SAFETY DATA SHEET

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

1.1 Product identifiers

Product name	Toluene
CAS number	108-88-3
Synonyms	Toluol; Methylbenzene

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

Identified uses	Laboratory Chemicals

1.3 Details of the supplier of the safety data sheet

Company	Lab Alley, LLC 12501 Pauls Valley Road Austin, Texas 78737 U.S.A.
Telephone	512-668-9918
Fax	512-886-4008

1.4 Emergency telephone

Emergency Phone #	US & Canada: 1-800-535-5053	INFOTRAC
	International 1-352-323-3500	INFOTRAC

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids	Category 2
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/ Eye irritation	Category 2
Reproductive Toxicity	Category 2

Specific Target Organ Toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS)	
Specific Target Organ Toxicity (repeated exposure)	Category 2
Target Organs - Kidney, Liver, spleen, Blood, Neurological effects, Eyes, Ears	
Aspiration Toxicity	Category 1
Acute Aquatic Hazard	Category 2
Chronic Aquatic Hazard	Category 3

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard statements

Highly flammable liquid and vapor.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.
Suspected of damaging the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands, and any exposed skin thoroughly after handling. Wear eye/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep cool. Avoid release to the environment.

Response: IF exposed or concerned, get medical attention/advice.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.

Fire: In case of fire, use CO_2, dry chemical, or foam for extinction.

Storage: Store locked up: Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

WARNING: Reproductive Harm.

SECTION 3: Composition/information on ingredients

3.1 Components

Chemical name	Common name and synonyms	CAS number	Concentration
Toluene	Toluol; Methylbenzene	108-88-3	<=100%

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

If inhaled

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs (by aspiration).

In case of skin contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

In case of eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
If swallowed	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.

4.2 Most important symptoms and effects, both acute and delayed

Causes central nervous system depression. 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

If symptoms persist, call a physician. Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Water spray, carbon dioxide (CO_2), dry chemical, alcohol-resistant foam. Water mist maybe used to cool closed containers.
Unsuitable extinguishing media	No information available.

5.2 Specific 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 Special protective equipment and precautions for firefighters

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

5.4 Further information

Flash Point	39.2 °F (4.0 °C) Closed Cup
Autoignition Temperature	896 °F (480 °C)

Explosion limits

Upper	7.1 vol %
Lower	1.1 vol %
Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	0	N/A

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials 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

See Section 2 for full list of hazard and precaution statements.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Wear personal protective equipment/face protection. 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.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

Incompatibilities

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

SECTION 8: Exposure controls/personal protection

8.1 Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Component	Type	Value	
Toluene	(Vacated) TWA	100 ppm	375 mg/m3
	Ceiling	300 ppm	
	(Vacated) STEL	150 ppm	560 mg/m3
	TWA	200 ppm	

US. ACGIH Threshold Limit Values

Component	Type	Value
Toluene	TWA	20 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Component	Type	Value	
Toluene	IDLH	500 ppm	
	TWA	100 ppm	375 mg/m3
	STEL	150 ppm	560 mg/m3

Biological occupational exposure limits

No information available.

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment.

Personal protective equipment

Eye/face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Body Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Control of environmental exposure

No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-135.4 °F (-93 °C)
Boiling Point/Range	231.8 °F (111 °C)
Evaporation Rate	No information available
Flammability (solid)	Not applicable
Flammability or explosive limit	
Upper	7.1 %
Lower	1.1 %
Vapor Pressure	29.1 hPa at 20 °C
Vapor Density	3
Density	0.865 g/cm3
Solubility	Not soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temp	896 °F (480 °C)
Decomposition Temp	No information available
Viscosity	No information available
Molecular Formula	C7 H8
Molecular Weight	92.14 g/mol
VOC Content(%)	No information available
Oxidizing properties	Not oxidizing.

9.2 Other safety information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of 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, Component Information

Acute toxicity

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

Skin corrosion/irritation

Irritating to skin.

Serious eye damage/eye irritation

Irritating to eyes.

Respiratory or skin sensitization

Irritating to respiratory system.

Germ cell mutagenicity

Not mutagenic in AMES Test.

Carcinogenicity

Component	CAS	IARC	NTP	ACGIH	OSHA	Mexico
Toluene	108-88-3	Not listed	Not listed	Not listed	Not listed	Not listed

Specific target organ toxicity - single exposure

Respiratory system, Central nervous system (CNS).

Specific target organ toxicity - repeated exposure

Kidney, Liver, Spleen, Blood, Neurological effects, Eyes, Ears.

Reproductive toxicity

Possible risk of harm to the unborn child. Experiments have shown reproductive toxicity effects on laboratory animals. Developmental effects have occurred in experimental animals.

Chronic effects

Causes central nervous system depression. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea, and vomiting.

11.2 Additional Information

The toxicological properties have not been fully investigated.

SECTION 12: Ecological information

12.1 Toxicity

The product contains following substances which are hazardous for the environment.
Contains a substance which is toxic to aquatic organisms.

Product		Species	Test Results
Toluene	EC50	Pseudokirchneriella subcapitata	12.5 mg/L, 72h static > 433 mg/L, 96h
	LC50	Freshwater Fish	50-70 mg/L, 96h 5-7 mg/L, 96h 15-19 mg/L, 96h 28 mg/L, 96h 12 mg/L, 96h
	EC50	Microtox	19.7 mg/L, 30 min
	EC50	Daphnia magna	11.5 mg/L, 48h 5.46 - 9.83 mg/L, 48h static

12.2 Persistence and degradability

Persistence is unlikely.

12.3 Bio accumulative potential

No information available.

12.4 Mobility in soil

Is not likely mobile in the environment due its low water solubility.

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

DOT (US)

UN Number	UN1294
Proper Shipping name	TOLUENE
Hazard Class	3
Packaging Group	II

IMDG

UN Number	UN1294
Proper Shipping name	TOLUENE
Hazard Class	3
Packaging Group	II

IATA

UN Number	UN1294
Proper Shipping name	TOLUENE
Hazard Class	3
Packaging Group	II

SECTION 15: Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not applicable.

CERCLA Hazardous Substance List (40 CFR 302.4)
Listed, Toluene (CAS #108-88-3), RQ: 1000 lb.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous
See Section 2 for more information.

SARA 313 (TRI reporting)
Listed, Toluene (CAS #108-88-3).

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Listed, Toluene (CAS #108-88-3).

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Listed, Toluene (CAS #108-88-3).

Safe Drinking Water Act
Listed, Toluene (CAS #108-88-3), RQ: 1000 lb.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace
Not listed.

US state regulations

US. Massachusetts RTK - Substance List
Listed, Toluene (CAS #108-88-3).

US. New Jersey Worker and Community Right-to-Know Act
Listed, Toluene (CAS #108-88-3).

US. Pennsylvania Worker and Community Right-to-Know Law
Listed, Toluene (CAS #108-88-3).

California Proposition 65
Listed, Toluene (CAS #108-88-3).

SECTION 16: Other information

Date of Issue: 08/08/2018
Revised on 6/16/2026

SECTION 17: Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.