

MATERIAL SAFETY DATA SHEET

Toluene

SECTION 1 . Product and Company Identification

Product Name and Synonym: Toluene
Product Code: T7601
Material Uses:
Manufacturer: Science Stuff
1104 Newport Ave
Austin, TX 78753
(512) 837-6020
Entry Date : 7/1/2013
Print Date: 7/1/2013
24 Hour Emergency Assistance : Chemtrec 800-424-9300
Canutec 613-996-6666

Health:	2			
Flammability:	3			
Reactivity:	0			
Hazard Rating:				
Least	Slight	Moderate	High	Extreme
0	1	2	3	4
NA=Not Applicable		NE=Not Established		

SECTION 2 HAZARD IDENTIFICATION

Keep away from heat and ignition sources. May be harmful if swallowed. Avoid breathing vapor or dust. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

Physical state: Liquid

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview:

DANGER!

HARMFUL OR FATAL IF SWALLOWED.
VAPOR HARMFUL.
HARMFUL IF INHALED OR ABSORBED THROUGH THE SKIN
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER,
RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM

WARNING: this product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Keep away from heat, sparks and flame. Do not breath vapor or mist. Do not ingest. Do Not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep contain tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry:

Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Inhalation: toxic by inhalation. Irritation to respiratory system.

Ingestion: very toxic if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage.

Skin: toxic in contact with skin. Irritating to skin.

Eyes: irritating to eyes

Potential chronic health effects:

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Caecinogenicity: no known significant effects or critical hazards.
Mutagenicity: no known significant effects or critical hazards.
Teratogenicity: no known significant effects or critical hazards.
Devleopmental effects: no known significant effects or critical hazards.
Fertility effects: no known significant effects or critical hazards.
Target organs : may cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS)
Medical conditions aggravated by overexposure: pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

SECTION 3 MIXTURE COMPONENTS

Table with 6 columns: SARA 313, Component, CAS Number, Percent Comp., Dimension, Exposure Limits. Row 1: [x] Toluene, CAS# 108-88-3, 100%, V/V, OSHA TWA 200 ppm

SECTION 4 FIRST AID MEASURES

Keep away from heat and ignition sources. May be harmful if swallowed. Avoid breathing vapor or dust. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.
FIRST AID: SKIN: Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention
EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen
INGESTION: If swallowed, induce vomiting immediately after giving two glasses of water. Never give anything by mouth to an unconscious person.

SECTION 5 FIRE FIGHTING MEASURES

Fire Extinguisher Type: Carbon Dioxide, dry chemical powder or appropriate foam
Fire / Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back.
Fire Fighting Procedure: Use water spray to cool fire exposed containers.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Eliminate ignition sources. Absorb spill with inert material, then place in a chemical waste container. Dispose of in a manner consistent with federal, local law.

SECTION 7 HANDLING AND STORAGE

Store in a cool, dry, well-ventilated place away from incompatible materials. Wash thoroughly after handling.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: NIOSH/MSHA-approved respirator
Ventilation: Local Exhaust [], Mechanical [x]
Protective Gloves: Wear appropriate gloves to prevent skin exposure
Eye Protection: Splash Goggles
Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

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SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Melting Point:	-139°F	Percent Volatile by Volume:	>99
Boiling Point:	231°F	Evaporation Rate	Information not available
Vapor Pressure:	10 mm Hg @ 70°F	Evaporation Standard	
Vapor Density:	3.18	Auto Ignition Temp	Information not available
Solubility in Water:	insoluble	Lower Flamm. Limit in Air	1%
Appearance /Odors:	Colorless liquid, strong aromatic odor	Upper Flamm. Limit in Air	7%
Flash Point:	40°F		
Specific Gravity:	0.86		

SECTION 10 STABILITY AND REACTIVITY INFORMATION

Stability:	Stable
Conditions to Avoid:	Avoid contact with heat, sparks, flames, or other sources of ignition.
Materials to Avoid:	Strong oxidizers, metals, strong bases, amines
Hazardous Decomposition Products:	Toxic fumes of: Carbon Monoxide, Carbon Dioxide
Hazardous polymerization:	Will Not Occur
Conditions to Avoid:	None known

Conditions or reactivity: Highly flammable in the presence of the following materials or condition: open flames, sparks, static discharge, heat, shocks, mechanical impacts and oxidizing materials.
Extremely explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.

SECTION 11 Toxicological Information

Toxicity data

United States

Product/ingredient name – o-Toluene

Test	Route	Species	Result
LD50	Dermal	Rabbit	14100 uL/kg
LD50	Intraperitoneal	Rat	1332 mg/kg
LD50	Intravenous	Rat	1960 mg/kg
LD50	Oral	Rat	636mg/kg
LD50	Unreported	Rat	6900mg/kg
LDLo	Oral	Human	50mg/kg
LDLo	Intraperitoneal	Rat	2.5 mL/kg
TDLo	Oral	Rat	800 mL/kg
TDLo	Oral	Rat	1200 mg/kg
TDLo	Intraperitoneal	Rat	1 g/kg
TDLo	Intraperitoneal	Rat	750 mg/kg
TDLo	Intraperitoneal	Rat	900 mg/kg
TDLo	Intraperitoneal	Rat	600 mg/kg
TDLo	Oral	Rat	400 mg/kg

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LC50 Inhalation Vapor Rat 49 g/m3
 LC50 Inhalation Vapor Rat 49 mg/m3

Carcinogenicity

Classification

Product/ ingredient name Toluene ACGIH- A4 IARC-3 EPA NIOSH NTP OSHA
 No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

SECTION 12 Ecological Information

Aquatic ecotoxicity

Product/ ingredient name
 Toluene

Result	Species	Exposure
Acute EC50 6.78mg/L	Fish	48 hours
Acute EC50 6.56mg/L	Daphnia	48 hours
Acute EC50 6mg/L	Daphnia	48 hours
Acute EC50 6880 to 9830 ug/L fresh water	Daphnia-Water flea- Daphnia magna- Neonate	48 hours
Acute EC50 6780 to 7810 ug/L fresh water	Fish- Rainbow trout, donaldson trout- Oncorhynchus mykiss- Juvenile (Fledgling, Hatchling, Weanling -54mm - 2.187 g	96 hours
Acute EC50 6000 ug/L fresh water	Daphnia- Water flea Daphnia magna- Juvenile (Fledgling, Hatchling, Weanling)	48 hours
Acute EC50 19600ug/L fresh water	Daphnia- Water flea Daphnia magna- LARVAE	48 hours
Acute LC50 8110 ug/L fresh water	Fish- Coho salmon, Silver salmon- Oncorhynchus kisutch- 0.3g	96 hours
Acute LC50 8090 to 8780 ug/L Marina water	Fish- pink salmon- Oncorhynchus gorbuscha FRY- 3.5cm - 0.35g	96 hours
Acute LC50 7630 to 8480 ug/L Marina water	Fish- pink salmon- Oncorhynchus gorbuscha FRY- 3.5cm - 0.35g	96 hours
Acute LC50 12.6 mg/L	Fish	96 hours
Acute LC50 6.78 mg/L	Fish	96 hours
Acute LC50 6780 to 7810 ug/L fresh water	Fish- Rainbow trout donaldson trout- oncorhynchus mykiss- juvenile (fledgling, hatchling, weanling) 54 mm- 2.187g	96 house
Acute LC50 6410 to 7180 ug/L marina water	Fish- pink salmon- oncorhynchus gorbuscha- FRY- 3.5cm - 0.35g	96 hours
Acute LC50 5.8mg/L	Fish	96 hours
Acute LC50 5800ug/L fresh water	Fish- Rainbow trout donaldson trout- oncorhynchus mykiss	96 house
Acute LC50 5500 ug/L fresh water	Fish- Coho salmon silver salmon- oncorhynchus kisutch- FRY- 1g	96 hours
Acute LC50 9360 ug/L fresh water	Fish- Coho salmon silver salmon- oncorhynchus kisutch- FRY- > 90 days	96 hours
Acute LC50 310000 to 420000 ug/L fresh water	Daphnia- water flea- daphnia Daphnia magna- <24 hours	48 hours
Acute LC50 170000ug/L marina water	Crustaceans- dungeness or edible crab- cancer magister- Zoea	48 hours
Acute LC50 97700 to 174700 ug/L fresh water	Daphnia- water flea- daphnia Daphnia magna- neonate <= 24 hours	48 hours
Acute LC50 86300 to 174700 ug/L fresh water	Daphnia- water flea- daphnia Daphnia magna- neonate <= 24 hours	48 hours
Acute LC50 15.5 ppm marine water	Crustaceans- Daggerblade grass shrimp- Palaemonetes pugio- adult	48 hours
Acute LC50 15500 ug/L	Crustaceans- Daggerblade	48 hours

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marine water grass shrimp- Palaemonetes pugio
Acute LC50 7.3 ul/L Fish- Striped bass- morone 96 hours
marina water saxatilis- juvenile (fledgling, hatchling,
weanling) - 6g

Environmental effects : No known significant effects or critical hazards.
Other adverse effects : No known significant effects or critical hazards.

SECTION 13 Disposal Considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14 Transport Information

DOT (US)
UN-Number: UN1294 Class: 3 Packing group: II
Proper shipping name: TOLUENE
Reportable Quantity: 1000lbs. (454 kg)

DOT Classification: UN1294, Toluene, 3, PG II

DOT Regulations may change from time to time. Please consult the most recent D.O.T. regulations.

SECTION 15 Regulatory Information

United States

HCS Classification:

Flammable liquid
Highly toxic material
Irritating material
Target organ effects

U.S. Federal regulations:

United States inventory (TSCA 8b): This material is listed or exempted
TSCA8 (d) H and S data reporting: Toluene : 1982
TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notifications: No products were found.
SARA 302/304/311/312 hazardous chemicals: Toluene
SARA 311/312 MSDS distribution- Chemical inventory- hazard identification: Toluene: Fire hazard, immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: Toluene
Clean Water Act (CWA) 311: Toluene
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substance: No products were found.
Clean Air Act (CAA) 112 regulated toxic substance: No products were found.

DEA List I Chemicals : not listed
(Precursor Chemicals)
DEA List II Chemicals : listed
(essential Chemicals)

SARA 313
Form R – Reporting : Toluene CAS number : 108-88-3 Concentration : 100
Requirements
Supplier notification : Toluene CAS number : 108-88-3 Concentration : 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.
Massachusetts Substance : This material is listed.
New Jersey Hazardous Substances : This material is listed.
New York Acutely Hazardous Substances : This material is listed.
Pennsylvania RTK Hazardous Substances : This material is listed.

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California Prop. 65

WARNING: this product contains a chemical known to the State of California to cause birth defects or other reproductive harm

Ingredient name: Toluene Cancer: No Reproductive: Yes No significant risk level: no
Maximum acceptable dosage level: 7000 ug/day (ingestion) 13000 ug/day (inhalation)

Canada

WHMIS (Canada) : Class B-2 : Flammable liquid

Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists : CEPA Toxic Substance: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is not listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

CEPA DSL/ CEPA NDSL : this material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EU regulations:

Risk phrases: R11- Highly Flammable.

R63- Possible risk of harm to the unborn child.

R48/20- harmful: danger of serious damage to health by prolonged exposure through inhalation.

R65- harmful: may cause lung damage if swallowed.

R38- irritating to skin

R67- vapors may cause drowsiness and dizziness

Safety phrases: S2- keep out the reach of children.

S36/37- Wear suitable protective clothing and gloves.

S46- If swallowed, seek medical advice immediately and show this container or label

S62 – if swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

International regulations

International lists: Australia inventory (AICS): This material is listed or exempted.

China inventory (IECSC): This material is listed or exempted.

Japan inventory (ENCs): This material is listed or exempted.

Japan inventory (ISHL): Not determined.

Korea inventory (KECI): This material is listed or exempted.

New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.

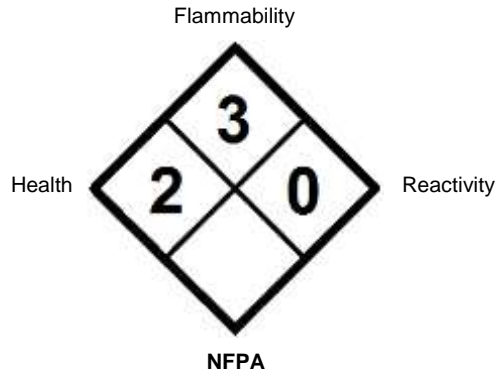
Philippines inventory (PICCS): This material is listed or exempted.

SECTION 16

Additional Information

DANGER!! This material can cause brain and central nervous system damage with repeated exposure. Conditions aggravated/target organs: Toxic! Persons with preexisting skin, eye and respiratory conditions will be more susceptible. Acute: Skin, eye, respiratory tract and digestive tract irritation, headache, dizziness, central nervous system effects, kidney and liver damage, cardiac arrest. Chronic: Dermatitis, defatting of skin, eye damage.

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Revisions

NFPA

0.2

The information herein is believed to be accurate and is offered in good faith for the user's consideration and investigation. No warranty either expressed or implied is made for the completeness or accuracy of the information whether originating from the above mentioned company or not. Users of this material should satisfy themselves by independent investigation of current scientific and medical knowledge that the material can be used safely.