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Material Safety Data Sheet

Tetramethylammonium hydroxide, Methanol solution MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetramethylammonium hydroxide, Methanol solution

Catalog Codes: SLT3190

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8 (b) inventory: Tetramethylammonium hydroxide; Methyl alcohol

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

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Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetramethylammonium hydroxide	10424-65-4	25
Methyl alcohol	67-56-1	75

Toxicological Data on Ingredients: Tetramethylammonium hydroxide: DERMAL (LD50): Acute: 25 mg/kg [Guinea pig]. Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat.]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit.]. VAPOR (LC50): Acute: 64000 ppm 4 hour(s) [Rat.].

Section 3: Hazards Identification

Potential Acute Health Effects: Extremely hazardous in case of eye contact (irritant). Very hazardous in case of skin contact (corrosive, irritant), of ingestion. Slightly hazardous in case of inhalation (lung irritant). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects: Very hazardous in case of skin contact (corrosive), of eye contact (irritant). Hazardous in case of ingestion. **CARCINOGENIC EFFECTS:** Not available. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to cardiovascular system, the

nervous system, the reproductive system. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Finish by rinsing thoroughly with running water to avoid a possible infection. Cold water may be used.

Skin Contact: If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion: Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: The lowest known value is 463.89°C (867°F) (Methyl alcohol).

Flash Points: The lowest known value is CLOSED CUP: 12°C (53.6°F). (Methyl alcohol)

Flammable Limits: The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of combustible materials. Flammable in presence of heat.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Flammable liquid, soluble or dispersed in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. **CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME** (Methyl alcohol)

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill: Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, acids.

Storage: Alkalis may be stored in heavy duty gauge steel containers. Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Methyl alcohol TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [1995] TWA: 262 STEL: 328 (mg/m3) from ACGIH [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Clear sparkling liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Not available.

pH (1% soln/water): >13 [Basic.]

Boiling Point: 100°C (212°F)

Melting Point: May start to solidify at -97.8°C (-144°F) based on data for: Methyl alcohol.

Critical Temperature: Not available.

Specific Gravity: 1.014 (Water = 1)

Vapor Pressure: The highest known value is 97.68 mm of Hg (@ 20°C) (Methyl alcohol).

Vapor Density: The highest known value is 1.11 (Air = 1) (Methyl alcohol).

Volatility: Not available.

Odor Threshold: The highest known value is 160 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Is not dispersed in methanol, diethyl ether. See solubility in water, methanol, diethyl ether.

Solubility: Easily soluble in cold water, hot water, methanol, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5628 mg/kg [Rat.]. (Methyl alcohol). Acute dermal toxicity (LD50): 25 mg/kg [Guinea pig]. (Tetramethylammonium hydroxide). Acute toxicity of the vapor (LC50): 64000 ppm 4 hour(s) [Rat.]. (Methyl alcohol).

Chronic Effects on Humans: The substance is toxic to cardiovascular system, the nervous system, the reproductive system.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (corrosive, irritant), of ingestion. Slightly hazardous in case of inhalation (lung irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: 0040 Passes through the placental barrier. May be fatal or cause blindness if swallowed. (Methyl alcohol)

Special Remarks on other Toxic Effects on Humans: Narcotic. (Methyl alcohol)

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 8: Corrosive liquid. Class 3: Flammable liquid.

Identification: : Flammable Liquid, Corrosive, n.o.s, (Tetramethylammonium hydroxide, Methanol, Solution)
(Tetramethylammonium hydroxide, Methyl alcohol) : UN2924 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: Pennsylvania RTK: Methyl alcohol Massachusetts RTK: Methyl alcohol New Jersey: Tetramethylammonium hydroxide TSCA 8(b) inventory: Tetramethylammonium hydroxide; Methyl alcohol SARA 313 toxic chemical notification and release reporting: Methyl alcohol CERCLA: Hazardous substances.: Methyl alcohol;

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS E: Corrosive liquid.

DSCL (EEC): R11- Highly flammable. R35- Causes severe burns.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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