Safety Data Sheet AS per EC Directive No. 1907/2006

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name	:	ENDÜSTRİYEL TİNER
Name of substance	:	ENDÜSTRİYEL TİNER
Substance No.	:	
Registration number	:	

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

Use of the Substance/Preparation

Determining Use	:	Dissolving agent raw material for further processing
Uses according to CSR (Chemical Safety Report)	:	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites Manufacture of Toluene;CAS RN108-88-3 Distribution of Toluene;CAS RN108-88-3 Formulation of Toluene;CAS RN108-88-3 Use in cleaning agents of Toluene;CAS RN108-88-3 Use in coatings of Toluene;CAS RN108-88-3

For details related the Uses please see annex.

1.3 Details of the supplier of the safety data sheet

Street address Manufacturer, importer, supplier	:	
Telephone	:	
E-mail address of the expert person	:	

1.4 Emergency telephone number

Emergency telephone number :

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (regulation (EC) No 1272/2008)

Flam. Liq. 2 H225, Skin Irrit. 2 H315, Asp. Tox. 1 H304, Repr. 2 H361d, STOT SE 3 H336, STOT RE 2 H373,
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification (67/548/EEC, 1999/45/EC)

F R11, Repr.Cat.3 R63, Xn R48/20, Xn R65, Xi R38, R67,
For the full text of the R phrases mentioned in this Section, see Section 16.

2.2 Labelling elements

Labelling (regulation (EC) No 1272/2008)

Hazard pictograms :

Signal word: Danger

Hazard statements:
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H304 May be fatal if swallowed and enters airways.
H361 Suspected of damaging fertility or the unborn child. Specific effect: suspected of dam¬aging the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to central nervous system through prolonged or repeated expo¬sure.

Precautionary statements:

Prevention:
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from open flames. No smoking.
P243 Take precautionary measures against static discharge.
P260 Do not breathe in gas.
P280 Wear protective clothing/eye protection.

Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfort¬able for breathing.
P308 + P313 If exposed or concerned: Get medical advice/attention.

2.3 Other hazards

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	Index-No. CAS-No. EINECS-No./ELINCS No.	Concentration [%]
Toluene	601-021-00-3 108-88-3 203-625-9	>= 80 - <= 100

No product specification / max. possible mass percentages

3.2 Mixtures

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4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice	:	Own protection of the first responders to be considered.
Inhalation	:	After inhalting the vapours during an accident affected persons are to be taken to the fresh air. If required artificial respiration and/or cardiac massage to be applied. In case of persistent discomforts a doctor is to be consulted.
Skin contact	:	After skin contact wash it thoroughly off using water and soap, contaminated cloth¬ ing is to be taken off.
Eye contact	:	Upon the contact with the eye rinse it under running water and with the lids forced apart or by means of the eye rinsing bottle for In case of persistent discomforts an ophthalmologist is to be consulted.
Ingestion, Intake into the Lungs	:	In case of suspicion (vomitting, coughing, breathing troubles) a doctor is to be con¬ sulted. Do not induce vomiting. Consulting a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	Product vapours in high concentrations may cause irritations of the eyes and mu¬ cous skins (nose, throat). Upon a long-term inhalation of concentrated vapours headache, vertigo, euphoria, excitation, tremors, tonoclonic spasms, unconscious¬ ness, circulatory insufficiency, and paralysis of the central respiratory system may occur. Very high concentrations lead to unconsciousness after short-term exposure already.
Effects	:	Upon aspiration risk of a chemical pneumonia.

4.3 Indication of immediate medical attention and special treatment needed

Treatment	:	Activated carbon (approx. 50 g) reduces the absorption via the digestive tract. In case of quantities exceeding 1-2 ml/kg body weight, stomach irrigation only after endotracheal intubation. In case of aspiration and danger of chronic chemical pneumonitis give antibiotics and corticoides. Administer medication such as valium in case of strong agitation.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	:	Foam, powder, carbon dioxide, water in the spraying jet.
Unsuitable extinguishing agents	:	Water in a full jet;

5.2 Special hazards arising from the substance or mixture

Particular hazards due to the substance or the preparation, its products of combustion, or the gases produced during the combustion	:	Evaporated product is heavier than air and rests close to the bottom. The vapours can produce an explosive mixture together with air. Prevent the penetration into the sewer system and rooms at low levels. Prevent the penetration into the soil and waters. Sources of ignition to be kept off. Use explosion-proof and solvent resistant devices only.

5.3 Advice for firefighters

Special protecting equipment	:	Use a respiratory protecting device independent from the ambient air (insulating device) and in the case of a massive release and/or production of pollutants an absolutely tight chemical protection suit.
Further information	:	Containers in the close environment are to be cooled immediately using water spraying and, if possible, removed from the dangerous zone. Fire residues and contaminated extinguishing water have to be properly disposed of in accordance with the local official regulations

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Approaching only in the direction of the wind (changes in that direction to be con¬ sidered). Make explosimeter measurements for determining the dangerous zone and cordon it off. Keep unconcerned persons off the site. First-aiders must wear personal protective equipment. Concerned rooms to be ventilated thoroughly. Avoid contact with the skin. Remove all the sources of ignition in the close environment. Avoid the formation of sparks. In the dangerous zone non explosion-proof machin¬ ery, devices, and vehicles are to be stopped, no smoking, no actuation of any switch or electrical device that may produce a spark. Evaporated product is heavier than air and propagates close to the bottom.

6.2 Environmental precautions

Environmental precautions	:	Escaping point to be sealed. Preventing the penetration into the sewer system, sur¬ face waters, and the groundwater by erecting sand and/or earth blockings or by means of other suitable blocking measures. In the case of escapes into surface waters, the sewer system, or into the soil the competent authorities are to be in¬ formed.

6.3 Methods and materials for containment and cleaning up

Suitable processes for cleaning or absorption or containment	:	Major amounts to be aspirated or pumped over. Residual amounts to be absorbed and/or contained using non-flammable absorbing material like e.g. sand, earth, or oil binding agents Note: When the binding agent is depleted upon the complete absorption the evaporation rate increases and thus, the risk of a fire, t This waste is to be filled in properly marked hazardous goods containers and disposed of in ac¬ cordance with the official regulations
Unsuitable processes for cleaning or absorp- tion or containment	:	No data available

6.4 Reference to other sections

See also item 8 (personal protective equipment) and 13 (disposal).

6.5 Additional advice

not applicable

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Information on the safe handling	:	Only to be used within a closed system. Vapours to be aspirated at the outlet point. Exhaust gas and exhaust air to be evacuated into the atmosphere only via suitable separators and/or scrubbers. If required ventilation of the room at the bottom level. Avoid contact with skin and eyes. Vapours must not be inhaled. Spilling of the product to be avoided.
Advice on protection against fire and explosion	:	Evaporated product is heavier than air and rests close to the bottom. The vapours can produce an explosive mixture together with air. Prevent the penetration into the sewer system and rooms at low levels. Prevent the penetration into the soil and waters. Measures against electrostatical charging to be taken. All devices to be earthed or connected via conductors. Sources of ignition to be kept off.

See also item 8 (personal protective equipment) and 13 (disposal).

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Mobile containers to be kept tightly closed and at a thoroughly ventilated place. Only approved stationary containers to be used. All tanks and devices to be earthed or connected via conductors. Storage upon a suitable underground. Normally, a tightly sealed and resistant storage room is required. Use explosion-proof and solvent resistant devices only.
Further information on storage conditions	:	Heat influences to be avoided. Sources of ignition to be kept off.
Advice on common storage	:	Do not store together with explosive substances (LGK 1), compressed and liquefied gases or gases dissolved under pressure (LGK 2 A), ignitable solid substances (LGK 4.1 A and 4.1 B), substances that form ignitable gases when in contact with water (LGK 4.3), substances of an igniting (oxydizing) effect (LGK 5.1 B and 5.1 C), organic peroxydes (LGK 5.2), non-inflammable toxic substances (LGK 6.1 B), contagious substances (LGK 6.2) and radioactive substances (LGK 7). Restrictions apply when stored together with compressed gas packings (aerosol packings) (LGK 2 B), ignitable solid substances (LGK 4.1 A), spontaneously ignitable substances (LGK 4.2), substances that form ignitable gases when in contact with water (LGK 4.3), substances of an igniting (oxydizing) effect (LGK 5.1 B and 5.1 C), organic peroxydes (LGK 5.2).Due to specific storage instructions and because of particular properties of the substances within a storage facility, other restrictions may result from the assessment of the hazards.

7.3 Specific end use(s)

Information relating to special applications : To be used only for the intended purpose.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational limit value of the product

Toluene

Type	mg/m3	ppm	Exceeding coefficient	Note	Source
Short-term exposition level (STEL) at the workplace (8 hr)	192	50			Romanian government directive no. 1218/2006; Directive 2006/15 EC
Short-term exposition level (STEL) at the workplace (15 min)	384	100			Romanian government directive no. 1218/2006; Directive 2006/15 EC

Occupational limit value of the components

No data known

Biological limit values of the product

Toluene

Type	Value	Parameter	Material of examination	Time of sampling	Source
Biological limit value	2 g/l	Hippuric acid	Urine	end of the shift	Government Decision 1218/2006; Directive 2006/15/EC
Biological limit value	3 mg/l	o-cresole	Urine	end of the shift	Government Decision 1218/2006; Directive 2006/15/EC

Biological limit values of the components

No data known

DNEL of product

Toluene		End Use: worker, acute, systemic effects Exposure routes: inhalation Value: 384 mg/m3
Toluene		End Use: worker, long-term, systemic effects Exposure routes: dermal Value: 384 mg/kg bw/d
Toluene		End Use: worker, long-term, systemic effects Exposure routes: inhalation Value: 192 mg/m3

PNEC of product

Toluene		water Value: 0,68 mg/l
Toluene		sediment Value: 16,39 mg/l

		soil Value: 2,89 mg/kg

8.2 Exposure controls

General safety measures

Toluene

Hygiene measures Direct contact with the eyes, the skin, and clothing to be avoided. Clothing contaminated by that substance to be changed immediately and not to be reused before its cleaning.

Personal protective equipment

Toluene

Respiratory protection	:	When vapours are produced: respiratory protecting and filtering device with gas filter A, characteristic colour: brown (A1 up to 0.1 % vv, A2 up to 0.5 % vv, A3 up to 1 % vv) to be used. In the case of high concentrations and ambiguous situations a respiratory protecting device independent from the ambient air (breathing apparatus) to be used.
Hand protection	:	Because of the great number of influence factors (e.g. temperature, mechanical stress) the duration of use of the recommended chemical protection gloves can be shorter than the penetration time determined in accordance with EN 374. In case of possible hand contact, wear liquid-proof protective gloves. **Material: Nitrile ;** Break through time: 10 min Strength of material: 0,40 mm Test method: DIN EN 374 **Material: Viton;** Break through time: 480 min Strength of material: 0,70 mm Test method: DIN EN 374 **Material: Butyl;** Break through time: 10 min Strength of material: 0,70 mm Test method: DIN EN 374 **Material: Polychloroprene;** Break through time: 10 min Strength of material: 0,60 mm Test method: DIN EN 374
Eye protection	:	Fully protecting goggles or protecting screen if there is a danger of splashing. Otherwise protecting goggles with lateral protection.
Body protection	:	Wear permanently flame resistant and permanently antistatical and solvent resistant and tight protective clothing.

Limitations and supervision of the exposure of the environment

Toluene

Limitations and supervision of the exposure of the environment	:	Only use within closed apparatuses. If the product cannot be prevented from escaping it is to be aspirated at the escaping point as safely as possible. Emission limits to be respected, cleaning of the exhaust air to be provided (if required). Also refer to point 6 "Measures in the cases of accidental release" When transported in vessels that may break suitable outer containers are to be used.
Limitation and monitoring of environmental exposure for specific applications	:	See exposure scenarios in Appendix

8.3 Additional advice

In a concrete case and following an individual assessment of the hazards another personal protecting equipment may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information

Appearance	:	liquid
Aggregate condition	:	liquid
Colour	:	clear, bright, free of sediments
Odour	:	Product-specific, aromatic
Odour Threshold	:	No data known

Important Health Safety and Environmental Information

Characteristic	Values	Method	Note
pH			not applicable
Melting point	-95 °C	Literature value	
Temperature of ebullition	110,6 °C	ISO 3405	
Flash point	4 - 7 °C	DIN 51755	
Evaporation rate			no data available
Change of state: solid - gaseous			no data available
Lower explosion limit	1,2 %(V)	EN 1839	
Upper explosion limit	7 %(V)	EN 1839	
Vapour pressure	29 hPa at 20 °C	EN 13016-1	
Vapour density			not determined
Density	0,865 - 0,875 g/cm3 at 15 °C	EN ISO 12185	
Relative density			Standard water = 1
Water solubility	0,515 g/l at 20 °C		
Dissolubility(ies)			Hydrocarbons: completely miscible
Partition coefficient (n-octanol/water)	2,65 - 5,0		

Autoignition temperature	480 °C		
Ignition temperature	480 - 545 °C	DIN 51794	
Decomposition temperature			no data available
Viscosity, kinematic	0,68 mm2/s at 37,8 °C	ISO 3104	
Viscosity, dynamic			no data available
Explosive properties			no data available
Oxidizing properties			not determined

9.2 Other information

no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable if stored at room temperature and in observance of the rules in chapter 7

10.3 Possibility of hazardous reactions

Hazardous reactions		The formation of explosive mixtures of vapours and air is possible.

10.4 Conditions to avoid

Conditions to avoid	During storage and transport to be kept away from sources of heating, open flames, and other sources of ignition. Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid	The product reacts violently upon the contact with strong oxidants like e.g. nitric oxides, acetylen, fluorine, chlorine, hydrogen chloride, and hydrogen bromide. Violent reaction with strong oxidants like liquid chlorine or concentrated oxygen.

10.6 Hazardous decomposition products

Hazardous decomposition products : no data available:

10.7 Additional advice

Invisible vapour, heavier than air

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral effect **Toluene**	:	LD50 rat, male Dose: 5.580 mg/kg Method: equivalent or similar to EU Method B.1 (Acute toxicity (oral))
Acute inhaling effect **Toluene**	:	LC50 rat, male/female Dose: 25,7 - 30 mg/l / 4 h Method: equivalent or similar to OECD Guideline 403 (Acute inhalation toxicity)
Acute dermatological effect **Toluene**	:	LD50 rabbit, male Dose: > 5.000 mg/kg Method: Study investigated mortality in groups of 4 male rabbits exposed for 24 hours.
Acute effect (other) **Toluene**	:	no data available
Other effects **Toluene**	:	
Skin corrosion/irritation		
Skin irritation **Toluene**	:	: rabbit Classification: Irritating to skin. Method: EU Method B.4(Acute Toxicity: Dermal irritation/ corrosion)
Serious eye damage/eye irritation		
Eye irritation **Toluene**	:	rabbitClassification: not irritating Method: OECD Guideline 405 (Acute Eye Irritation /Corrosion)
Respiratory or skin sensitization		
sensitization **Toluene**	:	Skin sensitation guinea pig (Albino Himalayan, female) Classification: not sensitising Method: EU Method B.6 (Skin Sensitation)
Germ cell mutagenicity		
Genotoxicity in vitro **Toluene**	:	bacterial reverse mutation test Result: negative Method: equivalent or similar to EU Method B. 13/14 (Mutagenicity- Reverse Mutation Test Using Bacteria)

Genotoxicity in vivo **Toluene**	:	Species: rat Method: Rats were dosed with test compound on both on acute and a subchronic schedule. Remarks: negative
Toxicological Assessment Germ cell mutagenicity **Toluene**	:	Based on the available data the product is not classified as mutagenic.
Carcinogenicity		
Carcinogenic effect **Toluene**	:	No carcinogenic effect known.
Toxicological Assessment Carcinogenicity **Toluene**	:	Based on the available data the product is not classified as carcinogenic.
Toxicity to reproduction		
Reproduction toxicity/fertility **Toluene**	:	teratogene effects observed
Development toxicity/teratogenicity **Toluene**	:	teratogene effects observed
Toxicological Assessment Development toxicity/teratogenicity Teratogenicity **Toluene**	:	Based on the available data the product is not classified as toxic to reproduction. Based on the available data the product is classified as teratogenic.
Target Organ Systemic Toxicant - Single exposure		
Target Organ Systemic Toxicant - Single exposure **Toluene**	:	Remarks: Based on the available data the product is classified with respect to specific target organ toxicity - single exposure.
Target Organ Systemic Toxicant - Repeated exposure		
Effect upon repeated or longtime exposure **Toluene**	:	oralrat Exposure time: 13 w NOAEL: 625 mg/kg LOAEL: 1.250 mg/kg Method: equivalent or similar to EU Method B.26 (Subchronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
Effect upon repeated or longtime exposure **Toluene**	:	inhalationrat Exposure time: 15 w NOAEL: 2355 mg/m3 air LOAEL: 4710 mg/m3 air Method: equivalent or similar to EU Method B.26 (Subchronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
Aspiration hazard		
Aspiration toxicity **Toluene**	:	Aspiration hazard, Category 1; H304
Neurological effects		
Narcotic effect **Toluene**	:	no data available
Toxicological Assessment		

Based on the available data the product is classified with respect to specifc target organ toxicity - repeated exposure.

11.2 Additional advice

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Acute toxicity

Acute toxicity for fish	LC50
Toluene	Species: Oncorhyncus kisutch Dose: 5,5 mg/l Exposure time: 96 h Method: with analytical monitoring; based on mortality
Acute toxicity for aquatic invertebrates	LC50
Toluene	Species: Ceriodaphnia dubia Dose: 3,78 mg/l Exposure time: 48 h Method: US EPA 600/4-91-003, freshwater, daily renewal, based on mortality
Toxicity for algae and aquatic plants	static, closed EC50
Toluene	Species: Chlorella vulgaris and Chlamydomonas angulosa Dose: 134 - 207 mg/l Exposure time: 3 h Method: C14 labelled toluene
Toxicity for micro-organisms	static, closed EC50
Toluene	Species: Nitrosomonas sp. Dose: 84 mg/l Exposure time: 24 h Method: Nitrification inhibition;
Toxicity to edaphic organisms	long-term toxicity NOEC
Toluene	Species: Eisenai fetida (annelids) Dose: 150 - 280 mg/kg Exposure time: 28 d Method: no information available
	long-term toxicity NOEC
Toluene	Species: Eisenai fetida (annelids) Dose: 15 - 50 mg/kg Exposure time: 28 d Method: no information available
Toxicity for terrestrial plants	
Toluene	Species: Lactuca sativa Dose: 1000 mg/kg Method: no information available

Toxicity to other terrestrial non -mammalian organisms **Toluene**	:	no data available
M-Factor		
M-Factor **Toluene**	:	Note: no data available
Chronic toxicity		
Toxicity to fish (Chronic toxicity) **Toluene**	:	NOEC Species: juvenile Oncorhynchus kisutch Dose: 1,39 mg/l Exposure time: 40 d flow-through Method: non-standard method, with analytical monitoring
Toxicity to daphnia and other aquatic invertebrates. (Chronic toxicity) **Toluene**	:	NOEC Species: Ceriodaphnia dubia Dose: 0,74 mg/l Exposure time: 7 d reproduction Method: US EPA 600/4-91-003, freshwater, daily renewal, based on reproduction

Aquatic Acute **Toluene**	Based on the available data the product is not classified as very toxic to aquatic life.
Aquatic Chronic **Toluene**	Based on the available data the product is not classified asharmful or toxic to aquatic life with long lasting effects.
Toxicity Data on Soil **Toluene**	no data available
Other organisms relevant to the environment **Toluene**	no data available

12.2 Persistence and degradability

Persistence, Biodegradability **Toluene**	:	ready biodegradability 86 % Method: APHA method no 219

12.3 Bioaccumulative potential

Bioaccumulation **Toluene**	:	Species: Leuciscus idus melanotus Exposure time: 3 d Bioconcentration factor (BCF): 90 Method: Exposure to single concentration in closed static system. Whole body concentration., Measurement of radioactivity in the system. Bioconcentration (Partition coefficient (n-octanol/water)): 2,65 - 5,0

12.4 Mobility in soil

Mobility **Toluene**	:	Remarks: no data available
Transport between environmental compartments **Toluene**	:	Method: equivalent or similar to OECD 312
Physical-chemical eliminatability **Toluene**	:	Cannot be eliminated easily from the water.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment **Toluene**	:	The substance is not considered a PBT or vPvB.

12.6 Other adverse effects

Effects upon sewage treatment plants **Toluene**	:	No adverse effects on waste-water treatment plant known.
Other adverse effects **Toluene**	:	no information

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Information on the disposal of the product	:	Product residues are to be disposed of in accordance with the legal stipulations.
Contaminated packaging	:	If the product has been supplied within a packing the empty original containers are to be reused preferably or, if this is not possible, they are to be recycled preferably.
Disposal key according to European disposal index when using as described in chapter 1.:		
Waste from residues	:	The indicated waste code number has been allocated on the basis of the most frequent utilisations of this product.
		07 06 04* other organic solvents, liquid detergents and mother liquors
		15 01 10* packaging which contain residues of hazardous substances or which are contaminated by hazardous substances

13.2 Additional advice

The Waste Code depends on the origin of the waste and can deviate from the above data in a specific case.

Legislation on the disposal of product wastes:

Emergency ordinance no. 78/2000 on the waste management, approved by the law no. 426/2001, as further amended and completed;
Emergency ordinance no. 16/2001 on the disposal of recyclable industrial wastes, approved with changes by the Law no.465/2001, as further amended and completed;
Government decree no. 128/2002 on the incineration of wastes, modified and amended by the government decree no. 268/05;
Government decree no. 235/2007 on the disposal of waste oils;
Decree of the Ministery for Water Management and Protection of the Environment no. 756/2004 in view of the approval of the technical regula¬tions concerning the incineration of wastes;
Government Decision no. 349/2005 on the storage of wastes, as further amended and completed;
Government Decision no. 856/2002 on the documentary evidence to be submitted by the waste management companies and on the approval of the wastes lists, including the hazardous wastes, as further amended and completed;
Government act 1061/2008 for the transport of hazardous and non-hazardous goods inside Rumania.

Government act 427/2010 for the amendment and supplementation of government act 128/2002 on the incineration of waste.

Legal stipulations on packing wastes:

Government decree no. 621/2005 on the disposal of wastes and packing wastes;
Government act 1872/2006 for the amendment and supplementation of government act 621/2005 on the management of packaging and empty containers.

14. TRANSPORT INFORMATION

Road transport (ADR)

14.1	**UN no.**	:	1294
14.2	**Proper shipping name**	:	TOLUENE
14.3	**Transport hazard class**	:	3
14.4	**Packaging group**	:	II
14.5	**Environmentally hazardous**	:	no
14.6	**Special precautions for users**	:	

Further information

Number to designate the hazard	:	33
ADR/RID-Labels	:	3
Classification Code	:	F1
Tunnel restriction code	:	(D/E)
Advice	:	Danger Label No 3

Rail transport (RID)

14.1	**UN no.**	:	1294
14.2	**Proper shipping name**	:	TOLUENE
14.3	**Transport hazard class**	:	3

14.4	Packaging group	:	II
14.5	Environmentally hazardous	:	no
14.6	Special precautions for users	:	

Further information

Number to designate the hazard	:	33
ADR/RID-Labels	:	3
Classification Code	:	F1

Inland navigation with tanker barges (ADN)

14.1	UN no.	:	1294
14.2	Proper shipping name	:	TOLUENE
14.3	Transport hazard class	:	3
14.4	Packaging group	:	II
14.5	Environmentally hazardous	:	yes
14.6	Special precautions for users	:	

Further information

Advice	:	(N3)

Sea transport (IMDG)

14.1	UN no.	:	1294
14.2	Proper shipping name	:	TOLUENE
14.3	Transport hazard class	:	3
14.4	Packaging group	:	II
14.5	Environmentally hazardous	:	no
14.6	Special precautions for users	:	
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	:	

Further information

ICAO-Labels	:	3
EmS	:	F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1	UN no.	:	1294
14.2	Proper shipping name	:	TOLUENE
14.3	Transport hazard class	:	3
14.4	Packaging group	:	II
14.5	Environmentally hazardous	:	no
14.6	Special precautions for users	:	

Further information

ICAO-Labels : 3

Additional advice

in case of need further information on the transport classification can be requested from the producer.

15. REGULATORY INFORMATION

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

Community provisions on the protection of the health and the environment

Directive 1999/13/EC of March 11, 1999 on the limitation of emissions of volatile organic compounds emerging during certain activities and in certain plants when using organic solvents (VOC-Directive). :	The product is completely subject to the VOC guideline.
Regulation (EC) no. 1907/2006, Annex XVii (REACH-regulation) :	no. 48 Toluol;
	No. 3 - liquid substances or mixtures classified as dangerous by the definitions of the EEC Directive no. 67/548 and the Directive 1999/45/EC; a.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; b.Hazard classes 3.1 to 3.6, 3.7 Impairment of sexual function, fertility and development, 3.8 excluding narcotic effects, 3.9 and 3.10; c.Hazard class 4.1; d.Hazard class 5.1.)
	No. 28: Materials in Appendix VI Part 3 of Regulation (EC) No. 1272/2008, classified as carcinogenic in Category 1A or 1B (Table 3.1) or as carcinogenic in Category 1 or 2 (Table 3.2) and listed as follows: •Carcinogenic in Category 1A (Table 3.1) / Carcinogenic in Category 1 (Table 3.2), listed in Appendix 1 •Carcinogenic in Category 1B (Table 3.1) / Carcinogenic in Category 2 (Table 3.2), listed in Appendix 2
	No. 29: Materials in Appendix VI Part 3 of Regulation (EC) No. 1272/2008, classified as mutagenic in Category 1A or 1B (Table 3.1) or as mutagenic in Category 1 or 2 (Table 3.2) and listed as follows: •Mutagenic in Category 1A (Table 3.1) / Mutagenic in Category 1 (Table 3.2), listed in Appendix 3 •Mutagenic in Category 1B (Table 3.1) / Mutagenic in Category 2 (Table 3.2), listed in Appendix 4
	No.40: Substances, which are classified as flammable gases category 1 or 2, flammable liquids category 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures evolving flammable gases category 1, 2 or 3 when in contact with water, self-igniting (pyrophoric) liquids category 1 or self-igniting (pyrophoric) solids category 1 independent if they are listed in Annex VI part 3 of the regulation.
Directive 96/82/EC of the Council dated 9 December 1996 on control of hazards in event of serious accidents with hazardous materials (Seveso ii Directive) :	Categories as per Appendix I Part 2: - 2. toxic -7b. Highly flammable liquids

Other regulations:

Government Decision no. 735/2006 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products, as further amended and completed.
Government Decision 937/2010 on the classification, packing, and labelling of dangerous preparations when placed on the market;
Government decisions nos. 347/2003, 932/2004, 646/2005, and 498/2007 on the restrictions on the marketing and utilisation of a number of dangerous chemical substances and preparations;
Regulation (CE) 1272/2008 on the classification, labelling and packaging of substances and mixtures, the amendment and repeal of guidelines 67/548/CEE and 1999/45/CE, as well as amendment of legal requirement (CE) 1907/2006.
Regulation (CE) 790/2009 on the amendment of legal requirement (CE) 1272/2008 of the European Parliament and the Council on the classification, labelling and packaging of substances and mixtures, for the purposes of its adaptation to technical and scientific progress.
Law no. 360/2003 on the handling of dangerous chemical substances and preparations;
Law no. 263/2005 on the modifications and amendments relating to the law no. 360/2003 on the handling of dangerous chemical substances and preparations;
Government decision no. 1093/2003 for determining the minimum requirements to the safety and health of the workforce in view of preventing the risks of an exposure to carcinogenic or mutagenic substances at the workplace;
Directive (EC) no. 1907/2006 - REACH
Government decision no. 882/2007 determining authorities in charge of the implementation of the Directive (EC) no. 1907/2006 - REACH
Government decision no. 1408/2008 on the classification, packing, and labelling of dangerous substances;
Regulation 552/2009 for the amendment of Annex XVII of legal requirement (CE) 1907/2006 - REACH on "the demarcation regarding the production, market introduction and use of specific materials, mixtures and hazardous goods"
Government act 371/2010 for the amendment and supplementation of government act 699/2003 for the fixing of measures for the reduction of the emission of volatile organic compounds based on the use of organic solutions in certain activities and plants.
Legal requirement (CE) 1336/2008 for the amendment of legal requirement (CE) 648/2004 for the purpose of adaptation of legal requirement (CE) 1272/2008 on the classification, labelling and packaging of materials and mixtures.
Government act 477/2009 on the fixing of punitive measures in the event of contravention of the rules of requirement (CE) 1.907/2006 of the European Parliament and Council on the registration, evaluation, approval and demarcation of chemical materials (REACH), for the founding of the European chemicals agency, the amendment of guideline 1999/45/CE and the repeal of legal requirement (CEE) 793/93 of the council and legal requirement (CE) 1.488/94 of the commission, as well as guideline 76/769/CEE of the council and guidelines 91/155/CEE, 93/67/CEE, 93/105/CE and 2000/21/CE of the commission.
Government act 398 /2010 on the fixing of measures for the adherence to the rules of legal requirement (CE) 1.272/2008 of the European Parliament and Council dated 16 December 2008 on the classification, labelling and packaging of materials and mixtures, the amendment and repeal of guidelines 67/548/CEE and 1.999/45/CE, as well as amendment of legal requirement (CE) 1.907/2006.
LEGAL REQUIREMENT (EU) 453/2010 OF THE COMMISSION dated 20 May 2020 for the amendment of legal requirement (CE) 1907/2006 of the European Parliament and Council and the Council on the registration, evaluation, approval and demarcation of chemicals (REACH)
Exposure limits at the workplace as per the law no. 319/2006 on the safety and health at work and government decision no. 1218/2006 on the determination of the minimum requirements to the safety and health of the workforce in view of preventing risks caused by chemical substances - Annex 1;
Government Decision no.804/2007 on the control of major accident hazards involving dangerous substances, as further amended and completed.

15.2 Chemical Safety Assessment

Relevant exposure scenarios see annex.

16. OTHER INFORMATION

Text of R-phrases referred to under headings 2 and 3

R11	Highly flammable.
R38	Irritating to skin.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R63	Possible risk of harm to the unborn child.
R65	Harmful: may cause lung damage if swallowed.
R67	Vapours may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3

Flam. Liq.:	Flammable liquids
Skin Irrit.:	Skin corrosion/irritation
Asp. Tox.:	Aspiration hazard
Repr.:	Reproductive toxicity
STOT SE:	Specific target organ toxicity single
STOT RE:	Specific target organ toxicity repeated

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.
H361	Suspected of damaging fertility or the unborn child. Specific effect: suspected of damaging the unborn child.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Additional advice

This document has been created with the EH&S programme and replaces the similar document valid for this product before the date of the current edition; next revisions will be numbered consecutively, starting with the current edition.
Markings (|) in the left border indicate changes in the previous main version.
The above data are in accordance with our knowledge and experience at the given date of revision and exclusively refer to the product in its as-delivered condition as it is unambiguously identifiable by the product number. In the case of usages deviating from those given in point 1 or when the product is mixed with other materials or is altered in the course of a production process, the statements given in the material safety data sheet may not apply without restrictions or even not at all any more. The data are not applicable to other products of the same or a similar designation.

Annex

The exposure scenarios for the most frequent applications are listed below.

1. Brief title of the Exposure Scenario: Manufacture of Toluene;CAS RN108-88-3

Main User Groups	:	**SU3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU8:** Manufacture of bulk, large scale chemicals (including petroleum products) **SU9:** Manufacture of fine chemicals
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC1:** Manufacture of substances
Further information	:	Specific Environmental Release Category ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	:	Manufacture of Substance A or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container.

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Amount used

EU tonnage (ktonnes/year)	3.000,000000
Regional tonnage (ktonnes/year)	300,000000
Site use (ktonnes/year)	300,000000
Msafe (maximum allowable site tonnage)	4,070000 10E6 kg/d
Remarks	After RMM

Frequency and duration of use

Continuous exposure	300,0 Emission days (days/year), Risk-driving Compartment - Sewage Treatment Plant

Environment factors not influenced by risk management

Dilution Factor (River)	40,00
Dilution Factor (Coastal Areas)	100,00
Other information	Fraction of main local source: 1,000000

Other given operational conditions affecting environmental exposure

Number of emission days per year		300,00
Emission or Release Factor: Air		0,500 %
Emission or Release Factor: Water		0,010 %
Emission or Release Factor: Soil		0,010 %
Remarks		All release factors refer to initial release prior to RMM. Release to water is release to wastewater
Initial release percent at site to water (be-	:	0,300000 %

fore RMM)		
Typical release to water after RMM		0,085200 mg/l

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): 90,0 %
water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency (%): 93,3 %

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000,000000 m3/d
All release factors refer to initial release from process prior to RMM.	:	93,3 %
Sludge Treatment	:	Do not apply industrial sludge to natural soils.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	During manufacturing no waste of the substance is generated.

Conditions and measures related to external recovery of waste

Recovery Methods	During manufacturing no waste of the substance is generated.

2.2 Contributing scenario controlling worker exposure for:

PROC1 : **Use in closed process, no likelihood of exposure**

PROC2 : **Use in closed, continuous process with occasional controlled exposure**

PROC3 : **Use in closed batch process (synthesis or formulation)**

PROC4 : **Use in batch and other process (synthesis) where opportunity for exposure arises**

PROC8a : **Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities**

PROC8b : **Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**

PROC15 : **Use as laboratory reagent**

Product characteristics

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently)
Physical Form (at time of use)	Liquid
Vapour pressure	0,5 - 10 kPa
Remarks	Assumes a good basic standard of occupational hygiene is implemented, Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently)	:	8 h

Technical conditions and measures

CS15 General exposures (closed systems).
CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.
No specific measures identified.
CS2 Process sampling
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
CS14 Bulk transfers. CS108 Open systems. CS138 With potential for aerosol generation.
CS14 Bulk transfers. CS107 Closed systems.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Operate activity away from sources of substance emission or release
CS39 Equipment cleaning and maintenance.
Drain down system prior to equipment break-in or maintenance.

Organisational measures to prevent /limit releases, dispersion and exposure
CS15 General exposures (closed systems).
CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.
No specific measures identified.
CS14 Bulk transfers. CS107 Closed systems.

Conditions and measures related to personal protection, hygiene and health evaluation
CS15 General exposures (closed systems).
CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.
No specific measures identified.
CS2 Process sampling
Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.
CS14 Bulk transfers. CS108 Open systems. CS138 With potential for aerosol generation.
CS14 Bulk transfers. CS107 Closed systems.
alternatively If technical measures not practical: Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

3. Exposure estimation and reference to its source

EUSES 2.1.1

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

1. Brief title of the Exposure Scenario: Distribution of Toluene;CAS RN108-88-3

Main User Groups	**SU3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	**SU8:** Manufacture of bulk, large scale chemicals (including petroleum products) **SU9:** Manufacture of fine chemicals
Process category	**PROCI:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation)

	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC15:** Use as laboratory reagent
Environmental release category	**ERC1:** Manufacture of substances
Further information	Specific Environmental Release Category ESVOC SpERC 1.1b.v1 Exposure scenario is also applicable for
Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Amount used

EU tonnage (ktonnes/year)	3.000,000000
Regional tonnage (ktonnes/year)	300,000000
Site use (ktonnes/year)	300,000000
Msafe (maximum allowable site tonnage)	13,600000 10E6 kg/d
Remarks	After RMM

Frequency and duration of use

Continuous exposure	300,0 Emission days (days/year), Risk-driving Compartment - Soil

Environment factors not influenced by risk management

Dilution Factor (River)	10,00
Dilution Factor (Coastal Areas)	100,00
Other information	Fraction of main local source: 1,000000

Other given operational conditions affecting environmental exposure

Number of emission days per year	300,00
Emission or Release Factor: Air	0,010 %
Emission or Release Factor: Water	0,001 %
Emission or Release Factor: Soil	0,001 %
Remarks	All release factors refer to initial release prior to RMM. Release to water is release to wastewater
Initial release percent at site to water (before RMM)	0,001000 %
Typical release to water after RMM	0,034900 mg/l

Technical conditions and measures / Organizational measures

Air	Treat air emission to provide a typical removal efficiency of (%): 90,0 %
water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency (%): 93,3 %

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000,000000 m3/d
All release factors refer to initial release from process prior to RMM.	:	93,3 %
Sludge Treatment	:	Do not apply industrial sludge to natural soils.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods		External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for:

PROCI : **Use in closed process, no likelihood of exposure**

PROC2 : **Use in closed, continuous process with occasional controlled exposure**

PROC3 : **Use in closed batch process (synthesis or formulation)**

PROC4 : **Use in batch and other process (synthesis) where opportunity for exposure arises**

PROC8a : **Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities**

PROC8b : **Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**

PROC9 : **Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**

PROC15 : **Use as laboratory reagent**

Product characteristics

Concentration of the Substance in Mix¬ture/Article	Covers percentage substance in the product up to 100 % (unless stated differently)
Physical Form (at time of use)	Liquid
Vapour pressure	0,5 - 10 kPa
Remarks	Assumes a good basic standard of occupational hygiene is implemented, Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently)	:	8 h

Technical conditions and measures

CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure.
CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems).
CS55 Batch process. CS56 With sample collection., CS2 Process sampling, CS36 Laboratory activities, CS14 Bulk transfers.
CS107 Closed systems.
No specific measures identified.
CS14 Bulk transfers. CS108 Open systems.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Operate activity away from sources of sub¬stance emission or release
CS6 Drum and small package filling
CS39 Equipment cleaning and maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
CS67 Storage. CS137 With occasional controlled exposure.
Drain down and flush system prior to equipment break-in or maintenance.

Organisational measures to prevent /limit releases, dispersion and exposure

CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure.
CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems).
CS55 Batch process. CS56 With sample collection., CS2 Process sampling, CS36 Laboratory activities, CS14 Bulk transfers.
CS107 Closed systems.
No specific measures identified.
CS39 Equipment cleaning and maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation

CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure.
CS15 General exposures (closed systems). CS37 Use in contained batch processes., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection., CS2 Process sampling, CS36 Laboratory activities, CS14 Bulk transfers. CS107 Closed systems.
No specific measures identified.
CS14 Bulk transfers. CS108 Open systems.
alternatively If technical measures not practical: Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.
CS6 Drum and small package filling
CS39 Equipment cleaning and maintenance.
or Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

3. Exposure estimation and reference to its source

EUSES 2.1.1

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

1. Brief title of the Exposure Scenario: Formulation of Toluene;CAS RN108-88-3

Main User Groups	**SU3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	**SU10:** Formulation [mixing] of preparations and/or repackaging (excluding alloys)
Process category	**PROCI:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC14:** Production of preparations or articles by tabletting, compression, extrusion, pelletisation **PROC15:** Use as laboratory reagent
Environmental release category	**ERC2:** Formulation of preparations
Further information	Specific Environmental Release Category ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, maintenance and associated laboratory activities

2.1 Contributing scenario controlling environmental exposure for: ERC2: Formulation of preparations

Amount used

EU tonnage (ktonnes/year)	150,000000
Regional tonnage (ktonnes/year)	15,000000
Substance use (ktonnes/year)	15,000000
Msafe (maximum allowable site tonnage)	67.800,000000 kg/d
Remarks	After RMM

Frequency and duration of use

Continuous exposure	300,0 Emission days (days/year), Risk-driving Compartment - Soil

Environment factors not influenced by risk management

Dilution Factor (River)	10,00
Dilution Factor (Coastal Areas)	100,00
Other information	Fraction of main local source: 1,000000

Other given operational conditions affecting environmental exposure

Number of emission days per year	300,00
Emission or Release Factor: Air	2,500 %
Emission or Release Factor: Water	0,200 %
Emission or Release Factor: Soil	0,010 %
Remarks	All release factors refer to initial release prior to RMM. Release to water is release to wastewater
Initial release percent at site to water (before RMM)	: 0,200000 %
Typical release to water after RMM	: 0,336000 mg/l

Technical conditions and measures / Organizational measures

Air	: Treat air emission to provide a typical removal efficiency of (%): 0 %
water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency (%): 93,3 %

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	: 2.000,000000 m3/d
All release factors refer to initial release from process prior to RMM.	: 93,3 %
Sludge Treatment	: Do not apply industrial sludge to natural soils.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for:

PROC1 : **Use in closed process, no likelihood of exposure**

PROC2 : **Use in closed, continuous process with occasional controlled exposure**

PROC3 : **Use in closed batch process (synthesis or formulation)**

PROC4 : **Use in batch and other process (synthesis) where opportunity for exposure arises**

PROC5 : **Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)**

PROC8a : **Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities**

PROC8b	**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**
PROC9	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**
PROC14	**Production of preparations or articles by tabletting, compression, extrusion, pelletisation**
PROC15	**Use as laboratory reagent**

Product characteristics

Concentration of the Substance in Mix¬ ture/Article	Covers percentage substance in the product up to 100 % (unless stated differently)
Physical Form (at time of use)	Liquid
Vapour pressure	0,5 - 10 kPa
Remarks	Assumes a good basic standard of occupational hygiene is implemented, Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently) : 8 h

Technical conditions and measures

CS15 General exposures (closed systems).

CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS137 With occasional controlled exposure., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection. CS138 With potential for aerosol generation., CS2 Process sampling, CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS136 Batch processes at elevated temperatures.

Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur.

CS14 Bulk Transfers.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Operate activity away from sources of sub¬ stance emission or release

CS30 Mixing operations (open systems). CS138 With potential for aerosol generation.

CS34 Manual + CS22 Transfer from/pouring from containers, CS8 Drum/batch transfers, CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation., CS6 Drum and small package filling

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

CS39 Equipment cleaning and maintenance.

Drain down and flush system prior to equipment break-in or maintenance.

Organisational measures to prevent /limit releases, dispersion and exposure

CS15 General exposures (closed systems).

CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS137 With occasional controlled exposure., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection. CS138 With potential for aerosol generation., CS2 Process sampling, CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS34 Manual + CS22 Transfer from/pouring from containers, CS8 Drum/batch transfers, CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation., CS6 Drum and small package filling

Conditions and measures related to personal protection, hygiene and health evaluation

CS15 General exposures (closed systems).
CS15 General exposures (closed systems). CS56 With sample collection. CS137 With occasional controlled exposure., CS15 General exposures (closed systems). CS137 With occasional controlled exposure., CS16 General exposures (open systems). CS55 Batch process. CS56 With sample collection. CS138 With potential for aerosol generation., CS2 Process sampling, CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.
No specific measures identified.
CS14 Bulk Transfers.
alternatively If technical measures not practical: Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.
CS34 Manual + CS22 Transfer from/pouring from containers, CS8 Drum/batch transfers, CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation., CS6 Drum and small package filling

3. Exposure estimation and reference to its source

EUSES 2.1.1

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

1. Brief title of the Exposure Scenario: Use in cleaning agents of Toluene;CAS RN108-88-3

Main User Groups	**SU3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	**SU10:** Formulation [mixing] of preparations and/or repackaging (excluding alloys)
Process category	**PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to ves¬sels/large containers at nondedicated facilities **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to ves¬sels/large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles
Further information	Specific Environmental Release Category ESVOC SpERC 4.4a.v1
Processes, tasks, activities covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

2.1 Contributing scenario controlling environmental exposure for:
ERC4: Industrial use of processing aids in processes and products, not becoming part of an ticles

Amount used

EU tonnage (ktonnes/year)	15,000000

Regional tonnage (ktonnes/year)	1,500000
Site use (ktonnes/year)	1,500000
Msafe (maximum allowable site tonnage)	1,770000 10E6 kg/d
Remarks	After RMM

Frequency and duration of use

Continuous exposure	300,0 Emission days (days/year), Risk-driving Compartment - Freshwater

Environment factors not influenced by risk management

Dilution Factor (River)	:	10,00
Dilution Factor (Coastal Areas)	:	100,00
Other information	:	Fraction of main local source: 0,002000

Other given operational conditions affecting environmental exposure

Number of emission days per year		300,00
Emission or Release Factor: Air		30,000 %
Emission or Release Factor: Water		0,003 %
Remarks		All release factors refer to initial release prior to RMM. Release to water is release to wastewater
Initial release percent at site to water (before RMM)	:	0,003000 %
Typical release to water after RMM	:	0,001920 mg/l

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): 70,0 %
water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency (%): 93,3 %
Remarks	:	Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000,000000 m3/d
All release factors refer to initial release from process prior to RMM.	:	93,3 %
Sludge Treatment	:	Do not apply industrial sludge to natural soils.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for:

PROC2	**Use in closed, continuous process with occasional controlled exposure**
PROC3	**Use in closed batch process (synthesis or formulation)**
PROC4	**Use in batch and other process (synthesis) where opportunity for exposure arises**
PROC7	**Industrial spraying**
PROC8a	**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities**
PROC8b	**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**
PROC10	**Roller application or brushing**
PROC13	**Treatment of articles by dipping and pouring**

Product characteristics

Concentration of the Substance in Mix¬ture/Article	Covers percentage substance in the product up to 100 % (unless stated differently)
Physical Form (at time of use)	Liquid
Vapour pressure	0,5 - 10 kPa
Remarks	Assumes a good basic standard of occupational hygiene is implemented, Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently)	: 8 h

Technical conditions and measures

CS14 Bulk Transfers.

CS41 Degreasing small objects in cleaning station., CS42 Cleaning with low-pressure washers., CS34 Manual, CS47 Cleaning, CS48 Surfaces, CS60 No spraying

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems.

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems. CS8 drum / batch transfers., CS101 Application of cleaning products in closed systems., CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS45 Filling / preparation of equipment (from drums or containers). CS81 Dedicated facilities.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

CS37 Use in contained batch processes. OC129 Treatment by heating.

Provide extract ventilation to points where emissions occur.

CS44 Cleaning with high pressure washers

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Limit the substance content in the product to 5%.

CS39 Equipment cleaning and maintenance.

Drain down system prior to equipment break-in or maintenance.

Organisational measures to prevent /limit releases, dispersion and exposure

CS41 Degreasing small objects in cleaning station., CS42 Cleaning with low-pressure washers., CS34 Manual, CS47 Cleaning, CS48 Surfaces, CS60 No spraying

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems.

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems. CS8 drum / batch transfers., CS101 Application of cleaning products in closed systems., CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

Conditions and measures related to personal protection, hygiene and health evaluation

CS41 Degreasing small objects in cleaning station., CS42 Cleaning with low-pressure washers., CS34 Manual, CS47 Cleaning, CS48 Surfaces, CS60 No spraying

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems.

CS38 Use in contained systems. CS93 Automated process with (semi) closed systems. CS8 drum / batch transfers., CS101 Application of cleaning products in closed systems., CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS45 Filling / preparation of equipment (from drums or containers). CS81 Dedicated facilities.

or If technical measures not practical: Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.

3. Exposure estimation and reference to its source

EUSES 2.1.1

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

1. Brief title of the Exposure Scenario: Use in coatings of Toluene;CAS RN108-88-3

Main User Groups		**SU3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use		**SU10:** Formulation [mixing] of preparations and/or repackaging (excluding alloys)
Process category	:	**PROC1** Use in closed process, no likelihood of exposure **PROC2** Use in closed, continuous process with occasional controlled exposure **PROC3** Use in closed batch process (synthesis or formulation) **PROC4** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of preparations and arti¬cles (multistage and/or significant contact) **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to ves¬sels/large containers at nondedicated facilities **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to ves¬sels/large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles
Further information		Specific Environmental Release Category ESVOC SpERC 4.3a.v1
Processes, tasks, activities covered		Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC4: Industrial use of processing aids in processes and products, not becoming part of an ticles

Amount used

EU tonnage (ktonnes/year)	45,000000
Regional tonnage (ktonnes/year)	4,500000
Site use (ktonnes/year)	4,500000
Msafe (maximum allowable site tonnage)	19.900,000000 kg/d
Remarks	After RMM

Frequency and duration of use

Continuous exposure	300,0 Emission days (days/year), Risk-driving Compartment - Soil

Environment factors not influenced by risk management

Dilution Factor (River)	10,00
Dilution Factor (Coastal Areas)	100,00
Other information	Fraction of main local source: 1,000000

Other given operational conditions affecting environmental exposure

Number of emission days per year	300,00
Emission or Release Factor: Air	98,000 %
Emission or Release Factor: Water	0,700 %
Remarks	All release factors refer to initial release prior to RMM. Release to water is release to

		wastewater
Initial release percent at site to water (be¬ fore RMM)		0,700000 %
Typical release to water after RMM		0,344000 mg/l

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): 90,0 %
water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required re¬ moval efficiency (%): 93,3 %
Remarks	:	Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures related to municipal sewage treatment plant

Flow rate of sewage treatment plant effluent	:	2.000,000000 m3/d
All release factors refer to initial release from process prior to RMM.	:	93,3 %
Sludge Treatment	:	Do not apply industrial sludge to natural soils.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for:

PROC1	**Use in closed process, no likelihood of exposure**
PROC2	**Use in closed, continuous process with occasional controlled exposure**
PROC3	**Use in closed batch process (synthesis or formulation)**
PROC4	**Use in batch and other process (synthesis) where opportunity for exposure arises**
PROC5	**Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)**
PROC7	**Industrial spraying**
PROC8a	**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities**
PROC8b	**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**
PROC9	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**
PROC10	**Roller application or brushing**
PROC13	**Treatment of articles by dipping and pouring**
PROC15	**Use as laboratory reagent**

Product characteristics

Concentration of the Substance in Mix¬ ture/Article	Covers percentage substance in the product up to 100 % (unless stated differently)
Physical Form (at time of use)	Liquid
Vapour pressure	0,5 - 10 kPa
Remarks	Assumes a good basic standard of occupational hygiene is implemented, Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently)	:	8 h

Technical conditions and measures

CS15 General exposures (closed systems).

CS15 General exposures (closed systems). CS56 With sample collection. CS38 Use in contained systems., CS94 Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing., CS29 Mixing operations (closed systems). CS15 General exposures (closed systems)., CS95 Film formation - air drying., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS96. Preparation of material for application. CS30. Mixing operations (open systems).

CS3 Material transfers, CS82 Non-Dedicated facility, CS3 Material transfers, CS81 Dedicated facility, CS98 Roller, spreader, flow application, CS4 Dipping, immersion and pouring, CS3 Material transfers. CS8 Drum/batch transfers. CS22 Transfer from/pouring from containers., CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

CS97 Spraying (automatic/robotic)

Carry out in a vented booth or extracted enclosure

CS34 Manual. CS10 Spraying.

Carry out in a vented booth or extracted enclosure Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

CS39 Equipment cleaning and maintenance.

Drain down system prior to equipment break-in or maintenance.

Organisational measures to prevent /limit releases, dispersion and exposure

CS15 General exposures (closed systems).

CS15 General exposures (closed systems). CS56 With sample collection. CS38 Use in contained systems., CS94 Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing., CS29 Mixing operations (closed systems). CS15 General exposures (closed systems)., CS95 Film formation - air drying., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS3 Material transfers, CS82 Non-Dedicated facility, CS3 Material transfers, CS81 Dedicated facility, CS98 Roller, spreader, flow application, CS4 Dipping, immersion and pouring, CS3 Material transfers. CS8 Drum/batch transfers. CS22 Transfer from/pouring from containers., CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation.

Conditions and measures related to personal protection, hygiene and health evaluation

CS15 General exposures (closed systems).

CS15 General exposures (closed systems). CS56 With sample collection. CS38 Use in contained systems., CS94 Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing., CS29 Mixing operations (closed systems). CS15 General exposures (closed systems)., CS95 Film formation - air drying., CS36 Laboratory activities, CS67 Storage. CS137 With occasional controlled exposure.

No specific measures identified.

CS3 Material transfers, CS82 Non-Dedicated facility, CS3 Material transfers, CS81 Dedicated facility, CS98 Roller, spreader, flow application, CS4 Dipping, immersion and pouring, CS3 Material transfers. CS8 Drum/batch transfers. CS22 Transfer from/pouring from containers., CS100 Production or preparation or articles by tabletting, compression, extrusion or pelletisation.

CS34 Manual. CS10 Spraying.

Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation and reference to its source

EUSES 2.1.1

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario