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

1.1. Product identifier

Product form	: Substance
Trade name	: Toluene
Chemical name	: Toluene
EC-No.	: 203-625-9
CAS-No.	: 108-88-3
REACH registration No	: 01-2119471310-51-0049
Synonyms	: methylbenzene; toluol; phenylmethane
Product group	: Trade product

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

1.2.1. Relevant identified uses

Main use category	: Industrial uses, Professional use
Use of the substance/mixture	: Solvent
Further information: see exposure scenarios attached to this safety data sheet.	

Title	Use descriptors
Distribution (ES Ref.: 02)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7
Use as an intermediate (ES Ref.: 03)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15, ERC6a
Use in cleaning agents (ES Ref.: 05)	SU3, SU10, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13, ERC4
Use as a fuel (ES Ref.: 07)	SU3, SU10, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC7
Uses in coatings (ES Ref.: 10)	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15, ERC4
Use in Oil and Gas field drilling and production operations (ES Ref.: 13)	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, ERC4
Use as binders and release agents (ES Ref.: 14)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14, ERC4
Use as laboratory reagent (ES Ref.: 16)	SU3, SU10, PROC10, PROC15, ERC2, ERC4
Functional fluids (ES Ref.: 18)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, ERC7
Use in rubber production and processing (ES Ref.: 20)	SU3, SU8, SU9, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC13, PROC14, PROC15, PROC21, ERC4, ERC6d
Formulation (ES Ref.: 21)	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, ERC2
Manufacture of substance (ES Ref.: 01)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15, ERC1
Road and construction applications (ES Ref.: 04)	SU22, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, ERC8d, ERC8f
Use in cleaning agents (ES Ref.: 06)	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, ERC8a, ERC8d
Use as a fuel (ES Ref.: 08)	SU22, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC9a, ERC9b
Uses in coatings (ES Ref.: 11)	SU22, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19, ERC8a, ERC8d
Use as binders and release agents (ES Ref.: 15)	SU22, PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14, ERC8a, ERC8d

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Title	Use descriptors
Use as laboratory reagent (ES Ref.: 17)	SU22, PROC10, PROC15, ERC8a
Functional fluids (ES Ref.: 19)	SU22, PROC1, PROC2, PROC3, PROC8a, PROC9, PROC20, ERC9a, ERC9b
Use as a fuel (ES Ref.: 09)	SU21, PC13, ERC9a, ERC9b
Uses in coatings (ES Ref.: 12)	SU21, PC1, PC4, PC5, PC8, PC9a, PC9b, PC9c, PC10, PC15, PC18, PC23, PC24, PC31, PC34, ERC8a, ERC8d

Full text of use descriptors: see section 16

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

NIS a.d. Novi Sad
Narodnog Fronta 12
21000 Novi Sad - Serbia
T + 381 (0) 21 481 1111
Dragana.Cvetkov@nis.eu (REACH)

Only Representative

BENS Consulting d.o.o.
Špruha 19
1236 Trzin - Slovenija
T +386 41 979 800
info@bens-consulting.eu

1.4. Emergency telephone number

Emergency number : + 381 (0) 21 481 1111
Only available during office hours.

Country	Official advisory body	Address	Emergency number
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals- 24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Liq. 2 H225
Skin Irrit. 2 H315
Repr. 2 H361d
STOT SE 3 H336
STOT RE 2 H373
Asp. Tox. 1 H304

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

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2.2. Label elements

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

Hazard pictograms (CLP)



Signal word

: Danger

Hazard statements (CLP)

: H225 - Highly flammable liquid and vapour.
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.
Precautionary statements (CLP) : 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.
P260 - Do not breathe vapours.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER.
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.
P331 - Do NOT induce vomiting.

2.3. Other hazards

Other hazards

: Vapours can form explosive mixtures with air.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is 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

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name

: Toluene

CAS-No.

: 108-88-3

EC-No.

: 203-625-9

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Substance 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) 601-021-00-3 (REACH-no) 01-2119471310-51-0049	99,9 – 100	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304

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

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Additional advice	: First aider: Pay attention to self-protection!. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance.
Inhalation	: Remove casualty to fresh air and keep warm and at rest. Give oxygen or artificial respiration if necessary. In case of doubt or persistent symptoms, consult always a physician.
Skin contact	: Remove contaminated clothing and shoes. Gently wash with plenty of soap and water. In case of doubt or persistent symptoms, consult always a physician.
Eyes contact	: Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of doubt or persistent symptoms, consult always a physician.
Ingestion	: Rinse mouth thoroughly with water. Do NOT induce vomiting. Get immediate medical advice/attention.

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

Inhalation	: May cause drowsiness or dizziness. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Cough. The following symptoms may occur: . sore throat. Unconsciousness. Headache. Nausea.
Skin contact	: Causes skin irritation. The following symptoms may occur: Redness, pain. Repeated exposure may cause skin dryness or cracking.
Eyes contact	: Contact with eyes may cause irritation. The following symptoms may occur: Redness, pain.
Ingestion	: May be fatal if swallowed and enters airways. Harmful: may cause lung damage if swallowed.
Chronic symptoms	: Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure (Inhalation).

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: carbon dioxide (CO ₂), powder, alcohol-resistant foam, water spray.
Unsuitable extinguishing media	: Strong water jet.

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5.2. Special hazards arising from the substance or mixture

Specific hazards : Highly flammable liquid and vapour. Vapours are heavier than air and may spread along floors. Vapours may form explosive mixture with air. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours. Heating will cause a rise in pressure with a risk of bursting.

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO₂).

5.3. Advice for firefighters

Firefighting instructions : Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure equipment is adequately earthed. Use explosion-proof equipment. Use only non-sparking tools.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Dam up the liquid spill. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Recover large spills by pumping (use an explosion proof or hand pump). Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). This material and its container must be disposed of in a safe way, and as per local legislation. Cover the spilled liquid product with foam to slow down evaporation.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: Prevent unauthorised persons entering the zone. Provide adequate information, instruction and training for operators. Provide adequate ventilation. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof equipment. Use only non-sparking tools. After use replace the closing cap immediately.

Hygiene measures

: Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

: Storage of flammable liquids. Store in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10. Bund storage facilities to prevent soil and water pollution in the event of spillage. Take precautionary measures against static discharge.

Heat and ignition sources

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight.

Special rules on packaging

: Containers which are opened should be properly resealed and kept upright to prevent leakage. Do not pierce or burn, even after use.

Packaging materials

: Keep only in the original container. Suitable material: Stainless steel, Mild steel.

7.3. Specific end use(s)

see attached exposure scenario.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Toluene (108-88-3)		
EU	IOEL TWA	192 mg/m ³
EU	IOEL TWA [ppm]	50 ppm
EU	IOEL STEL	384 mg/m ³
EU	IOEL STEL [ppm]	100 ppm
EU	Remark	Possibility of significant uptake through the skin
Austria	MAK (OEL TWA)	190 mg/m ³
Austria	MAK (OEL TWA) [ppm]	50 ppm
Austria	MAK (OEL STEL)	380 mg/m ³
Austria	MAK (OEL STEL) [ppm]	100 ppm
Belgium	OEL TWA	77 mg/m ³
Belgium	OEL TWA [ppm]	20 ppm
Belgium	OEL STEL	384 mg/m ³
Belgium	OEL STEL [ppm]	100 ppm
Bulgaria	OEL TWA	192 mg/m ³
Bulgaria	OEL TWA [ppm]	50 ppm
Bulgaria	OEL STEL	384 mg/m ³

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Toluene (108-88-3)		
Bulgaria	OEL STEL [ppm]	100 ppm
Croatia	GVI (OEL TWA) [1]	192 mg/m ³
Croatia	GVI (OEL TWA) [2]	50 ppm
Croatia	KGVI (OEL STEL)	384 mg/m ³
Croatia	KGVI (OEL STEL) [ppm]	100 ppm
Cyprus	OEL TWA	192 mg/m ³
Cyprus	OEL TWA [ppm]	50 ppm
Cyprus	OEL STEL	384 mg/m ³
Cyprus	OEL STEL [ppm]	100 ppm
Czech Republic	PEL (OEL TWA)	200 mg/m ³
Denmark	OEL TWA [1]	94 mg/m ³
Denmark	OEL TWA [2]	25 ppm
Estonia	OEL TWA	192 mg/m ³
Estonia	OEL TWA [ppm]	50 ppm
Estonia	OEL STEL	384 mg/m ³
Estonia	OEL STEL [ppm]	100 ppm
Finland	HTP (OEL TWA) [1]	81 mg/m ³
Finland	HTP (OEL TWA) [2]	25 ppm
Finland	HTP (OEL STEL)	380 mg/m ³
Finland	HTP (OEL STEL) [ppm]	100 ppm
France	VME (OEL TWA)	76,8 mg/m ³ (restrictive limit)
France	VME (OEL TWA) [ppm]	20 ppm (restrictive limit)
France	VLE (OEL C/STEL)	384 mg/m ³ (restrictive limit)
France	VLE (OEL C/STEL) [ppm]	100 ppm (restrictive limit)
Germany	Occupational exposure limit value (mg/m ³) (TRGS900)	190 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	Occupational exposure limit value (ppm) (TRGS900)	50 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	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	OEL TWA	192 mg/m ³
Gibraltar	OEL TWA [ppm]	50 ppm
Gibraltar	OEL STEL	384 mg/m ³
Gibraltar	OEL STEL [ppm]	100 ppm
Greece	OEL TWA	192 mg/m ³
Greece	OEL TWA [ppm]	50 ppm
Greece	OEL STEL	384 mg/m ³

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Toluene (108-88-3)		
Greece	OEL STEL [ppm]	100 ppm
Hungary	AK (OEL TWA)	190 mg/m ³
Hungary	CK (OEL STEL)	380 mg/m ³
Ireland	OEL TWA [1]	192 mg/m ³
Ireland	OEL TWA [2]	50 ppm
Ireland	OEL STEL	384 mg/m ³
Ireland	OEL STEL [ppm]	100 ppm
Italy	OEL TWA	192 mg/m ³
Italy	OEL TWA [ppm]	50 ppm
Latvia	OEL TWA	50 mg/m ³
Latvia	OEL TWA [ppm]	14 ppm
Lithuania	IPRV (OEL TWA)	192 mg/m ³
Lithuania	IPRV (OEL TWA) [ppm]	50 ppm
Lithuania	TPRV (OEL STEL)	384 mg/m ³
Lithuania	TPRV (OEL STEL) [ppm]	100 ppm
Luxembourg	OEL TWA	192 mg/m ³
Luxembourg	OEL TWA [ppm]	50 ppm
Luxembourg	OEL STEL	384 mg/m ³
Luxembourg	OEL STEL [ppm]	100 ppm
Malta	OEL TWA	192 mg/m ³
Malta	OEL TWA [ppm]	50 ppm
Malta	OEL STEL	384 mg/m ³
Malta	OEL STEL [ppm]	100 ppm
Netherlands	TGG-8u (OEL TWA)	150 mg/m ³
Netherlands	TGG-15min (OEL STEL)	384 mg/m ³
Poland	NDS (OEL TWA)	100 mg/m ³
Poland	NDSch (OEL STEL)	200 mg/m ³
Portugal	OEL TWA	192 mg/m ³ (indicative limit value)
Portugal	OEL TWA [ppm]	50 ppm (indicative limit value)
Portugal	OEL STEL	384 mg/m ³ (indicative limit value)
Portugal	OEL STEL [ppm]	100 ppm (indicative limit value)
Romania	OEL TWA	192 mg/m ³
Romania	OEL TWA [ppm]	50 ppm
Romania	OEL STEL	384 mg/m ³
Romania	OEL STEL [ppm]	100 ppm
Slovakia	NPHV (OEL TWA) [1]	192 mg/m ³
Slovakia	NPHV (OEL TWA) [2]	50 ppm
Slovakia	NPHV (OEL C)	384 mg/m ³
Slovenia	OEL TWA	192 mg/m ³
Slovenia	OEL TWA [ppm]	50 ppm
Slovenia	OEL STEL	384 mg/m ³

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Toluene (108-88-3)		
Slovenia	OEL STEL [ppm]	100 ppm
Spain	VLA-ED (OEL TWA) [1]	192 mg/m ³ (indicative limit value)
Spain	VLA-ED (OEL TWA) [2]	50 ppm (indicative limit value)
Spain	VLA-EC (OEL STEL)	384 mg/m ³
Spain	VLA-EC (OEL STEL) [ppm]	100 ppm
Sweden	NGV (OEL TWA)	192 mg/m ³
Sweden	NGV (OEL TWA) [ppm]	50 ppm
Sweden	KTV (OEL STEL)	384 mg/m ³
Sweden	KTV (OEL STEL) [ppm]	100 ppm
United Kingdom	WEL TWA (OEL TWA) [1]	191 mg/m ³
United Kingdom	WEL TWA (OEL TWA) [2]	50 ppm
United Kingdom	WEL STEL (OEL STEL)	384 mg/m ³
United Kingdom	WEL STEL (OEL STEL) [ppm]	100 ppm
Norway	Grenseverdi (OEL TWA) [1]	94 mg/m ³
Norway	Grenseverdi (OEL TWA) [2]	25 ppm
Norway	Korttidsverdi (OEL STEL)	141 mg/m ³ (value calculated)
Norway	Korttidsverdi (OEL STEL) [ppm]	37,5 ppm (value calculated)
Switzerland	MAK (OEL TWA) [1]	190 mg/m ³
Switzerland	MAK (OEL TWA) [2]	50 ppm
Switzerland	KZGW (OEL STEL)	760 mg/m ³
Switzerland	KZGW (OEL STEL) [ppm]	200 ppm
Australia	OES TWA [1]	191 mg/m ³
Australia	OES TWA [2]	50 ppm
Australia	OES STEL	574 mg/m ³
Australia	OES STEL [ppm]	150 ppm
Canada (Quebec)	VEMP (OEL TWA)	188 mg/m ³
Canada (Quebec)	VEMP (OEL TWA) [ppm]	50 ppm
USA - ACGIH	ACGIH OEL TWA [ppm]	20 ppm
USA - IDLH	IDLH [ppm]	500 ppm
USA - NIOSH	NIOSH REL TWA	375 mg/m ³
USA - NIOSH	NIOSH REL TWA [ppm]	100 ppm
USA - NIOSH	NIOSH REL STEL	560 mg/m ³
USA - NIOSH	NIOSH REL STEL [ppm]	150 ppm
USA - OSHA	OSHA PEL TWA [2]	200 ppm
USA - OSHA	OSHA PEL C [ppm]	300 ppm

Toluene (108-88-3)	
DNEL/DMEL (workers)	
Acute - systemic effects, inhalation	384 mg/m ³
Acute - local effects, inhalation	384 mg/m ³
Long-term - systemic effects, dermal	384 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	192 mg/m ³
Long-term - local effects, inhalation	192 mg/m ³

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Toluene (108-88-3)	
DNEL/DMEL (general population)	
Acute - systemic effects, inhalation	226 mg/kg bodyweight/day
Acute - local effects, inhalation	226 mg/m ³
Long-term - systemic effects, oral	8,13 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	56,5 mg/m ³
Long-term - systemic effects, dermal	226 mg/kg bodyweight/day
PNEC (water)	
PNEC aqua (freshwater)	0,68 mg/l
PNEC aqua (marine water)	0,68
PNEC aqua (intermittent, freshwater)	0,68 mg/l
PNEC aqua (intermittent, marine water)	0,68 mg/l
PNEC (sediment)	
PNEC sediment (freshwater)	16,39 mg/kg dwt
PNEC sediment (marine water)	16,39 mg/kg dwt

Additional information : Recommended monitoring procedures :. Personal monitoring. Concentration measurement in air. Personal air monitoring. Room air monitoring

8.2. Exposure controls

Engineering measure(s)	: Closed system. Provide adequate ventilation. Use with local exhaust ventilation. Take precautionary measures against static discharges. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Organisational measures to prevent /limit releases, dispersion and exposure. See Section 7 for information on safe handling. Use only outdoors or in a well-ventilated area. Take precautionary measures against static discharges. Ensure equipment is adequately earthed. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Personal protective equipment	: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Hand protection	: Wear chemically resistant gloves (tested to EN374) . Suitable material: PVA (Polyvinyl alcohol) (EN 374). Breakthrough time : >360min. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Eye protection	: Use suitable eye protection (EN166): Safety glasses. goggles
Body protection	: Wear suitable protective clothing. Wear chemical resistant apron.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. full face mask (DIN EN 136) (EN 136). Half-face mask (DIN EN 140) (EN 140). Filter type: A (EN 14387). Use self-contained respiratory apparatus for rescue and maintenance work in storage vessels. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. (EN 137)
Thermal hazard protection	: Not required for normal conditions of use. Use dedicated equipment.
Environmental exposure controls	: Comply with applicable Community environmental protection legislation. Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.

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Colour	: clear.
Odour	: Characteristic.
Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting / freezing point	: -95 °C
Freezing point	: No data available
Initial boiling point and boiling range	: 110,6 °C
Flash point	: 5 °C Closed cup
Auto-ignition temperature	: 480 °C
Decomposition temperature	: No data available
Flammability	: Not applicable,liquid
Vapour pressure	: 36 mmHg (20°C)
Vapour density	: 3,4 (Air=1)
Relative density	: 0,846 – 0,873 g/cm ³ (15°C)
Solubility	: Water: 573 – 587 mg/l (20°C)
Partition coefficient n-octanol/water	: 2,73
Kinematic viscosity	: No data available
Dynamic viscosity	: 0,56 mPa.s (25°C)
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Explosive limits	: 1,2 vol % 7 vol %
Particle size	: Not applicable
Particle size distribution	: Not applicable
Particle shape	: Not applicable
Particle aspect ratio	: Not applicable
Particle aggregation state	: Not applicable
Particle agglomeration state	: Not applicable
Particle specific surface area	: Not applicable
Particle dustiness	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

VOC content	: 100 %
Additional information	: Literary reference : CRC Handbook of Chemistry

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour. Reference to other sections: 10.4 & 10.5.

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10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4. Conditions to avoid

Avoid the build-up of electrostatic charge. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight. See Section 7 for information on safe handling.

10.5. Incompatible materials

oxidising substances. oxidising substances. Strong acids. See Section 7 for information on safe handling.

10.6. Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. Reference to other sections 5.2.

SECTION 11: Toxicological information

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

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

Toluene (108-88-3)	
LD50/oral/rat	2600 mg/kg
LD50/dermal/rabbit	12000 mg/kg
LC50/inhalation/4h/rat	12,5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Test Method EU B.4

pH: Not applicable

Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)

pH: Not applicable

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)

NOAEC, Inhalation, Rat: 4522 mg/m³

Reproductive toxicity : Suspected of damaging the unborn child.

NOAEC, Inhalation, Rat: 2261 mg/m³

STOT-single exposure : May cause drowsiness or dizziness.

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

Inhalation of high vapour concentrations can cause CNS-depression and narcosis.

OECD Test Guideline 453

Test Method EU B.29

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

Toluene (108-88-3)	
Kinematic viscosity	No data available

Other adverse effects : May cause damage to organs through prolonged or repeated exposure. Suspected of damaging the unborn child.

Other information : Symptoms related to the physical, chemical and toxicological characteristics. For further information see section 4.

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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties

: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is 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

11.2.2 Other information

Other adverse effects

: May cause damage to organs through prolonged or repeated exposure, Suspected of damaging the unborn child.

Other information

: Symptoms related to the physical, chemical and toxicological characteristics, For further information see section 4

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties

: Ecological injuries are not known or expected under normal use.

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])
LC50 - Fish [2]	12,6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
LC50 - Other aquatic organisms [1]	3,78 mg/l after 2 days
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)
ErC50 algae	134 mg/l
NOEC chronic fish	1,4 mg/l
NOEC chronic algae	10 mg/l
NOEC (additional information)	NOEC Invertebrates. 7 days 0.74 mg/l

12.2. Persistence and degradability

Toluene (108-88-3)	
Persistence and degradability	Readily biodegradable.
Toluene (108-88-3)	
Persistence and degradability	Readily biodegradable.

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12.3. Bioaccumulative potential

Toluene (108-88-3)	
Partition coefficient n-octanol/water	2,73
Bioaccumulative potential	No additional information available.

Toluene (108-88-3)	
Partition coefficient n-octanol/water	2,73 (at 20 °C (at pH 7)
Bioaccumulative potential	No bioaccumulation.

12.4. Mobility in soil

Toluene (108-88-3)	
Mobility in soil	No data available
Ecology - soil	No data available.

12.5. Results of PBT and vPvB assessment

Toluene (108-88-3)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties

: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is 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

12.7. Other adverse effects

Other adverse effects

: No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. See Section 7 for information on safe handling. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations. Packaging contaminated by the product : Do not pierce or burn, even after use. Never use pressure to empty container.

European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC)

: This material and its container must be disposed of as hazardous waste
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

The following Waste Codes are only suggestions:

20 01 13*

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SECTION 14: Transport information

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

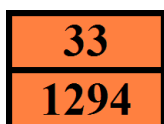
ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1294	1294	1294	1294	1294
14.2. UN proper shipping name				
TOLUENE	TOLUENE	Toluene	TOLUENE	TOLUENE
Transport document description				
UN 1294 TOLUENE, 3, II, (D/E)	UN 1294 TOLUENE, 3, II (7°C c.c.)	UN 1294 Toluene, 3, II	UN 1294 TOLUENE, 3, II	UN 1294 TOLUENE, 3, II
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Special precautions for user : No data available

- Overland transport

Classification code (ADR) : F1
 Limited quantities (ADR) : 1I
 Excepted quantities (ADR) : E2
 Packing instructions (ADR) : P001, IBC02, R001
 Mixed packing provisions (ADR) : MP19
 Portable tank and bulk container instructions (ADR) : T4
 Portable tank and bulk container special provisions (ADR) : TP1
 Tank code (ADR) : LGBF
 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 :



Tunnel restriction code : D/E
 EAC code : 3YE

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- Transport by sea

Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: B
Flash point (IMDG)	: 7°C c.c.
Properties and observations (IMDG)	: Colourless liquid with a benzene-like odour. Flashpoint: 7°C c.c. Explosive limits: 1.27% to 7% Immiscible with water.

- Air transport

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
ERG code (IATA)	: 3L

- Inland waterway transport

Classification code (ADN)	: F1
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

- Rail transport

Classification code (RID)	: F1
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1
Tank codes for RID tanks (RID)	: LGBF
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE7
Hazard identification number (RID)	: 33

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14.7. Maritime transport in bulk according to IMO instruments

Code: IBC : Pollution category : Y. Product name : TOLUENE. Ship type : 3.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3(a) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	Toluene ; Toluene
3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	Toluene ; Toluene
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Toluene ; Toluene
48. Toluene	Toluene ; Toluene

Toluene is not on the REACH Candidate List

Toluene is not on the REACH Annex XIV List

VOC content : 100 %

15.1.2. National regulations

France

No ICPE	Installations classées Désignation de la rubrique	Code Régime	Rayon
4330.text	Liquides inflammables de catégorie 1, liquides inflammables maintenus à une température supérieure à leur point d'ébullition, autres liquides de point éclair inférieur ou égal à 60° C maintenus à une température supérieure à leur température d'ébullition ou dans des conditions particulières de traitement, telles qu'une pression ou une température élevée (1).		
4330.1	La quantité totale susceptible d'être présente dans les installations y compris dans les cavités souterraines étant : 1. Supérieure ou égale à 10 t (1) Conformément à la section 2.6.4.5 de l'annexe I du règlement (CE) n° 1272/2008, il n'est pas nécessaire de classer les liquides ayant un point d'éclair supérieur à 35° C dans la catégorie 3 si l'épreuve de combustion entretenue du point L 2, partie III, section 32, du Manuel d'épreuves et de critères des Nations unies a donné des résultats négatifs. Toutefois, cette remarque n'est pas valable en cas de température ou de pression élevée, et ces liquides doivent alors être classés dans cette catégorie. Quantité seuil bas au sens de l'article R. 511-10 : 10 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 t.	A	2

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4330.2	La quantité totale susceptible d'être présente dans les installations y compris dans les cavités souterraines étant : 2. Supérieure ou égale à 1 t mais inférieure à 10 t (1) Conformément à la section 2.6.4.5 de l'annexe I du règlement (CE) n° 1272/2008, il n'est pas nécessaire de classer les liquides ayant un point d'éclair supérieur à 35° C dans la catégorie 3 si l'épreuve de combustion entretenue du point L 2, partie III, section 32, du Manuel d'épreuves et de critères des Nations unies a donné des résultats négatifs. Toutefois, cette remarque n'est pas valable en cas de température ou de pression élevée, et ces liquides doivent alors être classés dans cette catégorie. Quantité seuil bas au sens de l'article R. 511-10 : 10 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 t.	DC	
4331.text	Liquides inflammables de catégorie 2 ou catégorie 3 à l'exclusion de la rubrique 4330. La quantité totale susceptible d'être présente dans les installations y compris dans les cavités souterraines étant :		
4331.1	1. Supérieure ou égale à 1000 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	A	2
4331.2	2. Supérieure ou égale à 100 t mais inférieure à 1000 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	E	
4331.3	3. Supérieure ou égale à 50 t mais inférieure à 100 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	DC	

Germany

Regulatory reference	: WGK 3, Highly hazardous to water (Classification according to AwSV; ID No. 194)
German storage class (LGK)	: LGK 3 - Flammable liquids
Hazardous Incident Ordinance (12. BImSchV)	: Listed in the 12. BImSchV (Annex I) under: 1.2.5.1
	Quantity threshold for operational area under § 1 para. 1
	- Sentence 1: 10000 kg
	- Sentence 2: 50000 kg
	Listed in the 12. BImSchV (Annex I) under: 1.2.5.2
	Quantity threshold for operational area under § 1 para. 1
	- Sentence 1: 50000 kg
	- Sentence 2: 200000 kg
	Listed in the 12. BImSchV (Annex I) under: 1.2.5.3
	Quantity threshold for operational area under § 1 para. 1
	- Sentence 1: 5000000 kg
	- Sentence 2: 50000000 kg

Netherlands

Waterbezwaarlijkheid	: categorie Z(1) - niet-afbreekbare stoffen met gevaarlijke eigenschappen voor mens en milieu (carcinogeniteit/ mutageniteit/ reprotoxiciteit/ bioaccumulerend vermogen/ toxiciteit of persistentie)
SZW-lijst van kankerverwekkende stoffen	: The substance is not listed
SZW-lijst van mutagene stoffen	: The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: Toluene is listed

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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
Recommendations Danish Regulation	: 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 the product

15.2. Chemical safety assessment

For this substance a chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

2.3	ED text	Added	
5.3	Protection during firefighting	Added	
5.3	Other information	Added	
7.2	Special rules on packaging	Added	
7.2	Heat and ignition sources	Added	
9.2	Information with regard to physical hazard classes	Added	
9.2	Other safety characteristics	Added	
11.2	Adverse health effects caused by endocrine disrupting properties	Added	
12.6	Adverse effects on the environment caused by endocrine disrupting properties	Added	
14.7	Maritime transport in bulk according to IMO instruments	Added	
15.1	Installations classées	Added	
15.1	12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	Added	
15.1	German storage class (LGK)	Added	
15.1	Waterbezwaarlijkheid	Modified	
16	Training advice	Added	

Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC IATA = International Air Transport Association IMDG = International Maritime Dangerous Goods Code LEL = Lower Explosive Limit/Lower Explosion Limit UEL = Upper Explosive Limit/Upper Explosion Limit REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals

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	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration
	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	ErL50 = EL50 in terms of reduction of growth rate
	EWG = European waste catalogue
	LC50 = Median lethal concentration
	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration
	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average
	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the datasheet : European Chemicals Bureau, CSR.

Training advice : Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.

Full text of H- and EUH-statements:

Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
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.
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

Full text of use descriptors

ERC1	Manufacture of the substance
ERC2	Formulation into mixture
ERC3	Formulation into solid matrix

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ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5	Use at industrial site leading to inclusion into/onto article
ERC6a	Use of intermediate
ERC6b	Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c	Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7	Use of functional fluid at industrial site
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
ERC8f	Widespread use leading to inclusion into/onto article (outdoor)
ERC9a	Widespread use of functional fluid (indoor)
ERC9b	Widespread use of functional fluid (outdoor)
PC1	Adhesives, sealants
PC10	Building and construction preparations not covered elsewhere
PC13	Fuels
PC15	Non-metal-surface treatment products
PC18	Ink and Toners
PC23	Leather treatment products
PC24	Lubricants, greases, release products
PC31	Polishes and wax blends
PC34	Textile dyes, finishing and impregnating products; including bleaches and other processing aids
PC4	Anti-Freeze and De-icing products
PC5	Artists Supply and Hobby preparations
PC8	Biocidal products
PC9a	Coatings and paints, thinners, paint removers
PC9b	Fillers, putties, plasters, modelling clay
PC9c	Finger paints
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC10	Roller application or brushing
PROC11	Non industrial spraying
PROC13	Treatment of articles by dipping and pouring
PROC14	Tabletting, compression, extrusion, pelettisation, granulation
PROC15	Use as laboratory reagent
PROC16	Use of fuels
PROC19	Manual activities involving hand contact
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC20	Use of functional fluids in small devices
PROC21	Low energy manipulation and handling of substances bound in/on materials or articles

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PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4	Chemical production where opportunity for exposure arises
PROC5	Mixing or blending in batch processes
PROC6	Calendering operations
PROC7	Industrial spraying
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU21	Consumer uses: Private households (= general public = consumers)
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU9	Manufacture of fine chemicals

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

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