

MATERIAL SAFETY DATA SHEET

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SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME:

TUNGSTEN ETCH TFW

CHEMICAL FAMILY: Caustic Etchant

FORMULA: Proprietary

SECTION II. INGREDIENTS AND HAZARDS % HAZARD DATA

CAS Number TLV (Units)

Ferricyanide Compound W/V 13746-66-2 15-20 5mg /M³

Alkaline (KOH) W/V 1310-58-3 5-10 2mg /M³

Distilled Water 7732-18-5 balance - -

SECTION III. PHYSICAL DATA

Boiling point 212°F Specific gravity (H₂O=1) 1.22

Vapor pressure mm Hg N/A Evap. Rate (_____ = 1) N/A

Vapor density (Air = 1) N/A Volatiles, % approx. 80

Water solubility Miscible Molecular weight N/A

Appearance & Odor: Amber colored, clear liquid, caustic odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash point & method Auto-ignition temp. Flammability Limits in Air Lower Upper

Non-flammable N/A N/A N/A N/A

Extinguishing media: Water

Special Fire Fighting procedures: Contact with acid may emit highly toxic fumes of cyanide (HCN). Use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dangerous when heated to decomposition or by contact with acid, will emit toxic cyanide fumes.

SECTION V. HEALTH HAZARD DATA

Threshold limit value: None established - of low toxicity. (Of Potassium Ferricyanide)

Effects of Overexposure: Non-volatile cyanide salts appear to be relatively non-toxic, so long as they are not ingested and care is taken to prevent formation of hydrocyanic acid by contact with acids of acid fumes.

Emergency and First Aid Procedures:

Contact with skin: Wash with soap and water - do not use acid type hand cleaners.

In eyes: Flush with water for 15 minutes. Get medical attention.

Accidental ingestion: Induce vomiting with soap, DO NOT USE VINEGAR. GET MEDICAL ATTENTION IMMEDIATELY. SEE ATTACHMENT.

SECTION VI. REACTIVITY DATA

Stability: Unstable Conditions to avoid: Sunlight, heat, acids and acid fumes.

Stable X

Incompatible with: Avoid all contact with acid or acid fumes, combustible organics and reducing agents.

Hazardous decomposition products: Contact with acid or acid fumes may emit highly toxic fumes of cyanide.

Hazardous polymerization May occur:

Conditions to avoid: Heat and acidic conditions.

Will not occur X

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep up all material and recover as much as possible. Do not deposit sweepings in acid storage areas.

WASTE DISPOSAL METHOD: Do not dump into rivers, streams, or stream beds. Waste disposal of Potassium Ferricyanide depends to a great extent upon local requirements. Be sure that all federal, state and local regulations regarding health and pollution are followed.

SECTION VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not needed for small volume usage (see below - other)

VENTILATION: Local Exhaust: Generally not needed

Mechanical: Generally not needed

Eye Protection: Avoid acid exhausts

PROTECTIVE GLOVES: Dry rubber gloves

EYE PROTECTION: Safety goggles or glasses

OTHER PROTECTIVE EQUIPMENT: For large volume usage, dust type breathing mask or dust proof head gear and clothing.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in cool dry ventilated areas away from acids, combustible organics and reducing agents. Keep containers tightly closed & plainly labeled. Store away from eating areas.

OTHER PRECAUTIONS: Do not store near heat or open flame; contact with acid or acid fumes may emit highly toxic cyanide fumes, especially under disaster conditions. Clean spills promptly.

APPROVALS: M.E. HECHT 5/4/87

Judgements as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, Transene extends no warranties, makes no representations and assumes no responsibility as to accuracy or suitability of such information for application to purchaser's intended purpose or for consequences of its use.

-POISON-

CAUTION CYANIDE

DIRECTIONS FOR TREATMENT (CYANIDE AND HCN GAS POISONING).

CALL A PHYSICIAN IMMEDIATELY!

CARRY PATIENT TO FRESH AIR. HAVE HIM LIE DOWN. REMOVE CONTAMINATED CLOTHING BUT KEEP PATIENT WARM.

IF PATIENT IS CONSCIOUS AND BREATHING:

Break amyl nitrite pearl in cloth and hold lightly over nose for not more than 15-20 seconds. Repeat every 5 minutes for 25 minutes if recovery is not forthcoming.

IF CYANIDE HAS BEEN SWALLOWED AND PATIENT IS CONSCIOUS:

Give patient one pint of 1% Sodium Thiosulfate (or soapy water or mustard water) by mouth every 15 minutes until vomiting occurs.

IF PATIENT HAS STOPPED BREATHING:

Give artificial respiration until breathing starts. Break amyl nitrate pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes or until breathing starts.

IF PATIENT IS UNCONSCIOUS BUT BREATHING:

4. Break amyl nitrate pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes if recovery is not forthcoming. Give oxygen from an inhalator.

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

KEEP PATIENT QUIET AND WARM UNTIL PHYSICIAN ARRIVES.

ADDENDUM TO MATERIAL SAFETY DATA SHEET

REGULATORY STATUS

THIS ADDENDUM MUST NOT BE						
DETACHED FROM THE MSDS						
IDENTIFIES SARA 313 SUBSTANCE(S)	HAZARD CATEGORIES FOR SARA					
Any copying or redistribution of the MSDS must include a copy of this addendum	Section 311/312 Reporting					
(Chem.Key: PHACD)	Acute	Chronic	Fire	Pressure	Reactive	
Product or Components Of Products	SARA EHS Sect. 302		SARA Section 313 Chemicals		CERCLA Sec. 103	RCRA
	RQ (lbs.)	TPQ (lbs.)	Name List	Chemical Category	RQ (lbs.)	Section 261.33
POTASSIUM FERRICYANIDE (CYANIDE COMPOUND)	No	No	No	Yes	No	No

Applicable Products:

Gallium Phosphate Etchants, TFE, Moly Etchant TFM,

Tungsten Etchant TFW

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity + 10,000 LBS.

SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec 103: Comprehensive Environmental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center (800-424-8802); Listed at 40 CFR 302.4

RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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