MATERIAL SAFETY DATA SHEET

THEOSE GROUP

TRANSENE COMPANY INC.

10 Electronics Avenue Danvers MA 01923

978-777-7860 fax: 978-739-5640

www.transene.com

Emergency Contact #: Chemtrec 1-800-424-9300

Revised: 9-07

SECTION I - PRODUCT IDENTIFICATION

Product Name: CHROMIUM CERMET ETCHANT TFE

Chemical Family: Caustic Etchant

Formula: Proprietary

SECTION II - INGREDIENTS AND HAZARDS

	CAS#	%	TLV units
Ferricyanide Compound	13746-66-2	20	5mg/M ^{3*}
Sodium Hydroxide	1310-73-2	10	N/E
Distilled Water		70	
* as cyanide			

SECTION III - PHYSICAL DATA

Boiling Point: 212 °F	Specific Gravity: 1.2	
Vapor Pressure (mm Hg.) N/A	% Volatiles by volume: 80%	
Vapor Density (air=) N/A	Evaporation rate: N/A	
Solubility (H ₂ O): miscible		

Appearance and odor: Amber colored, clear liquid, caustic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash point: N/A Flammable limits: N/A

Fire 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 or 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.

See Attachment: Get medical attention immediately.

SECTION VI - REACTIVITY DATA

Stability: stable

Conditions to avoid: Sunlight, heat, acids, and acid fumes

Incompatibility: 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 cyanides.

Hazardous Polymerization: Will not occur Conditions to avoid: Heat, and acidic conditions

SECTION VII - SPILL OR LEAK 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

Ventilation: Local exhaust recommended

Mechanical generally not needed Special: 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

Precautions to be taken in handling and storing: Store in cool dry ventilated areas away from acids, combustible organics and reducing agents. Keep containers tightly closed and 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.

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

Prepared by: M.E. Hecht

SECTION X: DOT SHIPPING INFORMATION

DOT Shipping Information: Potassium Hydroxide Solution, UN1814, PGIII, Class 8

POISON

CAUTION CYANIDE

DIRECTIONS FOR TREATMENT (CYANIDE AND HCN GAS POISONING)
CALL A PHYSICIAN IMMEDIATELY!

CARRY PATIENT TO FRESH AIR. HAVE THEM 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 recover is not forthcoming.

IF CYANIDE HAS BEEN SWALLOWED AND PATIENT IS CONSCIOUS:

2. 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 nitrite 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:

 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)
Any copying or redistribution of the MSDS
must include a copy of this addendum
(Chem.Key: PHACD)

HAZARD CATEGORIES FOR SARA Section 311/312 Reporting

Acute Chronic Fire Pressure Reactive

Product or Components SARA EHS Sect. 302 SARA Section 313 Chemicals CERCLA Sec. RCRA Of Products 103 RQ (lbs.) TPQ (lbs.) Name List Chemical RQ (lbs.) Section 261.33 Category Potassium Ferri Cyanide No No No Yes No No (Cyanide Compound)

Applicable Products: Gallium Phosphate Etchants, TFE, Moly Etchant TFM, Tungsten Etch 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

Effective Date 01-21-03 Supersedes 02-17-87