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MSDS: ACETYLENE TETRABROMIDE

CHEMICAL DATA: Synonyms: 1,1,2,2 -Tetrabromoethane; acetylene tetrabromide; TBE tetrabromoacetylene; Muthmann's liquid
Chemical family: Brominated alkanes
Formula: $C_2H_2Br_4$; $CHBr_2CHBr_2$
Molecular weight: 345.7
CAS RN: 79-27-6

INGREDIENTS: Tetrabromoethane - 100% (approximately)

PHYSICAL DATA: Boiling point: 119°C at 15 mm Hg
150°C at 50 mm Hg
Freezing point: -1°=1°C
Vapor pressure: 0.02-0.1 mm Hg at 20°C
Vapor density: 11.9 (air = 1)
Solubility
in water: 0.063 g/100 at 20°C; 0.28 g/100 at 80°C
in other solvents: Miscible in all proportions with a number of well known organic solvents like acetone, alcohol, benzene, carbon tetrachloride, chloform, etc.
Specific gravity: 2.96 at 25°C
Evaporation rate: >100 (ethyl ether = 1)
Decomposition: Decomposes at 239 -242°C (760 mm Hg)
Appearance and odor: Colorless to yellowish liquid with sweet pungent odor.

FIRE AND EXPLOSION

HAZARD DATA: *Flash point:* Non-flammable
Autoignition temperature: 335°C
Flammable (explosive) limits: Non-flammable
Extinguishing media: Water, foam, fog, CO₂ or dry chemical
Special fire fighting procedures: Provide fire-fighters with full protective clothes, impervious gloves, boots and apron and self-contained breathing apparatus.
Unusual fire and explosion hazards: When heated, emits highly toxic fumes of bromine, hydrogen bromide, and carbonyl bromide.

HEALTH HAZARD DATA: Toxicity: LD50 (oral, rabbit) - 400 mg/kg
LD50 (oral, rat) - 1100 mg/kg
LD50 (dermal, rat) - 5250 mg/kg
Threshold limit value: Air: 1 ppm (14 mg/m³)

Effects of overexposure:

Eye contact: Mild irritant.

Skin contact: Moderate irritant

Skin absorption: Not likely to be absorbed in toxic amounts.

Mutagenicity: Positive in DNA repair system using Escherichia coli (10 mg/disc).

Emergency & first aid procedures:

Eye contact: Flush eyes promptly with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin contact: Remove all contaminated clothing including shoes. Wash skin thoroughly with mild soap and plenty of water. If irritation persists, get medical attention. Wash clothing before re-use.

Inhalation: Remove person to fresh air. Place him in half upright position and keep him quiet and warm. Apply artificial respiration if necessary and get medical attention.

Ingestion: If swallowed, give two glasses of water and induce vomiting. Get medical attention immediately. Do not induce vomiting or give liquids when person is unconscious.

Note to physician: Treat symptomatically - no known antidote.

REACTIVITY DATA: *Stability:* Stable under normal conditions. Decomposes slowly at 50°C.

Conditions to avoid: High temperatures.

Incompatibility: Reacts with chemically active metals or strong caustics. In the presence of steam, contact with hot iron, aluminum, and zinc may cause formation of toxic vapors. Softens or destroys most plastics and rubbers.

Hazardous decomposition products: Upon heating to decomposition, irritant, toxic hydrogen bromide, bromine, and carbonyl bromide fumes may evolve.

Hazardous polymerization: Will not occur.

SPILL OR LEAK PROCEDURES:

Steps to be taken in case material is released or spilled: Instruct others to keep at a safe distance. Wear breathing apparatus and gloves. Contain large spills by diking. Pump as much as possible into drums. Absorb the rest with earth, sand or sawdust; flush area with water. Prevent liquid from entering sewers.

Waste disposal method: Salvage if possible. Bury in an approved landfill. Keep out of water supplies. If this is not practical, rinse drums with a flammable TBE miscible solvent. Add resulting mixture in small portions to a furnace equipped with a good scrubbing system to contain toxic gases such as bromine, HBr and carbonyl bromide which evolve at high temperatures.

SPECIAL PROTECTION INFORMATION:

Ventilation requirements: Sufficient to control to TLV.

Protective equipment

Eyes: Safety glasses

Gloves: Impervious gloves

Respirator: Minor leaks - full face gas mask and organic canister.

Major leaks - contained breathing apparatus or an air supplied hood.

Clothing: Clean, full body-protecting clothes, boots and apron.

Other protective equipment: Eye fountain and safety shower near work area.

SPECIAL PRECAUTIONS:

Precautions to be taken in handling and storage: Use gloves and eye protection when handling; avoid inhalation of vapor above threshold limit value.

REGULATION INFORMATION:**Transportation:**

IMO: Class 6.1 - Poisons; label no. 6, HARMFUL - Stow Away From Foodstuffs;
Packaging group: III (IMDG CODE - Page 6008-1, amendment 18-79)

RID/ADR:

6.1/62B

UN No.: 2504

Reported in EPA TSCA Inventory, 1983.

Listed in EPA Genetic Toxicology Program, 1984.

Not listed in NTP.

DOT Classification:

ORM-A

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