Material Safety Data Sheet (MSDS

II IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of the Preparation:

25% **TMAH**

Product use:

Developer and cleaner in the electronics industry.

Company/Undertaking:

Manufacturer:
Moses Lake Industries, Inc.
8248 Randolph Rd NE
Moses Lake, WA 98837
USA
(509) 762-5336 FAX (509) 762-5981

Emergenc[y] Telephone Number:

CHEMTREC # (800) 424-9300 (Inside U.S.)
(703) 527-3887 (Outside U.S.) Collect calls accepted

COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	Wt %	EINECS No. EC No.
Tetramethylammonium Hydroxide	75-59-2	<28 %	200-882-9
Water	7732-18-5	balance	231-791-2

3 HAZARDS IDENTIFICATION

Emergency Overview

Danger! Corrosive. Causes eye and skin burns. May cause severe respiratory tract irritation with possible burns in mist or aerosol form. May cause severe digestive system tract irritation with possible burns if ingested. May be haimful or fatal if inhaled or swallowed.

4 FIRST AID MEASURES

Emergency and First Aid Procedures:

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of water or milk. Never give anything by mouth to an unconscious person. Get medical aid immediately. Do not induce vomiting.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Prompt action is essential. Seek medical attention.

Skin Contact: In case of contact, immediately flush skin with water for at least 15 minutes while removing contaminated clothing, shoes. Wash clothing before reuse.

Eye Contact: In case of contact, flush immediately with water for at least 15 minutes. Seek medical attention.

5 FIRE FIGHTING MEASURES

Fire Hazards: Not combustible.
Suitable Fire Extinguishing Media: Use appropriate media for surrounding fire.
Special Fire Fighting Procedures: Wear self-contained breathing apparatus with full face piece in positive pressure mode and proper protective clothing. Move containers from fire area if it can be done without risk
Unusual Fire and Explosion Hazards: None found.
Decomposition Products: Produces toxic fumes of NO, and NH_3 when heated to decomposition.

6 ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8. Avoid discharge to the environment
Spills/Leaks: Contain and absorb spilled product wearing appropriate personal protective equipment. Stop leak if able to do so without risk. Using clean shovel (plastic preferred) place in clean, dry container and cover.

7 HANDLING AND STORAGE

Handling: Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Empty containers retain product residue and can be dangerous. Avoid ingestion and inhalation.
Storage: Store in corrosion resistant area. Do not store with incompatible materials. Keep tightly closed. Keep containers away from heat and out of sun. Exposure to air causes absorption of CO, to produce carbonate.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits:

Component	CAS No.	EINECS No.	ACGIH/TLV	OSHA/PEL	U.K. TWA
Tetramethylammonium hydroxide	75-59-2	200-882-9	N/E	N/E	N/E

Ventilation System: Use general or local exhaust ventilation to meet TLV requirements.
Personal respirators: Not required with adequate ventilation. If airborne concentration is above TLV, use of self-contained breathing apparatus (SCBA) is recommended.
Skin protection: Avoid skin contact, wear gloves and protective clothing (lab coat, apron, coveralls). Gloves subject to permeation or any sign of degradation must be removed and replaced immediately.
Eye protection: Use chemical safety glasses and/or a full face shield where splashing is possible. Maintain shower/eyewash facilities in work area.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor	Clear, colorless. Slight amine odor	Vapor Pressure (mmHg)	N/E
Flash Point °C (°F)	Not combustible.	Vapor Density (air =1)	N/E
Auto Ignition Temp °C (°F)	N/A	Evaporation Rate	N/E
Boiling Point °C (°F)	>100 (>212)	% Volatiles by volume	N/A
Melting Point °C (°F)	< 0 (<32)	Physical State (@STP)	Liquid
PH	>12.5	Coeff. Oil/H_20 Partition	N/E
Specific Gravity (H20=1)	1.0-1.1	Solubility (H20)	miscible

110 STABILITY AND REACTIVITY

Stability: Stable **Hazardous Polymerization:** Will not occur

Conditions to Avoid: Heat, boiling temperatures

Materials to Avoid: Strong acids.

Hazardous Decomposition Products: Tetramethylammonium carbonate, methanol, trimethylamine

11 TOXICOLOGICAL INFORMATION

A. Toxicity **of Components**

Tetramethylammonium Hydroxide

scu-mus $LD_{L,,}$ 19 mg/kg

ivn-rbt LD_{LA}, 1 mg/kg

Results from an experimental study in rats demonstrated lethality following one or more skin applications of tetramethylammonium hydroxide at dose levels of 30 mg/kg and higher.

Carcinogenicity: NTP: No IARC: No Z list: No OSHA Reg: No

Reproductive Effects: None found

B. Effects of Overexposure:

Inhalation: Severe irritation or burns to respiratory system, pulmonary edema, lung damage.

Skin Contact: Severe burns.

Eye Contact: Severe burns. Risk of blindness.

Skin Absorption: None identified.

Ingestion: Is harmful, may be fatal. Severe burns to mouth, throat and stomach. Nausea, vomiting, kidney dysfunction.

Chronic Effects: Lung damage.

Target Organs: Eyes, skin, respiratory system, teeth, kidneys.

Primary Routes of Entry: Skin contact, eye contact, ingestion, and inhalation.

Medical Conditions Generally Aggravated by Exposure: Respiratory system disease.

112 ECOLOGICAL INFORMATION

Ecotoxicity:
None found

Environmental:
None found

113 DISPOSAL CONSIDERATIONS

Disposal Procedure: Dispose in accordance with federal, state and local regulations. Waste material is corrosive.

AA TRANSPORT INFORMATION

Proper D.O.T Shipping Name:	Tetramethylammonium hydroxide solution
UN/NA:	UN 1835
Hazard Class:	8
Label:	Corrosive
Packing Group:	II

115 REGULATORY INFORMATION

TSCA: All components of this product are listed on the TSCA Chemical Inventory

CERCLA: No components listed.

SARA Title No components listed. Acute hazard under SARA 311/312.

116 OTHER INFORMATION

The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and Moses Lake Industries, Inc. assumes no legal responsibility or liability whatsoever resulting from its use.