SAFETY DATA SHEET

Creation Date Oct-2013 **Revision Date** Oct-2018 **Revision Number** 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description:	**Toluene**
Product Grade:	SQ, ER, HPLC
Cat No. :	Q32507, Q35257, Q3525C, Q32505, Q3250T, Q35205, Q 35206, Q35207, Q3520C, Q35255, Q3525H, Q43976
Synonyms	Tol; Methylbenzene
CAS-No	108-88-3
EC-No.	203-625-9
Molecular Formula	C7 H8
Reach Registration Number	01-2119471310-51

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	Thermo Fisher Scientific India Pvt. Ltd 403-404, B-wing, Delphi, Hiranandani Business Park, Powai, Mumbai 400076, INDIA.
E-mail address	laboratorysolutions@thermofisher.com

1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30
Chemtrec US: (800)424-9300
Chemtrec EU: 001(202)483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 2 (H225)

Health hazards

Aspiration Toxicity	Category 1 (H304)
Skin Corrosion/irritation	Category 2 (H315)
Reproductive Toxicity	Category 2 (H361d)
Specific target organ toxicity - (single exposure)	Category 3 (H336)
Specific target organ toxicity - (repeated exposure)	Category 2 (H373)

Environmental hazards

Based on available data, the classification criteria are not met

2.2. Label elements

Signal Word **Danger**

Hazard Statements

H225 - Highly flammable liquid and vapor
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

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
P331 - Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

2.3. Other hazards

Substance is not considered to be persistent, bioaccumulative and toxic (PBT) Substance is not considered to be very persistent and very bioaccumulative (vPvB)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Toluene	108-88-3	EEC No. 203-625-9	>95	Flam. Liq. 2 (H225) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Repr. 2 (H361d) STOT RE 2 (H373)

Reach Registration Number	01-2119471310-51

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.
Inhalation	Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

. Causes central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician Treat symptomatically. Smallest quantities reaching the lungs through swallowing or subsequent vomiting may result in lung edema or pneumonia. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons
Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Toluene	TWA: 50 ppm 8 hr TWA: 192 mg/m³ 8 hr STEL: 100 ppm 15 min STEL: 384 mg/m³ 15 min Skin	STEL: 100 ppm 15 min STEL: 384 mg/m³ 15 min TWA: 50 ppm 8 hr TWA: 191 mg/m³ 8 hr Skin	TWA / VME: 20 ppm (8 heures). restrictive limit TWA / VME: 76.8 mg/m³ (8 heures). restrictive limit TWA / VME: 1000 mg/m³ (8 heures). STEL / VLCT: 100 ppm. restrictive limit STEL / VLCT: 384 mg/m³. restrictive limit STEL / VLCT: 1500 mg/m³. Peau	TWA: 20 ppm 8 uren TWA: 77 mg/m³ 8 uren STEL: 100 ppm 15 minuten STEL: 384 mg/m³ 15 minuten Huid	STEL / VLA-EC: 100 ppm (15 minutos). STEL / VLA-EC: 384 mg/m³ (15 minutos). TWA / VLA-ED: 50 ppm (8 horas) TWA / VLA-ED: 192 mg/m³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland

Toluene	TWA: 50 ppm 8 ore. Media Ponderata nel Tempo TWA: 192 mg/m³ 8 ore. Media Ponderata nel Tempo Pelle	TWA: 50 ppm (8 Stunden). AGW - exposure factor 4 TWA: 190 mg/m³ (8 Stunden). AGW - exposure factor 4 TWA: 50 ppm (8 Stunden). MAK TWA: 190 mg/m³ (8 Stunden). MAK Höhepunkt: 200 ppm Höhepunkt: 760 mg/m³ Haut	STEL: 100 ppm 15 minutos STEL: 384 mg/m³ 15 minutos TWA: 50 ppm 8 horas TWA: 192 mg/m³ 8 horas Pele	STEL: 384 mg/m³ 15 minuten TWA: 150 mg/m³ 8 uren	TWA: 25 ppm 8 tunteina TWA: 81 mg/m³ 8 tunteina STEL: 100 ppm 15 minuutteina STEL: 380 mg/m³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Toluene	Haut MAK-KZW: 100 ppm 15 Minuten MAK-KZW: 380 mg/m³ 15 Minuten MAK-TMW: 50 ppm 8 Stunden MAK-TMW: 190 mg/m³ 8 Stunden	TWA: 25 ppm 8 timer TWA: 94 mg/m³ 8 timer Hud	Haut/Peau STEL: 200 ppm 15 Minuten STEL: 760 mg/m³ 15 Minuten TWA: 50 ppm 8 Stunden TWA: 190 mg/m³ 8 Stunden	STEL: 200 mg/m³ 15 minutach TWA: 100 mg/m³ 8 godzinach	TWA: 25 ppm 8 timer TWA: 94 mg/m³ 8 timer STEL: 25 ppm 15 minutter. STEL: 94 mg/m³ 15 minutter. Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Toluene	TWA: 50 ppm TWA: 192.0 mg/m³ STEL : 100 ppm STEL : 384.0 mg/m³ Skin notation	kože TWA-GVI: 50 ppm 8 satima. TWA-GVI: 192 mg/m³ 8 satima. STEL-KGVI: 100 ppm 15 minutama. STEL-KGVI: 384 mg/m³ 15 minutama.	TWA: 50 ppm 8 hr. TWA: 192 mg/m³ 8 hr. STEL: 384 mg/m³ 15 min STEL: 100 ppm 15 min Skin	Skin-potential for cutaneous absorption STEL: 100 ppm STEL: 384 mg/m³ TWA: 50 ppm TWA: 192 mg/m³	TWA: 200 mg/m³ 8 hodinách. Potential for cutaneous absorption Ceiling: 500 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Toluene	Nahk TWA: 50 ppm 8 tundides. TWA: 192 mg/m³ 8 tundides. STEL: 100 ppm 15 minutites. STEL: 384 mg/m³ 15 minutites.	Skin notation TWA: 50 ppm 8 hr TWA: 192 mg/m³ 8 hr STEL: 100 ppm 15 min STEL: 384 mg/m³ 15 min	skin - potential for cutaneous absorption STEL: 100 ppm STEL: 384 mg/m³ TWA: 50 ppm TWA: 192 mg/m³	STEL: 380 mg/m³ 15 percekben. CK TWA: 190 mg/m³ 8 órában. AK lehetséges borön keresztüli felszívódás	STEL: 50 ppm STEL: 188 mg/m³ TWA: 25 ppm 8 klukkustundum. TWA: 94 mg/m³ 8 klukkustundum. Skin notation Ceiling: 50 ppm Ceiling: 188 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Toluene	skin - potential for cutaneous exposure STEL: 40 ppm STEL: 150 mg/m³ TWA: 14 ppm TWA: 50 mg/m³	TWA: 50 ppm IPRD TWA: 192 mg/m³ IPRD Oda STEL: 100 ppm STEL: 384 mg/m³	Possibility of significant uptake through the skin TWA: 50 ppm 8 Stunden TWA: 192 mg/m³ 8 Stunden STEL: 100 ppm 15 Minuten STEL: 384 mg/m³ 15 Minuten	possibility of significant uptake through the skin TWA: 50 ppm TWA: 192 mg/m³ STEL: 100 ppm 15 minuti STEL: 384 mg/m³ 15 minuti	Skin notation TWA: 50 ppm 8 ore TWA: 192 mg/m³ 8 ore STEL: 100 ppm 15 minute STEL: 384 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Toluene	TWA: 50 mg/m³ STEL: 150 mg/m³ vapor	Ceiling: 384 mg/m³ Potential for cutaneous absorption TWA: 50 ppm TWA: 192 mg/m³	TWA: 50 ppm 8 urah TWA: 192 mg/m³ 8 urah Koža STEL: 100 ppm 15 minutah STEL: 384 mg/m³ 15 minutah	STV: 100 ppm 15 minuter STV: 384 mg/m³ 15 minuter LLV: 50 ppm 8 timmar. LLV: 192 mg/m³ 8 timmar. Hud	Deri TWA: 50 ppm 8 saat TWA: 192 mg/m³ 8 saat STEL: 100 ppm 15 dakika STEL: 384 mg/m³ 15 dakika

Biological limit values
List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Toluene			Toluene: 1 mg/L venous blood end of shift Hippuric acid: 2500 mg/g creatinine urine end of shift	o-Cresol: 0.5 mg/L urine end of shift Hippuric acid: 1.6 g/g Creatinine urine end of shift Toluene: 0.05 mg/L blood start of last shift of workweek	Toluene: 600 µg/L whole blood (end of shift) o-Cresol: 1.5 mg/L urine (end of several shifts after hydrolysis;for long-term exposures)

Component	Italy	Finland	Denmark	Bulgaria	Romania
Toluene		Toluene concentrated: 500 nmol/L blood prior to shift.		Hippuric acid: 1.6 mmol/mmol Creatinine urine at the end of exposure or end of shift	Hippuric acid: 2 g/L urine end of shift o-Cresol: 3 mg/L urine end of shift

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Toluene		Hippuric acid: 1.6 g/g Creatinine urine end of shift Toluene: 0.05 mg/L blood end of shift	Toluene: 600 µg/L blood end of exposure or work shift o-Cresol: 1.5 mg/L urine after all work shifts for long-term exposure o-Cresol: 1.5 mg/L urine end of exposure or work shift Hippuric acid: 1600 mg/g creatinine end of exposure or work shift		

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				8.13 mg/kg bw/day
Dermal				384 mg/kg bw/day
Inhalation	384 mg/m³	384 mg/m³	192 mg/m³	192 mg/m³

Predicted No Effect Concentration (PNEC) See values below.

Fresh water	0.68 mg/l
Fresh water sediment	16.39 mg/kg dw
Marine water	0.68 mg/l
Marine water sediment	16.39 mg/kg dw
Water Intermittent	0.68 mg/l
Microorganisms in sewage treatment	13.61 mg/l
Soil (Agriculture)	2.89 mg/kg dw

8.2. Exposure controls

Engineering Measures
Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof

electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Safety glasses with side-shields (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	< 240 minutes	0.30 mm	Level 4 EN 374	Permeation rate 68 µg/cm2/min As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Viton (R)	> 480 minutes	0.70 mm		

Skin and body protection Long sleeved clothing

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	aromatic	
Odor Threshold	1.74 ppm	
pH	Not applicable	
Melting Point/Range	-95 °C / -139 °F	
Softening Point	No data available	
Boiling Point/Range	111 °C / 231.8 °F	@ 760 mmHg
Flash Point	4 °C / 39.2 °F	**Method -** No information available
Evaporation Rate	2.4 (Butyl acetate = 1.0)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 1.2 vol% **Upper** 7 vol%	
Vapor Pressure	29 mbar @ 20 °C	
Vapor Density	3.1	(Air = 1.0)
Specific Gravity / Density	0.866	

Bulk Density	Not applicable	Liquid
Water Solubility	0.5 g/L (20°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Toluene	2.65	
Autoignition Temperature	535 °C / 995 °F	
Decomposition Temperature	No data available	
Viscosity	0.6 mPa.s @ 20 °C	
Explosive Properties	Not explosive	Vapors may form explosive mixtures with air
Oxidizing Properties	Not oxidising	

9.2. Other information

Molecular Formula	C7 H8
Molecular Weight	92.14

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases. Halogenated compounds.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene	> 5000 mg/kg (Rat)	LD50 = 12000 mg/kg (Rabbit)	26700 ppm (Rat) 1 h

(b) skin corrosion/irritation;	Category 2
Test method	OECD Test Guideline 404
Test species	rabbit
Observational endpoint	Irritating to skin

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met

Skin Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Not mutagenic in AMES Test

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Category 2

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Possible risk of harm to the unborn child.

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; Category 2

Target Organs Eyes, Skin, Respiratory system, Liver, Kidney, Central nervous system (CNS), Blood, spleen.

(j) aspiration hazard; Category 1

Symptoms / effects,both acute and delayed Causes central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Contains a substance which is:. Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Toluene	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50: = 11.5 mg/L, 48h (Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna)	EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	EC50 = 19.7 mg/L 30 min

12.2. Persistence and degradability Readily biodegradable

Persistence Soluble in water, Persistence is unlikely, based on information available.

Component	Degradability
Toluene 108-88-3 (>95)	86% (20d)

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential Does not bioaccumulate; Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Toluene	2.65	90

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all

surfaces The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment Substance is not considered to be persistent, bioaccumulative and toxic (PBT). Substance is not considered to be very persistent and very bioaccumulative (vPvB).

12.6. Other adverse effects

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

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN1294
14.2. UN proper shipping name	TOLUENE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

ADR

14.1. UN number	UN1294
14.2. UN proper shipping name	TOLUENE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

IATA

14.1. UN number	UN1294
14.2. UN proper shipping name	TOLUENE
14.3. Transport hazard class(es)	3
14.4. Packing group	II

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Toluene	203-625-9	-		X	X	-	X	X	X	X	X

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Toluene		Use restricted. See item 48. (see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT* for restriction details)	

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Toluene	WGK 2	

Component	France - INRS (Tables of occupational diseases)
Toluene	Tableaux des maladies professionnelles (TMP) - RG 4bis,RG 84

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
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
H225 - Highly flammable liquid and vapor

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

TWA - Time Weighted Average

ACGIH - American Conference of Governmental Industrial Hygienists

IARC - International Agency for Research on Cancer

DNEL - Derived No Effect Level

PNEC - Predicted No Effect Concentration

RPE - Respiratory Protective Equipment

LD50 - Lethal Dose 50%

LC50 - Lethal Concentration 50%

EC50 - Effective Concentration 50%

NOEC - No Observed Effect Concentration

POW - Partition coefficient Octanol:Water

PBT - Persistent, Bioaccumulative, Toxic

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

OECD - Organisation for Economic Co-operation and Development

ATE - Acute Toxicity Estimate

BCF - Bioconcentration factor

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Chemical incident response training.

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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet