

MATERIAL SAFETY DATA SHEET

Transene Company, Inc.
10 Electronics Ave.
Danvers, Ma. 01923
978-777-7860 fax: 978-739-5640
www.transene.com

EMERGENCY NO. 1-800-424-9300

SECTION I. MATERIAL IDENTIFICATION

Revised: 3/04

MATERIAL NAME: BRIGHT ELECTROLESS GOLD

OTHER DESIGNATIONS: Gold Plating Solution

CHEMICAL FAMILY

TRADE NAME: BRIGHT ELECTROLESS GOLD

SECTION II. INGREDIENTS AND HAZARDS

	% w/v	HAZARD DATA Toxicity (mg/M ³)
Potassium Gold Cyanide, C ₄ AuN ₄ K CAS 13967-50-5	< 1	10 ppm*
Citric Acid C ₆ H ₈ O ₇ , CAS 62-56-6	1-5	N/A
Ethylenediamine Tetracetic Acid, Tetrasodium salt, CAS 64-02-8 LD ₅₀	1-5	2g/Kg
Ammonium Hydroxide, NH ₄ OH, CAS 133-62-16	1-5	50 ppm **
Distilled Water	>84%	

*As NH₃

** 10 ppm as HCN (hydrocyanic gas) when mixed with strong acids.

HMIS Rating
Health : 3 Reactivity : 0 Flammability : 1

SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C	100	Specific gravity, 20/4°C	N/A
Vapor pressure at 15°C, mm Hg	N/A	Evap. Rate (BuAc= 1)	N/A
Vapor density (Air = 1)	N/A	Volatiles, %	> 84
Water solubility at 20°C	Complete	Molecular weight	not applicable

Appearance & Odor: Clear to slightly yellow liquid/slight ammoniacal odor.

SECTION IV. FIRE AND EXPLOSION DATA

LOWER UPPER

Flash Point and Method **Autoignition Temp.** **Flammability Limits in Air** — —
Non Flammable NOT APPLICABLE

Extinguishing media: Air foam or water fog.

Special fire fighting procedures: Wear full protective clothing and mask with ammonia vapor canister.

SECTION V. REACTIVITY DATA

Stability Stable X
Unstable

Conditions to Avoid: Heat causes the release of toxic fumes. Do not mix with strong acid

Incompatible with: Strong acids, acrolein, dimethyl sulfate, halogens

Hazardous decomposition products: Contact with acids or weak alkalies will release poisonous and flammable HCN gas. Ammonia fumes.

Hazardous polymerization: May Occur
Will Not Occur X

SECTION VI. HEALTH HAZARD INFORMATION: TLV Potassium Gold Cyanide:10 ppm

Effects of overexposure: Weakness, dizziness, headache, vomiting and finally unconsciousness. Symptoms of mild respiratory irritation.

FIRST AID: SEE ATTACHED SHEET

Eye contact: Flush for at least 15 minutes with water, lifting both lids. Contact a physician.

Skin contact: Flush area of contact with water. Discard contaminated clothing.

Inhalation: Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately.

INGESTION: DO NOT INDUCE VOMITING. Get medical attention immediately.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILLS, LEAKS: DO NOT allow water containing cyanide to escape into water course or into sewer which may contain acid; contact with acid may release poisonous and flammable hydrogen cyanide (HCN) gas. Sweep up spillage for disposal. Decontaminate spill area with sodium hypochlorite solution.

DISPOSAL: Dispose in waste treatment facility in compliance with local, state and federal regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Respiratory protection: Air supplied self-contained breathing apparatus, NIOSH approved. Dust filter respirator danger of exceeding exposure limits.

Ventilation: Local exhaust ventilation system. To keep exposure below airborne limits

Protective gloves: Rubber

Other protective equipment:
lab coat, coveralls, hat.

Eye protection:
Chemical goggles or splash face shield

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Storage & Handling Information: Store in a dry, well ventilated place. Keep container closed. Use only dry, clean utensils in handling. Do not store with acids, weak alkalies, or strong oxidizers.

DOT Class Toxic Liquid, Inorganic, N.O.S. (Potassium Metallic Cyanide Solution), 6.1, UN 3287, PGII

APPROVALS: M E Hecht

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TRANSENE COMPANY, INC.
DANVERS INDUSTRIAL PARK
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TEL: (978) 777-7860

—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:

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

3. 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 seconds 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 seconds if recovery is not forthcoming. Give oxygen from 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 substances(s). Any copying or redistribution of the MSDS must include a copy of this addendum.

**Hazard Categories for SARA
Section 311/312 Reporting
Acute Chronic Fire Pressure Reactive**

Products or Components of product.	SARA EHS Sect.302		SARA Section 313 Chemicals		CERCLA Sec.103	RCRA
	RQ (lbs.)	Tpq (lbs.)	Name List	Chemical Category	RQ (lbs.)	Sec. 261.33
Potassium Gold Cyanide (Cyanide Compound) (14263-59-3)	No	No	No	Yes	No	No

Applicable Products:
Bright Electroless Gold, Special Gold.

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 asterik (*) 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=10000 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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TO: UNIV OF LOUISVILLE
437 LUTZ HALL
BIO ENGR - SALLY WREN
LOUISVILLE KY 40208

PO# CREDIT CARD REL # 1
INV# 099477
DATE: 2-28-07

This is to certify that this material meets the manufacturer's specification as to material, fabrication, inspection and lot identification.

<u>PRODUCT</u>	<u>QUANTITY</u>	<u>LOT NUMBER</u>	<u>DATE OF MFG.</u>	<u>SHELF LIFE/EXP.</u>
BRIGHT ELEC. GOLD	1 X 1 QUART	020728	2-07	2-08

C Fisher
C. FISHER, QUALITY CONTROL

CERTIFICATE OF COMPLIANCE