylenes to methylhippuric acids, the BEI applies to technical or commercial grades of xylenes only. The determinants refer to the total of all isomers of methylhippuric acids
Regulatory reference	ACGIH 2025

Chlorobenzene (108-90-7)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	23 mg/m³
	5 ppm
IOEL STEL	70 mg/m³
	15 ppm
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	23 mg/m³
	5 ppm
MAK (OEL STEL)	70 mg/m³
	15 ppm
Belgium - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Bulgaria - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm

Chlorobenzene (108-90-7)	
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	23 mg/m³
	5 ppm
KGVI (OEL STEL)	70 mg/m³
	15 ppm
OEL chemical category	Skin notation
Croatia - Biological limit values	
BLV	25 mg/g creatinine Parameter: total 4-Chlorocatechol - Medium: urine - Sampling time: before the next working day (calculated on the average Creatinine value of 1.2 g/L urine) 150 mg/g creatinine Parameter: total 4-Chlorocatechol - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
Cyprus - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	25 mg/m³
Denmark - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Estonia - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
OEL chemical category	Skin notation
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	23 mg/m³
	5 ppm
HTP (OEL STEL)	70 mg/m³
	15 ppm
OEL chemical category	Potential for cutaneous absorption
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	23 mg/m³ (restrictive limit)
	5 ppm (restrictive limit)
VLEP CT (OEL STEL)	70 mg/m³ (restrictive limit)
	15 ppm (restrictive limit)

Chlorobenzene (108-90-7)	
France - Biological limit values	
BLV	Parameter: Total p-Chlorophenol - Medium: urine - Sampling time: end of shift (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source) Parameter: Total 4-Chlorophenol - Medium: urine - Sampling time: end of shift (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	23 mg/m³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
	5 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany - Biological limit values (TRGS 903)	
Biological limit value	80 mg/g creatinine Parameter: total 4-Chlorocatechol (after hydrolysis) - Medium: urine - Sampling time: end of shift
Gibraltar - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Greece - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	23 mg/m³
CK (OEL STEL)	70 mg/m³
Ireland - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Italy - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Latvia - Occupational Exposure Limits	
OEL TWA	23 mg/m³

Chlorobenzene (108-90-7)	
	5 ppm
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	23 mg/m³
	5 ppm
TPRV (OEL STEL)	70 mg/m³
	15 ppm
Luxembourg - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Malta - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	23 mg/m³
	5 ppm
TGG-15min (OEL STEL)	70 mg/m³
	15 ppm
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	23 mg/m³
NDSCh (OEL STEL)	70 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	23 mg/m³ (indicative limit value)
	5 ppm (indicative limit value)
OEL STEL	70 mg/m³ (indicative limit value)
	15 ppm (indicative limit value)
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
Romania - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Romania - Biological limit values	
BLV	150 mg/g creatinine Parameter: total 4-Chlorocatechol - Medium: urine - Sampling time: end of shift 25 mg/g creatinine Parameter: total p-Chlorophenol - Medium: urine - Sampling time: end of shift

Chlorobenzene (108-90-7)	
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	23 mg/m³
	5 ppm
NPHV (OEL C)	70 mg/m³
Slovakia - Biological limit values	
BLV	25 mg/g creatinine Parameter: Total 4-Chlorocatechol - Medium: urine - Sampling time: prior to shift 150 mg/g creatinine Parameter: Total 4-Chlorocatechol - Medium: urine - Sampling time: end of exposure or work shift
Slovenia - Occupational Exposure Limits	
OEL TWA	23 mg/m³
	5 ppm
OEL STEL	70 mg/m³
	15 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	23 mg/m³ (indicative limit value)
	5 ppm (indicative limit value)
VLA-EC (OEL STEL)	70 mg/m³
	15 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	23 mg/m³
	5 ppm
KGV (OEL STEL)	70 mg/m³
	15 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	4.7 mg/m³
	1 ppm
WEL STEL (OEL STEL)	14 mg/m³
	3 ppm
WEL chemical category	Potential for cutaneous absorption
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	23 mg/m³
	5 ppm
Korttidsverdi (OEL STEL)	34.5 mg/m³ (value calculated)
	10 ppm (value calculated)
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	46 mg/m³
	10 ppm
KZGW (OEL STEL)	92 mg/m³
	20 ppm

Chlorobenzene (108-90-7)	
Switzerland - BAT	
BAT	150 mg/g creatinine Parameter: total 4-Chlorocatechol - Medium: urine - Sampling time: end of shift Parameter: total 4-Chlorocatechol - Medium: urine - Sampling time: end of shift
USA - ACGIH - Occupational Exposure Limits	
Local name	Chlorobenzene
ACGIH® TLV® TWA	10 ppm
Remark (ACGIH®)	TLV® Basis: Liver dam. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
ACGIH® chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2023
USA - ACGIH - Biological Exposure Indices	
Local name	CHLOROBENZENE
BEI	100 mg/g creatinine Parameter: 4-Chlorocatechol with hydrolysis - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific) 20 mg/g creatinine Parameter: p-Chlorophenol with hydrolysis - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific)
Regulatory reference	ACGIH 2023

Vinyl acetate (108-05-4)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	17.6 mg/m³
	5 ppm
IOEL STEL	35.2 mg/m³
	10 ppm
Austria - Occupational Exposure Limits	
TRK (OEL TWA)	17.6 mg/m³
	5 ppm
OEL chemical category	Group B Carcinogen
Belgium - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Bulgaria - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	17.6 mg/m³
	5 ppm

Vinyl acetate (108-05-4)	
KGVI (OEL STEL)	35.2 mg/m³
	10 ppm
Cyprus - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	18 mg/m³
Denmark - Occupational Exposure Limits	
OEL TWA	18 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Estonia - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	18 mg/m³
	5 ppm
HTP (OEL STEL)	35 mg/m³
	10 ppm
France - Occupational Exposure Limits	
VLEP 8h (OEL TWA)	17.6 mg/m³ (restrictive limit)
	5 ppm (restrictive limit)
VLEP CT (OEL STEL)	35.2 mg/m³ (restrictive limit)
	10 ppm (restrictive limit)
OEL chemical category	Carcinogen category 2
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	36 mg/m³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
	10 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Chemical category	Skin notation
Gibraltar - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³

Vinyl acetate (108-05-4)	
	10 ppm
Greece - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	17.6 mg/m³
CK (OEL STEL)	35.2 mg/m³
Ireland - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Italy - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Latvia - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	17.6 mg/m³
	5 ppm
TPRV (OEL STEL)	35.2 mg/m³
	10 ppm
Luxembourg - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Malta - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
OEL chemical category	Possibility of significant uptake through the skin

Vinyl acetate (108-05-4)	
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	18 mg/m³
	5.1 ppm
TGG-15min (OEL STEL)	36 mg/m³
	10.2 ppm
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	10 mg/m³
NDSCh (OEL STEL)	30 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³ (indicative limit value)
	5 ppm (indicative limit value)
OEL STEL	35.2 mg/m³ (indicative limit value)
	10 ppm (indicative limit value)
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
Romania - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	36 mg/m³
	10 ppm
NPHV (OEL C)	35.2 mg/m³
Slovenia - Occupational Exposure Limits	
OEL TWA	17.6 mg/m³
	5 ppm
OEL STEL	35.2 mg/m³
	10 ppm
OEL chemical category	Category 2
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	17.6 mg/m³ (indicative limit value)
	5 ppm (indicative limit value)
VLA-EC (OEL STEL)	35.2 mg/m³
	10 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	18 mg/m³
	5 ppm
KGV (OEL STEL)	35 mg/m³
	10 ppm

Vinyl acetate (108-05-4)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	17.6 mg/m³
	5 ppm
WEL STEL (OEL STEL)	35.2 mg/m³
	10 ppm
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	17.6 mg/m³
	5 ppm
Korttidsverdi (OEL STEL)	35.2 mg/m³ (value from the regulation)
	10 ppm (value from the regulation)
OEL chemical category	Carcinogen
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	35 mg/m³
	10 ppm
KZGW (OEL STEL)	35 mg/m³
	10 ppm
OEL chemical category	Category C2 carcinogen
USA - ACGIH - Occupational Exposure Limits	
Local name	Vinyl acetate
ACGIH® TLV® TWA	10 ppm
ACGIH® TLV® STEL	15 ppm
Remark (ACGIH®)	TLV® Basis: URT & eye irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
ACGIH® chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2024

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.

Personal protection equipment

Personal protective equipment:
Gloves. Protective goggles. Protective clothing. Insufficient ventilation: wear respiratory protection.
Personal protective equipment symbol(s):

Eye and face protection

Eye protection:
Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to spraying liquid or airborne particles.

Skin protection

Skin and body protection:
Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Hand protection:
Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl. Suitable gloves for this specific application can be recommended by the glove supplier.

Respiratory protection

Respiratory protection:
Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. In case of inadequate ventilation or risk of inhalation of vapours, use suitable respiratory equipment with gas filter (type A2). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Clear.
Odour	:	characteristic.
Odour threshold	:	Not available
Melting point	:	Not available
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Not available
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	4 °C (39.2 °F) (Toluene value)
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	Not available
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	Not available
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

9.2. Other information

Other safety characteristics

VOC content	:	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

Ignition sources. Heat. Sparks. Open flame. Static electricity. Temperatures over 176°C (350°F) for over 10 minutes.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2). Hydrogen Chloride. Organic hydrocarbons.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Toluene (108-88-3)	
LD50 oral rat	5000 mg/kg
LD50 dermal rabbit	5000 mg/kg
LC50 Inhalation - Rat	384 mg/m³
LC50 Inhalation - Rat (Vapours)	> 20 mg/l Source: ECHA

Ethylbenzene (100-41-4)	
LD50 oral rat	3500 mg/kg
LD50 dermal rabbit	15400 mg/kg
LC50 Inhalation - Rat	17.2 mg/l/4h
LC50 Inhalation - Rat [ppm]	4000 ppm Source: ECHA, Harmonized classification of EU CLP

Xylene (1330-20-7)	
LD50 oral rat	3523 mg/kg
LD50 dermal rabbit	12126 mg/kg bodyweight Animal: rabbit, Animal sex: male, Remarks on results: other:
LC50 Inhalation - Rat	27124 mg/m³ (air)
LC50 Inhalation - Rat [ppm]	5922 ppm

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Suspected of causing cancer.

Toluene (108-88-3)	
IARC group	3 - Not classifiable

Ethylbenzene (100-41-4)	
IARC group	2B - Possibly carcinogenic to humans

Xylene (1330-20-7)	
IARC group	3 - Not classifiable

Reproductive toxicity : Suspected of damaging fertility or the unborn child.
STOT-single exposure : May cause drowsiness or dizziness.

Toluene (108-88-3)	
STOT-single exposure	May cause drowsiness or dizziness.

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

Toluene (108-88-3)	
LOAEL (oral, rat, 90 days)	1250 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (oral, rat, 90 days)	625 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEC (inhalation, rat, vapour, 90 days)	2.355 mg/l air Animal: rat, Guideline: EU Method B.29 (Sub-Chronic Inhalation Toxicity:90-Day Study)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Ethylbenzene (100-41-4)	
NOAEL (oral, rat, 90 days)	75 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Xylene (1330-20-7)	
LOAEL (oral, rat, 90 days)	150 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EPA OPP 82-1 (90-Day Oral Toxicity)

Aspiration hazard : May be fatal if swallowed and enters airways.

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No information available.

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

Toluene (108-88-3)	
LC50 - Fish [1]	15.22 – 19.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through] Source: EPA)
LC50 - Fish [2]	12.6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static] Source: EPA)
EC50 - Crustacea [1]	5.46 – 9.83 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 - Crustacea [2]	11.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 72h - Algae [1]	12.5 mg/l (Species: Pseudokirchneriella subcapitata [static])
EC50 96h - Algae [1]	> 433 mg/l (Species: Pseudokirchneriella subcapitata)
LOEC (chronic)	2.76 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC (chronic)	0.74 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC chronic fish	1.39 mg/l Test organisms (species): Oncorhynchus kisutch Duration: '40 d'

Ethylbenzene (100-41-4)	
LC50 - Fish [1]	5.1 mg/l Source: ECHA

Ethylbenzene (100-41-4)	
LC50 - Fish [2]	4.2 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static] Source: EPA)
EC50 - Crustacea [1]	1.8 – 2.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 72h - Algae [1]	4.6 mg/l (Species: Pseudokirchneriella subcapitata)
EC50 72h - Algae [2]	2.6 – 11.3 mg/l (Species: Pseudokirchneriella subcapitata [static])
EC50 96h - Algae [1]	2.6 mg/l Source: ECHA
EC50 96h - Algae [2]	1.7 – 7.6 mg/l (Species: Pseudokirchneriella subcapitata [static])
LOEC (chronic)	1.7 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC (chronic)	0.96 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'

Xylene (1330-20-7)	
LC50 - Fish [1]	2.6 mg/l Source: ECHA
EC50 - Crustacea [1]	> 3.4 mg/l Test organisms (species): Ceriodaphnia dubia
LOEC (chronic)	3.16 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	> 1.3 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri) Duration: '56 d'

12.2. Persistence and degradability

Persistence and degradability — No information available.

12.3. Bioaccumulative potential

Bioaccumulative potential — No information available.

12.4. Mobility in soil

Ecology - soil — No information available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Other adverse effects : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number or ID number

UN-No. (ADR)	:	UN 1139
UN-No. (IMDG)	:	UN 1139
UN-No. (IATA)	:	UN 1139
UN-No. (ADN)	:	UN 1139
UN-No. (RID)	:	UN 1139

14.2. UN proper shipping name

Proper Shipping Name (ADR)	:	COATING SOLUTION
Proper Shipping Name (IMDG)	:	COATING SOLUTION
Proper Shipping Name (IATA)	:	Coating solution
Proper Shipping Name (ADN)	:	COATING SOLUTION
Proper Shipping Name (RID)	:	COATING SOLUTION
Transport document description (ADR) (ADR)	:	UN 1139 COATING SOLUTION, 3, II, (D/E)
Transport document description (IMDG)	:	UN 1139 COATING SOLUTION, 3, II
Transport document description (IATA)	:	UN 1139 Coating solution, 3, II
Transport document description (ADN)	:	UN 1139 COATING SOLUTION, 3, II
Transport document description (RID)	:	UN 1139 COATING SOLUTION, 3, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 3

Danger labels (ADR) : 3

:

IMDG

Transport hazard class(es) (IMDG) : 3

Danger labels (IMDG) : 3

:

IATA

Transport hazard class(es) (IATA) : 3

Danger labels (IATA) : 3

:

ADN

Transport hazard class(es) (ADN) : 3

Danger labels (ADN) : 3

:

RID

Transport hazard class(es) (RID) : 3

Danger labels (RID) : 3

:

14.4. Packing group

Packing group (ADR)	:	II
Packing group (IMDG)	:	II
Packing group (IATA)	:	II
Packing group (ADN)	:	II
Packing group (RID)	:	II

14.5. Environmental hazards

Dangerous for the environment	:	No
Marine pollutant	:	No
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-E
Other information	:	No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR)	:	F1
Special provisions (ADR)	:	640C
Limited quantities (ADR)	:	5l
Excepted quantities (ADR)	:	E2
Packing instructions (ADR)	:	P001
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T4
Portable tank and bulk container special provisions (ADR)	:	TP1, TP8
Tank code (ADR)	:	L1.5BN
Vehicle for tank carriage	:	FL
Transport category (ADR)	:	2
Special provisions for carriage - Operation (ADR)	:	S2, S20
Hazard identification number (Kemler No.)	:	33
Orange plates	:	33 1139
Tunnel restriction code (ADR)	:	D/E
EAC code	:	•3YE

Transport by sea (IMDG)

Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E2
Packing instructions (IMDG)	:	P001
IBC packing instructions (IMDG)	:	IBC02
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP1, TP8
Stowage category (IMDG)	:	B
Properties and observations (IMDG)	:	Miscibility with water depends upon the composition.

Air transport (IATA)

PCA Excepted quantities (IATA)	:	E2
PCA Limited quantities (IATA)	:	Y341
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	353
PCA max net quantity (IATA)	:	5L
CAO packing instructions (IATA)	:	364
CAO max net quantity (IATA)	:	60L

Special provisions (IATA)	:	A3
ERG code (IATA)	:	3L

Inland waterway transport

Classification code (ADN)	:	F1
Special provisions (ADN)	:	640C
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E2
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	1

Rail transport

Classification code (RID)	:	F1
Special provisions (RID)	:	640C
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E2
Packing instructions (RID)	:	P001
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T4
Portable tank and bulk container special provisions (RID)	:	TP1, TP8
Tank codes for RID tanks (RID)	:	L1.5BN
Transport category (RID)	:	2
Colis express (express parcels) (RID)	:	CE7
Hazard identification number (RID)	:	33

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains substance(s) listed on the PIC list

POP Regulation (Persistent Organic Pollutants)

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

VOC Directive (2004/42)

VOC content : No data available

Explosives Precursors Regulation (EU 2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (EC 273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

All chemical substances in this product are listed as “Active” in the EPA (Environmental Protection Agency) “TSCA Inventory Notification (Active-Inactive) Requirements Rule” (“the Final Rule”) of Feb. 2019, as amended Feb. 2021, or are otherwise exempt or regulated by other agencies such as FDA or FIFRA

Germany

Water hazard class (WGK)	:	WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1).
Override matching entry (12. BImSchV)	:	Is not subject to the Major Accidents Ordinance (12. BImSchV)
VOC content	:	No data available

Netherlands

SZW-lijst van kankerverwekkende stoffen	:	Benzene,Cumene are listed
SZW-lijst van mutagene stoffen	:	Benzene is listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	:	Toluene,Xylene are listed

Denmark

Class for fire hazard	:	Class I-1
Store unit	:	1 liter
Classification remarks	:	F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations	:	Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with it. If an employee is pregnant or breastfeeding and the person in question uses or is exposed to this product at work, the employer must always carry out a risk assessment of the work. The assessment must both deal with the dangerousness of the impact and its strength and duration. The employer's decision that a pregnant or lactating woman can perform a specific work task must therefore be made in the context of her specific working conditions. See also WEA-Guideline A.1.8-7 on the working environment of pregnant and breastfeeding workers. The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of H- and EUH-statements	
Asp. Tox. 1	Aspiration hazard, Category 1
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

Full text of H- and EUH-statements	
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS-No.	Chemical Abstracts Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
ED	Endocrine disruptor
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STOT	Specific target organ toxicity
TRGS	Technical Rules for Hazardous Substances
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Data sources : Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Classification for the USA in accordance with 29 CFR 1910.1200 (2024).
Classification for the EU in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
ECHA (European Chemicals Agency).

Training advice : Normal use of this product shall imply use in accordance with the instructions for use and corresponding product packaging.

Indication of changes:
Revision 1.0: New SDS Created.
Revision 2.0. Updated to align with HCS 2024.

Other information : Author: WJS.

SDS prepared by:
Pace Analytical Services, Inc.
Product Regulatory Services Group
2665 Long Lake Rd., Suite 300
Roseville, MN 55113
United States
612-656-1175
paceSDS@pacelabs.com

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]		
Flam. Liq. 2	H225	Test data
Skin Irrit. 2	H315	Specific concentration limit
Eye Irrit. 2	H319	Specific concentration limit
Carc. 2	H351	Specific concentration limit
Repr. 2	H361	Specific concentration limit
STOT SE 3	H336	Specific concentration limit
STOT RE 2	H373	Specific concentration limit
Asp. Tox. 1	H304	Specific concentration limit

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.