Tert-Butyl Chloride

SECTION 1: Identification of the substance/mixture and of the supplier

Product name: **Tert-Butyl Chloride**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25672A**

Recommended uses of the product and restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific, Inc
9 Barnhart Drive, Hanover, PA 17331
(717) 632-1291

Supplier Details:

Fisher Science Education
6771 Silver Crest Road, Nazareth, PA 18064
(724)517-1954

Emergency telephone number:

Fisher Science Education
Emergency Telephone No.: 800-535-5053

SECTION 2: Hazards identification

Classification of the substance or mixture:

Flammable
Flammable liquids, category 2

Flammable Liquid 2.

Signal word: Danger

Hazard statements: None

Precautionary statements:

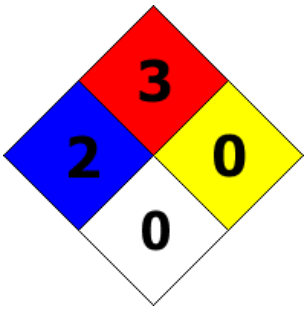
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/light/equipment.
Do not spray on an open flame or other ignition source.
Keep/Store away from clothing/.../combustible materials.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
In case of fire: Use agents recommended in section 5 for extinction.
Store in a well ventilated place. Keep cool.
Dispose of contents and container as instructed in Section 13.

Other Non-GHS Classification:

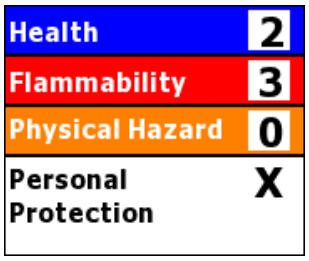
WHMIS

B2

NFPA/HMIS



NFPA SCALE (0-4)



HMIS RATINGS (0-4)

SECTION 3: Composition/information on ingredients

Ingredients:		
CAS 507-20-0	Tert-Butyl chloride	100 %
		Percentages are by weight

SECTION 4: First aid measures

Description of first aid measures

After inhalation:

Loosen clothing and place exposed individual in a comfortable position. Move exposed person to fresh air; if breathing is difficult, give oxygen. Give artificial respiration, if necessary. Seek medical attention if irritation persists or if concerned. Do not use mouth-to-mouth resuscitation.

After skin contact:

Remove all contaminated clothing. Rinse or flush skin/hair gently with water for at least 20 minutes. Wash hands and exposed skin with soap and plenty of water. Seek medical attention if irritation persists or if concerned.

After eye contact:

Protect unexposed eye. Rinse or flush eye gently with water for at least 15-20 minutes, lifting upper and lower lids. Remove contact lenses, if present, while rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth with water (never give anything by mouth to an unconscious person). Do not induce vomiting. Seek immediate medical attention. Contact a Poison Control Center.

Most important symptoms and effects, both acute and delayed:

May cause irritation, nausea, vomiting, diarrhea, central nervous system depression, unconsciousness, coma, and possible death. May cause irritation, chemical conjunctivitis, and corneal damage. May cause irritation, dermatitis, and cyanosis. May cause central nervous system effects, dizziness, aspiration leading to pulmonary edema, dizziness, suffocation or burning sensation. Irritation- all routes of exposure. Headache. Shortness of breath. Dizziness, light-headedness. Liver and kidney damage.

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents:

Suitable agents for Class B fire (flammable gases/liquids) include carbon dioxide (CO2), dry chemical, or foam. Water, if immiscible with burning liquid and floats on its surface to prevent escape of vapor to atmosphere. Water, if flammable substance is soluble in water, as it acts to reduce rate of vaporization of flammable component. Suitable agents for Class D fire (metals) include water deluge, dry powder (graphite-based), or sodium chloride. Alcohol-resistant aqueous film-forming foam for polar solvents.

Unsuitable extinguishing agents:

Water may be ineffective. Do NOT use straight streams of water.

Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating fine dusts, gases or vapors.

Advice for firefighters:

Protective equipment:

Wear chemical protective clothing and positive pressure self-contained breathing apparatus (SCBA). Wear protective equipment. See Section 8.

Additional information (precautions):

Avoid inhalation of vapor, mist, gases, fumes, dust or aerosols. Avoid contact with skin and eyes and clothing.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Keep away from heat, sparks, open flame, hot surfaces, or ignition sources. Use non-sparking equipment/tools. Ground/bond containers. Ensure adequate ventilation. Ensure air handling systems are operational.

Environmental precautions:

Should not be released into the environment. Prevent from reaching soil, drains, sewer, or waterway.

Methods and material for containment and cleaning up:

Use non-sparking equipment/tools. Eliminate all sources of ignition if safe to do so. Wear protective equipment. See Section 8. Always obey local regulations. Avoid contact with skin, eyes and clothing. Soak up with inert absorbent material and characterize for proper disposal (likely characteristically hazardous as flammable). See Section 13. Containerize for disposal; keep well sealed and properly labeled.

Reference to other sections: None

SECTION 7: Handling and storage

Precautions for safe handling:

Keep away from heat, sparks, open flame, hot surfaces, or ignition sources. Ground/bond container and receiving equipment. Avoid contact with skin, eyes and clothing. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Do not eat, drink or smoke in work areas.

Conditions for safe storage, including any incompatibilities:

Store in Flammables cabinet or designated area without combustible materials (cardboard, cloth, paper, etc.). Keep cool. Storage area should be vented or well-ventilated. Keep from freezing or physical damage. Store away from incompatible materials (see Section 10). Keep away from sources of ignition - No smoking.

SECTION 8: Exposure controls/personal protection



Control Parameters: No applicable occupational exposure limits.

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Use under fume hood designed for hazardous chemicals with an average face velocity of 100 feet per minute or greater.

Respiratory protection: Not required under normal conditions of use with adequate ventilation. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Protection of skin: Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.

Eye protection: Wear equipment for eye-protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Wear safety glasses with side-shields or safety goggles as eye protection.

General hygienic measures: None

SECTION 9: Physical and chemical properties

Appearance (physical state, color):	Clear, colorless liquid	**Explosion limit lower**: **Explosion limit upper**:	1.8% 10.1%
Odor:	Hexane like	**Vapor pressure at 20°C**:	266 mbar @ 15C
Odor threshold:	Not determined	**Vapor density**:	3.20
pH-value:	Not determined	**Relative density**:	0.87
Melting/Freezing point:	-26C	**Solubilities**:	Slightly soluble in water. Water Solubility 2880 mg/L @15C.
Boiling point/Boiling range:	50-52C	**Partition coefficient (n-octanol/water)**:	Log P (octanol-water) 2.450
Flash point (closed cup):	-27C	**Auto/Self-ignition temperature**:	540C
Evaporation rate:	Not determined	**Decomposition temperature**:	Not determined
Flammability (solid, gaseous):	Not determined	**Viscosity**:	a. Kinematic: Not determined b. Dynamic: Not determined
Density at 20°C:	Not determined **Specific Gravity: :**0.87 **Henry's Law Constant :**0.013 atm-m3/mole @25C		

SECTION 10: Stability and reactivity

Reactivity:

Nonreactive under normal conditions.

Chemical stability:

Stable under normal conditions.

Possible hazardous reactions:

None under normal processing.

Conditions to avoid:

Heat, sparks, open flame, hot surfaces, and ignition sources. Direct sunlight on containers. High temperatures. Incompatible materials.

Incompatible materials:

Strong oxidizers and bases.

Hazardous decomposition products:

Oxides of carbon, hydrogen chloride.

SECTION 11: Toxicological information

Acute Toxicity:

Oral:

507-20-0 LD50 oral-rat: 2900mg/kg

Chronic Toxicity: No additional information.

Corrosion Irritation:

Dermal:

May cause irritation, dermatitis, and cyanosis.

Skin irritant

Ocular:

May cause irritation, chemical conjunctivitis, and corneal damage

Eye irritant

Sensitization: No additional information.

Numerical Measures: No additional information.

Carcinogenicity:

EPA: EPA classifies this chemical as D - not classifiable as to human carcinogenicity. The cancer weight of evidence classification is based on all routes of exposure.

Mutagenicity: No additional information.

Reproductive Toxicity: No additional information.

SECTION 12: Ecological information

Ecotoxicity: No additional information.

Persistence and degradability: No additional information.

Bioaccumulative potential: No additional information.

Mobility in soil: No additional information.

Other adverse effects: No additional information.

SECTION 13: Disposal considerations

Waste disposal recommendations:

Discarded material or residues in containers should be characterized for disposal considering flammable nature of substance(s). Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). 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. Ensure complete and accurate classification.

SECTION 14: Transport information

US DOT

UN Number:
ADR, ADN, DOT, IMDG, IATA 1127

Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: Chlorobutanes.
Hazard Class: 3
Packing Group: II.
Marine Pollutant (if applicable): No
additional information.
Comments: None

Non Bulk:
RQ (if applicable): None
Proper shipping Name: Chlorobutanes.
Hazard Class: 3
Packing Group: II.
Marine Pollutant (if applicable): No
additional information.
Comments: None

SECTION 15: Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute, Fire

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

RCRA (hazardous waste code):

None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients are listed.

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients are listed.

SECTION 16: Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases: None

Abbreviations and Acronyms:

IMDG International Maritime Code for Dangerous Goods.
WHMIS Workplace Hazardous Materials Information System (Canada).
DNEL Derived No-Effect Level (REACH).
PNEC Predicted No-Effect Concentration (REACH).
CFR Code of Federal Regulations (USA).
SARA Superfund Amendments and Reauthorization Act (USA).
RCRA Resource Conservation and Recovery Act (USA).
IATA International Air Transport Association.
DOT US Department of Transportation.
GHS Globally Harmonized System of Classification and Labelling of Chemicals.
ACGIH American Conference of Governmental Industrial Hygienists.
CAS Chemical Abstracts Service (division of the American Chemical Society).
NPRI National Pollutant Release Inventory (Canada).
NFPA National Fire Protection Association (USA).
HMIS Hazardous Materials Identification System (USA).

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