

Ethane

Safe Handling Guideline

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URL: <http://www-group.slac.stanford.edu/esh/eshmanual/references/chemsafetyGuideEthane.pdf>

Synonyms

Bimethyl, dimethyl, ethyl hydride, methylmethane

Reactivity and Physical Concerns

Incompatible with chlorine, dioxygenyl tetrafluoroborate, and oxidizing materials. **Extremely flammable.** Easily ignited by heat, sparks, or flames. Forms explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Containers may explode when heated. DO NOT ATTEMPT TO EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Exposure Hazards

Routes of Exposure

Inhalation, skin contact

Ethane is considered to be physiologically and toxicologically inert. But at high concentrations, ethane acts primarily as a simple asphyxiant by displacing oxygen from the blood and air. Oxygen deprivation and asphyxiation symptoms include headache, dizziness, numbness of the extremities, sleepiness, mental confusion, poor judgment and coordination, and memory loss and may eventually lead to unconsciousness and death. Skin contact with liquid ethane causes severe frostbite.

Chronic Exposure

NA

First Aid

If inhaled, move victim to fresh air. Call 911. Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. Clothing frozen to the skin should be thawed before being removed. Obtain medical attention immediately. **In case of contact with liquefied gas**, thaw frosted parts with lukewarm water. Keep victim warm and quiet. Obtain medical attention. (See [Chemical Safety: Accidental Exposure Requirements](#) [SLAC-I-730-0A09S-041].)

Exposure Limits

- ACGIH TLV: 1000 ppm (TWA)

Excursions in worker exposure levels may exceed three times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded.

Exposure Controls

Engineering Controls

Local exhaust ventilation or breathing protection is required. Secondary containment of all storage and use is required.

Administrative Controls

Procedures should be developed for the safe use and handling of ethane in all applications. ESHQ can provide information and guidance. Depending upon quantities, certain regulatory permits and/or registrations may be required. Personnel working with the materials must receive detailed training on the hazards, safe use, and emergency procedures.

Personal Protective Equipment

Follow [SDS](#) recommendations for PPE. Prevent skin contact with liquid by the use of gloves, clothing, boots, apron, and eye goggles or full face shield capable of protecting from extreme cold. If the airborne exposure limit may be exceeded and engineering controls are not feasible, wear a NIOSH-approved self-contained breathing apparatus.

Disposal

Contact the Waste Management Group for specific disposal requirements and procedures.

Medical Monitoring (if applicable)

NA

Emergency Response

In the event of a spill that poses a threat to health and/or the environment, immediately evacuate the area and call 911. Then call SLAC Site Security (ext. 5555 or 650-926-5555 from a cell phone) and notify your supervisor.

For other spills, notify your supervisor then SLAC Site Security; these may be cleaned up with appropriate spill response supplies by trained personnel who have been authorized via work planning and control. (See [Spills: Response, Cleanup, and Reporting Procedure](#) [SLAC-I-750-0A16C-006].)

Standards and Regulations

- OSHA. PEL: [29 CFR 1910.1000 Table Z-1](#); Respiratory Protection: [29 CFR 1910.134](#)
- EPA. Release: [40 CFR 355.40](#); Waste: [40 CFR 261.21-261.24](#)
- *California Fire Code*, Chapters 27 through 41 ([24 CCR Part 9](#))

Other References

- NLM. [TOXNET: Toxicology Data Network](#)
- IPCS. International Chemical Safety Card: Ethane ([ICSC 0266](#))