

# MATERIAL SAFETY DATA SHEET

Chlorobenzene

## SECTION 1 . Product and Company Identification

Product Name and Synonym: Chlorobenzene  
Product Code: C3602  
Material Uses:  
Manufacturer: Science Stuff  
1104 Newport Ave  
Austin, TX 78753  
(512) 837-6020  
Entry Date : 5/30/2013  
Print Date: 5/30/2013  
24 Hour Emergency Assistance : Chemtrec 800-424-9300  
Canutec 613-996-6666

Health:	3
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. Harmful if swallowed. Avoid breathing vapors. 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:

WARNING!  
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
HARMFUL IF INHALED OR SWALLOWED.  
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS:  
LIVER, RESPIRATORY TRACT, SKIN, EYES,  
CENTRAL NERVOUS SYSTEM  
POSSIBLE CANCER HAZARD  
MAY CAUSE CANCER , BASED ON ANIMAL DATA.

Toxic to aquatic organisms, may cause long-term adverse effect in the aquatic environment.

Keep away from heat, sparks and flame.  
Do not breath vapor or mist. Do not ingest.  
Avoid contact with eyes, skin or clothing.  
Keep container tightly closed and sealed until ready for use. Use only with adequate ventilation. Wash thoroughly after handling. Avoid exposure - obtain special instructions.

Routes of entry:  
Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eyes: Irritating to eyes.  
Skin: Irritating to skin.  
Inhalation: Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.  
Ingestion: Toxic if swallowed.  
Carcinogenicity: May cause cancer, based on animal data. Risk of cancer depends on the duration and level of exposure.

# Chlorobenzene

Mutagenicity: No known significant effects or critical hazards.  
Teratogenicity/ Reproductive toxicity: No known significant effects or critical hazards.  
Developmental 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:  
liver,  
upper respiratory tract  
upper respiratory tract, skin, eyes, central nervous system (CNS).  
Medical conditions aggravated by over-exposure:  
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

SARA 313	Component	CAS Number	Percent Comp.	Dimension	Exposure Limits
<input checked="" type="checkbox"/>	Chlorobenzene	CAS# 108-90-7	100%	W/W	TXDS: LD•□ (Oral rat): 1110 mg/kg [Rat]

## SECTION 4 FIRST AID MEASURES

Keep away from heat and ignition sources. Harmful if swallowed. Avoid breathing vapors. 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 irritation persists, 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: Give several glasses of milk or water. Vomiting may occur spontaneously, but DO NOT INDUCE! 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:	Flammable liquid. Emits toxic fumes under fire conditions. Vapor may travel considerable distance and flash back.
Fire Fighting Procedure:	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

Eliminate Ignition Sources. Neutralize with: Soda lime, soda ash. Absorb with vermiculite or other inert material. Place in covered containers.

Personal precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personal from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Where appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements

## Chlorobenzene

or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-Proof tools and explosion- proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal. Dilute with water and mop up if water- soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

### SECTION 7 HANDLING AND STORAGE

Store in a cool dry well ventilated area. Keep away from heat and flame. Do not get in eyes, on skin, or on clothing.

### SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: NIOSH/MSHA-approved respirator  
Ventilation  
Local Exhaust   
Mechanical   
Protective Gloves: Solvent resistant gloves as neoprene or nitrile  
Eye Protection: Splash Goggles

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

Product name - United States –

Cholorobenzene

ACGIH TLV: (United States, 1/2008)

TWA: 10 ppm 8 hour(s)

TWA: 46 mg/m<sup>3</sup> 8 hour(s)

OSHA PEL 1989 (United States, 3/1989)

TWA: 75 ppm 8 hour(s)

TWA: 350 mg/m<sup>3</sup> 8 hour(s)

OSHA PEL (United States, 11/2006)

TWA: 75 ppm 8 hour(s)

TWA: 350 mg/m<sup>3</sup> 8 hour(s)

Engineering measures: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Eyes: Safety eyewear complying with an approved standard should be used

## Chlorobenzene

when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Recommended: splash goggles

Skin: Personal protective equipment for the body should be selected based on the task being performed and risks involved and should be approved by a specialist before handling this product.

Body recommended: lab coat

Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Recommended:

Viton

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Melting Point:	-45°C	Percent Volatile by Volume:	>99
Boiling Point:	132° C	Evaporation Rate	not available
Vapor Pressure:	11.8 mm @25°C	Evaporation Standard	
Vapor Density:	3.86	Auto Ignition Temp	636°C (1178°F)
Solubility in Water:	Soluble	Lower Flamm. Limit in Air	1.3%
Appearance /Odors:	Clear liquid with distinct odor	Upper Flamm. Limit in Air	7.1%
Flash Point:	23°C (75°F)		
Specific Gravity:	1.107		

### 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:	Oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide, carbon monoxide
Hazardous polymerization:	Not expected to occur
Conditions to Avoid:	None known

### SECTION 11 Toxicological Information

Toxicity data- United States- Product/ ingredient name:

Chlorobenzene  
LD >2200 mg/kg Dermal Rabbit

## Chlorobenzene

LD50	1655 mg/kg	Intraperitoneal	Rat
LD50	2290 mg/kg	Oral	Rat
LD50	2250 mg/kg	Oral	Rabbit
LD50	2250 mg/kg	Oral	Guinea pig
LD50	1110 mg/kg	Oral	Rabbit
LD50	2950 mg/kg	Unreported	Rat
LDLo	4000 mg/kg	Unreported	Rat
TDL0	2 mg/kg	Intraperitoneal	Rat
TDL0	1 mg/kg	Intraperitoneal	Rat
TDL0	0.026 mg/kg	Unreported	Rat

Carcinogenic effects: No known significant effects or critical hazards.

Mutagenic effects: No known significant effects or critical hazards.

Teratogenicity/Reproductive toxicity: No known significant effects or critical hazards.

### SECTION 12 Ecological Information

Aquatic toxicity

Product/ ingredient name

Chlorobenzene

Acute EC50	239 mg/L	Algae	48 hours
Acute LC50	7.7 mg/L	Fish	96 hours
Acute LC50	7.46 mg/L	Fish	96 hours
Acute LC50	7.4 mg/L	Fish	96 hours
Acute LC50	4.7 mg/L	Fish	96 hours
Acute LC50	4.5 mg/L	Fish	96 hours
Acute LC50	10 to 12 ppm	Marine water Fish – Sheepshead minnow – Cyprinodon variegates – Juvenile (Fledgling, Hatchling, Weanling) – 8 to 15 mm	96 hours
Acute LC50	8600 to 10200 ug/L	Fresh water Daphnia – Water flea – Daphnia magna – Neonate	48 hours
Acute LC50	7900 to 9400 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – Neonate	48 hours
Acute LC50	7900 to 9300 ug/L	Fresh water Daphnia – water flea – Ceriodaphnia dubia – neonate	48 hours
Acute LC50	7700 to 8500 ug/L	fresh water Fish – Fathead minnow – Pimephales promelas – LARVAE - < 24 hours	96 hours
Acute LC50	7460 ug/L	Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss – 4.6 to 6.4 cm – 1.2 to 3.8 g	96 hours
Acute LC50	7400 to 7900 ug/L	Fresh water Fish – Bluegill – Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) – 3.65 cm – 0.9 g	96 hours
Acute LC50	4700 to 5300 ug/L	Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss	96 hours
Acute LC50	4500 to 4900 ug/L	Fresh water Fish – Bluegill – Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) – 3.65 cm – 0.9 g	96 hours
Acute LC50	3480 to 3870 ug/L	Fresh water Fish – Goldfish – Carassius auratus – egg	96 hours
Acute LC50	2370 to 2860 ug/L	Fresh water Fish – Golfish – Carassius auratus – Egg	96 hours
Acute LC50	16000 to 20000 ug/L	Fresh water Fish – Bluegill – Lepomis macrochirus	96 hours
Acute LC50	10400 to 12000 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – neonate	48hours
Acute LC50	11400 to 13400 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – neonate	48hours
Acute LC50	11100 to 13200 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – neonate	48hours
Acute LC50	11000 to 12800 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – neonate	48hours
Acute LC50	8900 to 10500 ug/L	Fresh water Daphnia – Water flea – Ceriodaphnia dubia – neonate	48hours
Acute LC50	10700 to 12400 ug/L	Fresh water Daphnia – Water flea – Daphnia magna – neonate	48hours
Chronic NOEC	6.2 ppm	Marine water Fish – Sheepshead minnow – Cyprinodon variegates – Juvenile (Fledgling, Hatchling, Weanling) – 8 to 15 mm	96 hours

Environmental effects : No known significant effects or critical hazards.

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

# Chlorobenzene

## 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 Classification: Chlorobenzene, 3, UN1134, PG III

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:  
Target organ effects  
Toxic material  
Irritating material  
Carcinogen  
Flammable liquid

U.S. Federal regulations:

United States inventory (TSCA 8b): listed  
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: Chlorobenzene  
SARA 311/312 MSDS distribution- Chemical inventory- hazard identification: Chlorobenzene  
Fire Hazard:  
Immediate (acute) health hazard, Delayed (chronic) health hazard  
Clean Water Act (CWA) 307: Chlorobenzene  
Clean Water Act (CWA) 311: Chlorobenzene  
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 : not listed  
(essential Chemicals)

SARA 313  
Form R – Reporting Requirements: Chlorobenzene  
CAS number : 108-90-7 Concentration : 100

Supplier notification : Chlorobenzene  
CAS number : 108-90-7 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.

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

Chlorobenzene

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 : CEPA DSL:

This material is listed or exempted.

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

**SECTION 16**

**Additional Information**

Flammability

Health

Reactivity

**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.