



Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8854

Material Safety Data Sheets Collection:

Sheet No. 725
1,1,1,2-Tetrachloroethane

Issued: 8/90

Section 1. Material Identification

1,1,1,2-Tetrachloroethane ($C_2H_2Cl_4$) Description: Prepared by chlorination of 1,1-dichloroethylene. Used in manufacturing insecticides, herbicides, soil fumigants, bleaches, paints, and varnishes; as a chemical intermediate for chlorocarbon solvents, a solvent, and a laboratory reagent.

Other Designations: CAS No. 0630-20-6; ethane, 1,1,1,2-tetrachloro-.

Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*^(TM) for a suppliers list.

R 1
I -
S 2
K 0

Genium



HMS
H 2
F 0
R 0
PPG*
* Sec. 8

Cautions: 1,1,1,2-tetrachloroethane is a skin and severe eye irritant.

Section 2. Ingredients and Occupational Exposure Limits

1,1,1,2-Tetrachloroethane, ca 100%

1989 OSHA PEL

None established

1989-90 ACGIH TLV

None established

1988 NIOSH REL

None established

1985-86 Toxicity Data*

Rabbit, eye: 100 mg produces severe irritation

Mouse, oral, TD_{50} : 129 gm/kg administered intermittently over 2 yr in a number of separate, discrete doses

* See NIOSH, RTECS (K18450000), for additional irritative and tumorigenic data.

Section 3. Physical Data

Boiling Point: 266.9 °F (130.5 °C) at 760 mm Hg

Melting Point: -94.4 °F (-70.2 °C)

Vapor Pressure: 14 torr at 77 °F (25 °C)

Viscosity: 1.501 cp at 20 °C

Appearance and Odor: A yellowish red liquid.

Molecular Weight: 167.84

Specific Gravity (20 °C/4 °C): 1.54064

Water Solubility: Soluble

Section 4. Fire and Explosion Data

Flash Point: None reported

Autoignition Temperature: None reported

LEL: None reported

UEL: None reported

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, halon, water spray, or standard foam. For large fires, use water spray, fog, or standard foam.

Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode and a fully encapsulating suit. Structural fire-fighter's protective clothing is ineffective. If feasible, remove fire-exposed containers; otherwise, use water spray to cool fire-exposed containers. Ventilate closed spaces before entering. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: 1,1,1,2-Tetrachloroethane is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: This material is incompatible with potassium, potassium hydroxide, sodium potassium alloy, nitrogen tetroxide, sodium, dinitrogen tetroxide, and 2,4-dinitrophenyl disulfide.

Conditions to Avoid: Avoid incompatibilities, flame, red hot metal surfaces, or incandescent material.

Hazardous Products of Decomposition: Thermal oxidative decomposition of 1,1,1,2-tetrachloroethane can produce very toxic oxides of chlorine (Cl_2), carbon dioxide (CO_2), and carbon monoxide (CO).

Section 6. Health Hazard Data

Carcinogenicity: The IARC does not classify 1,1,1,2-tetrachloroethane as a human carcinogen (Group 3) since human evidence is inadequate and animal evidence limited.

Summary of Risks: 1,1,1,2-tetrachloroethane is a skin and severe eye irritant.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Target Organs: Skin, eyes.

Primary Entry Routes: Inhalation.

Acute Effects: Symptoms of inhalation include vertigo, headache, nervousness, numbness, and tremors. Direct contact with skin and eyes causes irritation. Eye contact may result in chemosis (swelling of conjunctival tissue around the cornea) and hyperemia (blood congestion).

Chronic Effects: Chronic effects include appetite loss, nausea, tired feeling, and headache. Prolonged skin contact may lead to blistering.

FIRST AID

Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.

Skin: Quickly remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, have that *conscious* person drink 1 to 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Physician's Note: For ingestion, consider administering charcoal slurry, aqueous or mixed with saline cathartic or sorbitol. The usual charcoal dose for adults is 30 to 100 g.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel of spill, evacuate all unnecessary personnel, and provide adequate ventilation. Cleanup personnel should protect against vapor inhalation and skin or eye contact. Absorb small spills with some inert, noncombustible absorbent material. Use a clean shovel to place spilled material into appropriate containers for disposal. For large spills, dike far ahead of spill. Do not release to sewers or waterways (bluegill, LC₅₀: 20 mg/liter/24 hr (with a 95% confidence limit of 16 to 24 mg/liter)). Follow applicable OSHA regulations (29 CFR 1910.120).

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33), Hazardous Waste No. U208

Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 1 lb (0.454 kg) [* per RCRA, Sec. 3001]

SARA Extremely Hazardous Substance (40 CFR 355): Not listed

SARA Toxic Chemical (40 CFR 372.65): Not listed

OSHA Designations

Air Contaminant (29 CFR 1910.1000, Subpart Z): Not listed

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact.

Ventilation: Provide general and local ventilation systems to maintain airborne concentrations that promote worker safety and productivity. Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.⁽¹⁰⁷⁾

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Never wear contact lenses in the work area; soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in tightly closed containers in a cool, dry, well-ventilated area away from all heat and ignition sources and incompatible materials (Sec. 5). Protect containers from physical damage.

Engineering Controls: Avoid inhalation of vapors and skin or eye contact. Use only with appropriate personal protective gear. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. By analogy to the carcinogenic chloroethanes, minimize all possible exposures to potential carcinogens. Educate workers about 1,1,1,2-tetrachloroethane's hazards and potential dangers.

Transportation Data (49 CFR 172.101, .102): Not listed

WSDS Collection References: 73, 103, 124, 126, 127, 136, 138, 143

Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Hardies, MD; **Edited by:** JR Stuart, MS

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