

SAFETY DATA SHEET

Creation Date 11-Jun-2009

Revision Date 25-Dec-2021

Revision Number 6

1. Identification

Product Name Toluene

Cat No. : AC364410000; AC364410010; AC364410025; AC364411000;
AC364415000

CAS No 108-88-3
Synonyms Tol; Methylbenzene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|------------|
| 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 |

Label Elements

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

**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

Response

IF exposed or concerned: Get medical attention/advice

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

If skin irritation occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

Eyes

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

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

Fire

In case of fire: Use CO2, 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

Hazards not otherwise classified (HNOC)

Harmful to aquatic life with long lasting effects

WARNING. Reproductive Harm - <https://www.p65warnings.ca.gov/>.

3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|-----------|----------|----------|
| Toluene | 108-88-3 | <=100 |

4. 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. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| Inhalation | 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). |
| 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. |
| Most important symptoms and effects | . Causes central nervous system depression: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | 4 °C / 39.2 °F |
| Method - | No information available |
| Autoignition Temperature | 535 °C / 995 °F |
| Explosion Limits | |
| Upper | 7.1 vol % |
| Lower | 1.1 vol % |
| Oxidizing Properties | Not oxidising |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

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 (CO₂).

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.

NFPAHealth
3Flammability
3Instability
0Physical hazards
N/A**6. Accidental release measures****Personal Precautions**

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

Environmental Precautions

Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean 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.

7. Handling and storage**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.

Storage.

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Halogenated compounds.

8. Exposure controls / personal protection**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|-----------|-------------|--|---|------------------|
| Toluene | TWA: 20 ppm | (Vacated) TWA: 100 ppm (Vacated) TWA: 375 mg/m ³ Ceiling: 300 ppm (Vacated) STEL: 150 ppm (Vacated) STEL: 560 mg/m ³ TWA: 200 ppm | IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³ | TWA: 20 ppm |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

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.

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 and 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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|--|------------------------------|
| Physical State | Liquid |
| Appearance | Colorless |
| Odor | aromatic |
| Odor Threshold | 1.74 ppm |
| pH | No information available |
| Melting Point/Range | -95 °C / -139 °F |
| Boiling Point/Range | 111 °C / 231.8 °F @ 760 mmHg |
| Flash Point | 4 °C / 39.2 °F |
| Evaporation Rate | 2.4 (Butyl acetate = 1.0) |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | 7.1 vol % |
| Lower | 1.1 vol % |
| Vapor Pressure | 29 mbar @ 20 °C |
| Vapor Density | 3.1 |
| Specific Gravity | 0.866 |
| Solubility | Insoluble in water |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | 535 °C / 995 °F |
| Decomposition Temperature | No information available |
| Viscosity | 0.6 mPa.s @ 20 °C |
| Molecular Formula | C7 H8 |
| Molecular Weight | 92.14 |

10. Stability and reactivity

| | |
|----------------------------------|---|
| Reactive Hazard | None known, based on information available |
| Stability | Stable under normal conditions. |
| Conditions to Avoid | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. |
| Incompatible Materials | Strong oxidizing agents, Strong acids, Strong bases, Halogenated compounds |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂) |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Acute Toxicity

Product Information Component Information

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

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|-----------------|--|
| Irritation | Irritating to eyes, respiratory system and skin |
| Sensitization | No information available |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|-----------|----------|------------|------------|------------|------------|------------|
| Toluene | 108-88-3 | Not listed | Not listed | Not listed | Not listed | Not listed |

| | |
|---|---|
| Mutagenic Effects | Not mutagenic in AMES Test |
| 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. |
| STOT - single exposure | Respiratory system Central nervous system (CNS) |
| STOT - repeated exposure | Kidney Liver spleen Blood Neurological effects Eyes Ears |
| Aspiration hazard | No information available |
| Symptoms / 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 |
| Endocrine Disruptor Information | No information available |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |

12. Ecological information

Ecotoxicity

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

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|-----------|--|--|-------------------------|--|
| Toluene | EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata) | 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 = 19.7 mg/L 30 min | EC50: = 11.5 mg/L, 48h (Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna) |

| | |
|--------------------------------------|---|
| Persistence and Degradability | Persistence is unlikely |
| Bioaccumulation/ Accumulation | No information available. |
| Mobility | Is not likely mobile in the environment due its low water solubility. |

| Component | log Pow |
|-----------|---------|
| Toluene | 2.7 |

13. Disposal considerations

| | |
|-------------------------------|---|
| 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. |
|-------------------------------|---|

| Component | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------|------------------------|------------------------|
| Toluene - 108-88-3 | U220 | - |

14. Transport information

DOT

| | |
|-----------------------------|---------|
| UN-No | UN1294 |
| Proper Shipping Name | TOLUENE |
| Hazard Class | 3 |
| Packing Group | II |

TDG

UN-No UN1294
 Proper Shipping Name TOLUENE
 Hazard Class 3
 Packing Group II

IATA

UN-No UN1294
 Proper Shipping Name TOLUENE
 Hazard Class 3
 Packing Group II

IMDG/IMO

UN-No UN1294
 Proper Shipping Name TOLUENE
 Hazard Class 3
 Packing Group II

15. Regulatory information

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|-----------|----------|------|--|--------------------------------|
| Toluene | 108-88-3 | X | ACTIVE | - |

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------|----------|-----|-----|-----------|-------|------|------|------|-------|----------|
| Toluene | 108-88-3 | X | - | 203-625-9 | X | X | X | X | X | KE-33936 |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)U.S. Federal Regulations**SARA 313**

| Component | CAS No | Weight % | SARA 313 - Threshold Values % |
|-----------|----------|----------|----------------------------------|
| Toluene | 108-88-3 | <=100 | 1.0 |

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------|-------------------------------|--------------------------------|------------------------|---------------------------|
| Toluene | X | 1000 lb | X | X |

Clean Air Act

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-----------|-----------|-------------------------|-------------------------|
| Toluene | X | | - |

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|-----------|--------------------------|----------------|
| Toluene | 1000 lb 1 lb | - |

California Proposition 65

This product contains the following Proposition 65 chemicals.

| Component | CAS No | California Prop. 65 | Prop 65 NSRL | Category |
|-----------|----------|---------------------|--------------|---------------|
| Toluene | 108-88-3 | Developmental | - | Developmental |

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------|---------------|------------|--------------|----------|--------------|
| Toluene | X | X | X | X | X |

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations**Mexico - Grade**

Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

| 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 link for restriction details) Use restricted. See item 75. (see link for restriction details) | - |

<https://echa.europa.eu/substances-restricted-under-reach>

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

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-----------|----------|----------|------------------------------|---------------------------|--|
| Toluene | 108-88-3 | Listed | Not applicable | Not applicable | Not applicable |

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------|----------|---|--|----------------------------|------------------------------------|
| Toluene | 108-88-3 | Not applicable | Not applicable | Not applicable | Annex I - Y42 |

16. Other information

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Creation Date 11-Jun-2009**Revision Date** 25-Dec-2021**Print Date** 25-Dec-2021**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).**Disclaimer**

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

End of SDS