



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

1 | Page of 1

SECTION 1- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Toluene

Catalog Numbers: T043, T023, T997, T233

Synonyms: methylbenzene, alkylbenzene, phenylmethane

CAS-No. : 108-88-3

Company Information:

LEONID CHEMICALS Pvt Ltd,
62/A2, 1st Stage,
Yeshwanthpur Industrial Suburb,
Ashokpuram School Road,
Bangalore -22, Karnataka, INDIA
Ph- +91-80-23378354
Fax: +918023378354/23377126
Email: lab@leonidchemicals.net

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Reproductive toxicity (Category 2), H361d

Aspiration hazard (Category 1), H304

Specific target organ toxicity - repeated exposure (Category 2), H373

Skin irritation (Category 2), H315

Specific target organ toxicity - single exposure (Category 3), H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

F	Highly flammable	R11 R63
Xn	Harmful	R48/20, R65
Xi	Irritant	R38 R67

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Signal word

Danger

Hazard statement(s)



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

2 | Page of 1

H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P281 Use personal protective equipment as required.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 Do NOT induce vomiting.

Supplemental Hazard Statements none

2.3 Other hazards - none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : C7H8
Molecular Weight : 92,14 g/mol
CAS-No. : 108-88-3
EC-No. : 203-625-9
Index-No. : 601-021-00-3

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Toluene	Flam. Liq. 2; Skin Irrit. 2; Repr.2; STOT SE 3; STOT RE 2; Asp. Tox. 1; H225, H304, H315, H336, H361d, H373	-

Hazardous ingredients according to Directive 1999/45/EC

Component	Classification	Concentration
Toluene		



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

3 | Page of 1

	F, Xn, Repr.Cat.3, R11 - R38 -R48/20 - R63 - R65 - R67	-
--	--	---

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

4 | Page of 1

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

A part from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

5 | Page of 1

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material : Fluorinated rubber
Minimum layer thickness : 0,7 mm
Break through time : 480 min
Material tested : Vitoject

Splash contact

Material : Fluorinated rubber
Minimum layer thickness : 0,7 mm
Break through time : 480 min
Material tested : Vitoject
test method : EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

6 | Page of 1

and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- a) Appearance Form : liquid
Colour : colourless
- b) Odour : no data available
- c) Odour Threshold : no data available
- d) pH no data available
- e) Melting point/freezing point : Melting point/range: -93 °C
- f) Initial boiling point and boiling range : 110 - 111 °C
- g) Flash point : 4,0 °C - closed cup
- h) Evaporation rate : no data available
- i) Flammability (solid, gas) : no data available
- j) Upper/lower flammability or explosive limit : Upper explosion limit: 7 %(V)
Lower explosion limit : 1,2 %(V)
- k) Vapour pressure : 29,1 hPa at 20,0 °C
- l) Vapour density : no data available
- m) Relative density : 0,865 g/mL at 25 °C
- n) Water solubility : no data available
- o) Partition coefficient: noctanol/water : no data available
- r) Viscosity : no data available



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

7 | Page of 1

s) Explosive properties : no data available

t) Oxidizing properties : no data available

9.2 Other safety information
no data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
LD50 Oral - rat - > 5.580 mg/kg
LC50 Inhalation - rat - 4 h - 12.500 - 28.800 mg/m³
LD50 Dermal - rabbit - 12.196 mg/kg

Skin corrosion/irritation

Skin - rabbit
Result: Skin irritation - 24 h
Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

8 | Page of 1

Germ cell mutagenicity

rat

Liver

DNA damage

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Toluene)

Reproductive toxicity

Damage to fetus possible

Suspected human reproductive toxicant

Reproductive toxicity - rat - Inhalation

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Experiments have shown reproductive toxicity effects in male and female laboratory animals. Developmental Toxicity - rat - Oral

Effects on Embryo or Fetus: Feto toxicity (except death, e.g., stunted fetus).

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: XS5250000

Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals. Stomach - Irregularities - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 - Lepomis macrochirus (Bluegill) - 74,00 - 340,00 mg/l - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 7,63 mg/l - 96 h

NOEC - Pimephales promelas (fathead minnow) - 5,44 mg/l - 7 d

LOEC - Pimephales promelas (fathead minnow) - 8,04 mg/l - 7 d

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 8,00 mg/l - 24 h

Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Toxicity to algae EC50 - Chlorella vulgaris (Fresh water algae) - 245,00 mg/l - 24 h

EC50 - Pseudokirchneriella subcapitata (green algae) - 10,00 mg/l - 24 h



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

9 | Page of 1

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Toxic to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1294

IMDG: 1294

IATA: 1294

14.2 UN proper shipping name

ADR/RID : TOLUENE

IMDG : TOLUENE

IATA : Toluene

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no IATA: no



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

10 | Page of 1

- 14.6 Special precautions for user
no data available

SECTION 15: REGULATORY INFORMATION

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

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

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

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure

Full text of R-phrases referred to under sections 2 and 3

F	Highly flammable
Xn	Harmful
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.

Repr.Cat.3 Toxic to Reproduction Category 3

SECTION 17 - ADDITIONAL INFORMATION



LEONID CHEMICALS PVT. LTD., BANGALORE

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 01.04.2013

Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): TOLUENE

11 | Page of 1

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals Pvt. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Leonid Chemicals Pvt. Ltd. has been advised of the possibility of such damages.





**LEONID CHEMICALS PVT. LTD.,
BANGALORE**

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT :
R/QPM/8.2.4/06

(CODE) SECTION :
T023

DATE:17.06.2013



Issue : 02

Rev.: 02

Title: SPECIFICATION MANUAL - TOLUENE SULPHUR FREE LR

1 | Page of 1

Specification manual - Toluene sulphur free LR

C7H8

Mol Wt: 92.14

Product : Toluene sulphur free
Description : A clear colourless liquid with a characteristic odour
Cat No : T023
Cas No : 108-88-3
Prepared Date : 04/06/2013
Approved Date : 04/06/2013

REVISION HISTORY

Issue/Rev	Description of Change	Author	Effective Date
01/00	Initial Release	S. Paul Joshua	07.03.2005
02/01	Specification	S. Paul Joshua	04.06.2013
02/02	Included "Description" in the Tests	S. Paul Joshua	17.06.2013
Next Review Due :	02.04.2015		
To be reviewed by :	Head-QC/QA		

Sl. No.	Tests	Specification	Protocol
		LR	
1	Description	A clear colourless liquid with a characteristic odour	LCPL
2	Assay GC	Min 99.0 %	2/4/03
3	Water	≤ 0.1 %	2/3.1-19
4	Boiling Range	109°C – 112.5°C	2/3.1-03
5	NVM	≤ 0.005 %	2/3.1-01

Approved By: S. Paul Joshua, Head Quality Control and Quality Assurance

62/A2 1st Stage, Yeshwanthpur Industrial Suburb, Ashokpuram School Road Bangalore 560022 Karnataka, INDIA.

Telefax:+91 080 23378354/23377126, Email:paul@leonidchemicals.net,

www.leonidchemicals.com

	LEONID CHEMICALS PVT. LTD., BANGALORE An ISO-9001:2008 Certified Company Quality Assurance Department	(CODE) DOCUMENT : R/QPM/8.2.4/06	
		(CODE) SECTION : T043, T023, T223	
Title: SPECIFICATION MANUAL - TOLUENE SULFUR FREE			Issue : 02 Rev.: 00 1 Page of 2

Specification manual - Toluene Sulphur Free

C₇H₈

MW: 92.14

Product : Toluene Sulphur Free AR, LR, ACS
Description : A clear colourless liquid with a characteristic odour
Cat No : T043/T023/T223
Cas No : 108-88-3
Prepared Date : 07.03.2005
Approved Date : 07.03.2005

REVISION HISTORY			
Issue/Rev	Description of Change	Author	Effective Date
01/00	Initial Release	S. Paul Joshua	07.03.2005
02/00	Reviewed no changes	S. Paul Joshua	01.04.2011
Next Review Due :	02.04.2015		
To be reviewed by :	Head-QC/QA		

Sl. No.	Tests	Specification			
		AR	LR	ACS	HPLC
1	Assay (GC)	-	99.0%	≥99.5 %	≥99.7%
2	Solubility	Miscible with absolute industrial methylated spirit forming clear colourless solutions	-	-	-
3	Distillation range	NLT 92 percent distils within 0.4° between 110° and 110°	-	-	-
4	Refractive index	N20D 1.494 to 1.497	-	-	-
5	Weight per ml at 20°	0.863 to 0.886g	-	-	-

Approved By: S.Paul Joshua, Head Quality Control and Quality Assurance

	LEONID CHEMICALS PVT. LTD., BANGALORE An ISO-9001:2008 Certified Company Quality Assurance Department	(CODE) DOCUMENT : R/QPM/8.2.4/06	
		(CODE) SECTION : T043, T023, T223	
Title: SPECIFICATION MANUAL - TOLUENE SULFUR FREE			Issue : 02 Rev.: 00 2 Page of 2

6	Acidity	0.0012 ml N/1 percent	-	-	-	
7	Alkalinity	0.0012 ml N/1 percent	-	-	-	
8	Non-volatile matter	0.002 percent	-	-	≤0.001%	
9	Benzene (C ₆ H ₆)	0.5 percent	-	-	-	
10	Organic impurities	Passes acid wash test	-	-	-	
11	Sulphur compounds (S)	0.0003 percent	-	0.003 %	-	
12	Thiophen homologues (C ₄ H ₄ S)	0.0002 percent	-	-	-	
13	Water	0.03 percent	0.1%	0.03%	≤0.05%	
14	Color (APHA)	-	-	10	-	
15	Residue after evaporation	-	-	0.001 %	-	
16	Substances dranked by sulphuric acid	-	-	Passes test	-	
17	Boiling range	-	109 – 112.5%	-	-	
18	Boiling range	-	-	-	110 - 112°C	
19	Density	-	-	-	087	
20	UV	-	-		λ_{nm}	λ_{max}
					285	1.0
					310	0.1
					350	0.01

Approved By: S.Paul Joshua, Head Quality Control and Quality Assurance