MSDS Name: KJL023
Manufacturer Name: Kurt J. Lesker Company

Components:	
Au :	Gold metal, powder and pieces
EVMAUBE4QXQD :	Beryllium, Pieces

KJLC Code: **EVMAUBE4QXQD**

Kurt J. Lesker Company

Gold metal, powder and pieces

Manufacturer MSDS Number: Au

SECTION 1 : Chemical Product and Company Identification

MSDS Name: Gold metal, powder and pieces
Manufacturer Name:Kurt J. Lesker Company
Address:

P.O. Box 10
1925 Route 51
Clairton, PA 15025

For emergencies in the US, call CHEMTREC: 800−424−9300
Other Phone: US National Poison Hotline: (800)222−1222
Manufacturer MSDS Creation Date:

06/27/2006

Manufacturer MSDS Revision Date:

06/25/2008

Synonyms:

Gold metal; burnish gold; colloidal gold; gold flake; gold leaf; gold powder; magnesium gold purple; shell gold.

Chemical Family: Metal
Chemical Formula: Au
Molecular Weight: 196.97
DOT HAZARD LABEL

No data.

Product Codes:

Au

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SECTION 2 : Hazardous Ingredients/Identity Information

Chemical Name	***CAS#***	***% Weight***	
Gold metal	7440−57−5	0.0 −100.0 %	

Chemical Name	*CAS#*	*% Weight*	
See SECTION 16−Other Information	NA	0.0 −100.0 %	

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SECTION 3 : Physical And Chemical Characteristics

Physical State/Appearance:

Yellow, ductile metal or powder, no odor.

Physical State:

[ ] Gas , [ ] Liquid , [X] Solid

pH:

No data.

Vapor Pressure:

1 mm at 1869.0 C (3396.2 F) (VS. AIR OR MM HG)

Vapor Density:

No data. (VS. AIR = 1)

Boiling Point:

2700.00 deg C (4892.0 deg F) to 3080.00

Melting Point:

1064.40 deg C (1947.9 deg F)

Solubility In Water:

insoluble

Specific Gravity:

19.3 g/cc (WATER = 1)

Density:

No data.

Evaporation Point:

No data. (VS BUTYL ACETATE=1)

Percent Volatile:

N.A.

FlashPoint:

N.A.

Upper Flammable Explosive Limit:

NA

Lower Flammable Explosive Limit:

NA

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SECTION 4 : Fire And Explosion Hazards

Flash Point:

N.A.

Flash Point Method:

No data.

Upper Flammable or Explosive Limit: NA

Lower Flammable or Explosive Limit: NA

Extinguishing Media:

Not applicable. Use suitable extinguishing media for surrounding materials and type of fire.

Fire Fighting Instructions:

Firefighters must wear full face, self−contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire Hazards:

Extremely inactive; not attacked by acids, air or oxygen. Superficially attacked by aqueous halogen at room temperature. React with aqua regia, with mixtures containing chlorides, bromides, or iodides if they can generate nascent halogens. Reacts with many oxidizing mixtures especially those containing halogens. Reacts with alkali cyanides, solutions of thiocyanates and double cyanides. Does not corrode in air but is tarnished by sulfur. Finely divided gold with hydrogen peroxide may explode.

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SECTION 5 : Health Hazards

Applies to All Ingredients:

Route of Exposure:

Inhalation? No , Skin? No , Eyes? No , Ingestion? No , Other: N

Potential Health Effects:

Eye Contact:

May cause irritation.

Skin Contact:

May cause abbrasive irritation. May cause an allergic reaction.

Inhalation:

May cause irritation to mucous membranes.

Ingestion:

May cause gastrointestinal tract irritation.

Chronic Eye Contact:a

May cause conjunctivitis.

Chronic Skin Contact:

May cause dermatitis.

Chronic Inhalation:

Long exposure time may cause dyspnea, hyperventilation on exertion, cough, sputum and chronic bronchitis.

Chronic Ingestion:

No chronic health effects recorded.

Carcinogenicity:

NTP? No , IARC Monographs? No , OSHA Regulated? No

Target Organs:

No target organs recorded.

Signs/Symptoms:

INHALATION: May cause a red, dry throat, sneezing and difficulty breathing. INGESTION: May cause nausea and vomiting. SKIN: May cause redness, dryness and itching. EYE: May cause redness, burning, inflammation and watering.

Other Potential Health Effects:

CARCINOGENICITY/OTHER INFORMATION: Questionable carcinogen with experimental tumorigenic data by implantation.

Aggravation of Pre−Existing Conditions:

None recorded.

See "Section II" LD 50/LC 50: Not Established

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SECTION 6 : Emergency And First Aid Procedures

Physical Health Hazard:

HEALTH HAZARDS (ACUTE AND CHRONIC): Gold poisoning is rare. The few recorded cases of fatalities are the result of therapeutic overdose. Human systemic effects are similar to those of arsenic exposure and include: violent diarrhea, gastritis, colitis, dermatitis, blood dycrasias, leukopenia, aganulocytosis and a plastic anemia. The therapeutic use of gold compounds has been associated with serious effects at the kidney, liver, and other vital organs. Generally, gold compounds are poorly absorbed when ingested. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Eye Contact:

Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

Skin Contact:

Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.

Inhalation:

Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention if symptoms persist.

Ingestion:

Give 1−2 glasses of milk or water and induce vomiting; seek medical attention if symptoms persist. Never induce vomiting or give anything by mouth to an unconscious person.

Note to Physicians:

No data available.

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SECTION 7 : Reactivity Data

Chemical Stability:

Unstable [ ] Stable [X]

Conditions to Avoid:

CONDITIONS TO AVOID − INSTABILITY: None; CONDITIONS TO AVOID − HAZARDOUS POLYMERIZATION: None

Incompatibilities with Other Materials:

Mixtures containing chlorides, bromides or iodides; alkali cyanaides; thyocyanate solutions; double cyanides; hydrogen peroxide; halogens; ammonia

Hazardous Polymerization:

Will occur [ ] Will not occur [X]

Hazardous Decomposition Products:

Fumes of gold, nascent halogens, carbon monoxide, carbon dioxide

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SECTION 8 : Precautions For Safe Handling

Spill Cleanup Measures:

Wear appropriate respiratory and protective equipment specified in section VIII−control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Other Precautions:

None

HAZARD LABEL INFORMATION:

Store in cool, dry area Store in tightly sealed container Wash thoroughly after handling

Handling:

None

Storage:

None

Hygiene Practices:

WORK/HYGIENIC/MAINTENANCE PRACTICES: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

Waste Disposal:

Dispose of in accordance with local, state and federal regulations.

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SECTION 9 : Control Measures

Ventilation System:

Good general ventilation should be sufficient to control airborne levels.

Hand Protection Description:

Rubber gloves

Eye/Face Protection:

Safety glasses

Protective Clothing/Body Protection:

Protective gear suitable to prevent contamination

Respiratory Protection:

NIOSH approved respirator

NIOSH approved respirator Impervious gloves Safety glasses Clothes to prevent skin contact

Ingredient Guidelines

Ingredient: Gold metal

Guideline Information: ACGIH TLV: NE; OSHA PEL: NE; OTHER LIMITS: NE

Ingredient: See SECTION 16−Other Information

Guideline Information: ACGIH TLV: No data.; OSHA PEL: No data.; OTHER LIMITS: No data.

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SECTION 10 : Other Information

Gold metal:

Section 302:

No

Section 304:

No

Section 313 Toxic Release Form:

No

See SECTION 16−Other Information:

Section 302:

No

Section 304:

No

Section 313 Toxic Release Form:

No

MSDS Revision Date:

06/25/2008

Disclaimer:

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Comment:

Control of Substances Hazardous to Health Regulations EH40 Occupational Exposure Limits Maximum Exposure Limit: NE Occupational Exposure Standard: NE

Abbreviations used

NA=Not Applicable NE: Not Established

ADDENDUM : Other Client Information

Notes:

, EJTAU4014MM, EJTAU402.3A1, EJTAU402.5MM, EJTAU402A.03, EJTAU8X.016, EJTAUCR3A2, EJTAUCR403A4, EJTAUCR403A2, EJTAUER402A1, EJTAUNI403A2, EJTAUNIDELA2, EJTAUNI3A4MM, EJUAUNIDELTA, EJTAUPD60MM+, KJL81003, EVMAUPDSHT50, EVMAUPDSHT80, EJTAUPD353OD, EJTAUPD57X.3, EVMAUPDSHT.1, EVMAUPDQXQH, EVMAUPDQXQ60, EJTAUPD352A2, EVMAUPDSHOT, EJTAUX19A.5M, EJTAUX2.25A2, EJTAUX402A4H, EJTAUX40X1MM, EJTAUXX.75A1, EJTAUXX1.5A2, EJTA

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KJLC Code: **EVMAUBE4QXQD**

ACTIO MSDS ID: 778752

SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION (N/A)

Product Name: **Beryllium, Pieces**

Manufacturer Name: Kurt J. Lesker Company

Address: 1925 Worthington Ave
Clairton, PA 15205

TELEPHONE NUMBERS:
CHEMTREC: (703)
527−3887 (outside USA)

US National Poison
Hotline: (800) 222−1222

CHEMTREC Numbers:

For emergencies in the US, call CHEMTREC: 800−424−9300

Revision Date: 06/30/2006

HMIS ratings (scale 0−4)

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SECTION 2 : COMPOSITION, INFORMATION ON INGREDIENTS : (N/A)

Ingredient Name	*CAS#*	*Ingredient Percent*
Beryllium	7440−41−7	100%
EINECS: 231−150−7 EC Index Number: 1 EU Number: 004−001−00−7		

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SECTION 3 : HAZARDS IDENTIFICATION : (N/A)

Environment Hazards:

Information pertaining to particular dangers for man and environment:
R 49 May cause cancer by inhalation.
R 25 Toxic if swallowed.
R 26 Very toxic by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 43 May cause sensitization by skin contact.
R 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Hazard description: T+ Very toxic

HMIS ratings (scale 0−4):
(Hazardous Materials Identification System):

Notes:

Health (acute effects) = 3
Flammability = 0
Reactivity = 0

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SECTION 4 : FIRST AID MEASURES : (N/A)

Eye Contact:	Rinse opened eye for several minutes under running water. Then consult a doctor.
Skin Contact:	Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.
Inhalation:	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.
Ingestion:	After swallowing: Do not induce vomiting; immediately call for medical help. Seek immediate medical advice.
General information:	Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing has been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.

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SECTION 5 : FIRE FIGHTING MEASURES : (N/A)

Explosion:	Danger of explosion: Product does not present an explosion hazard.
Flash Point:	Not applicable
Upper Flammable or Explosive Limit:	Not determined
Lower Flammable or Explosive Limit:	Not determined
Extinguishing Media:	Suitable: Special powder for metal fires. Do not use water.
Unsuitable Media:	For safety reasons unsuitable extinguishing agents: Water Carbon dioxide Halogenated extinguisher
Hazardous Combustion Byproducts:	Special hazards caused by the material, its products of combustion or resulting gases: In case of fire, the following can be released: Toxic metal oxide fume
Protective Equipment:	Wear self−contained respirator. Wear fully protective impervious suit.
	Ignition temperature: Not determined

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SECTION 6 : ACCIDENTAL RELEASE MEASURES : (N/A)

Personal Precautions:	Person−related safety precautions: Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.
Spill Cleanup Measures:	Dispose contaminated material as waste according to section 13. Ensure adequate ventilation.
Environmental Precautions:	Do not allow material to be released to the environment without proper governmental permits.
Additional information:	See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

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SECTION 7 : HANDLING and STORAGE : (N/A)

Handling:	Information for safe handling: Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Open and handle container with care. Information about protection against explosions and fires: Keep ignition sources away.
Storage:	Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Reacts with alkali metals. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers.

Notes:

Hygiene Practices:	The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the eyes and skin.

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SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION : (N/A)

Personal Protective Equipment Routine Handling:	General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the eyes and skin.
Hand Protection Description:	Protection of hands: Impervious gloves Check protective gloves prior to each use for their proper condition. Material of gloves: The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Eye/Face Protection:	Safety glasses
Protective Clothing/Body Protection:	Protective work clothing.
Respiratory Protection:	Breathing equipment: Not required.
Exposure Limits:	Components with limit values that require monitoring at the workplace: Chemical Name: Beryllium and compounds, as Be ACGIH TLV: 0.002 mg/m3; 0.01 mg/m3−STEL; Confirmed human carcinogen Austria: Carcinogen Belgium TWA: 0.002 mg/m3; Carcinogen Denmark TWA: 0.001 mg/m3 Finland TWA: 0.002 mg/m3; 0.006 mg/m3 −STEL; Carcinogen France VME: 0.002 mg/m3; C2 Carcinogen Germany: Carcinogen Hungary TWA: 0.001 mg/m3; Carcinogen Japan OEL: 0.002 mg/m3; 2A Carcinogen Korea TLV: 0.002 mg/m3; 0.01 mg/m3−STEL; Confirmed human carcinogen Netherlands MAC−TGG: 0.002 mg/m3; Carcinogen Norway TWA: 0.001 mg/m3 Poland TWA: 0.001 mg/m3; 0.003 mg/m3−STEL Russia: 0.001 mg/m3−STEL; Carcinogen Sweden NGV: 0.002 mg/m3; Carcinogen Switzerland MAK−W: 0.002 mg/m3; Carcinogen United Kingdom TWA: 0.002 mg/m3; Carcinogen USA PEL: 0.002 mg/m3 Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Additional information: No data

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SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES : (N/A)

Physical State/Appearance:	Form: Lump
Color:	Grey
Odor:	Odorless
Decomposition Temperature:	Not determined
Vapor Pressure:	Not determined
Flash Point:	Not applicable
Upper Explosive Limit:	Not determined
Lower Explosive Limit:	Not determined
Boiling Point:	2970 deg C
Melting Point:	1283 deg C
Solubility:	In/Miscibility with Water: Insoluble
Density:	At 20 deg C: 1.85 g/cm3 Sublimation temperature/start: Not determined Ignition temperature: Not determined Danger of explosion: Product does not present an explosion hazard.

Notes:

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SECTION 10 : STABILITY and REACTIVITY : (N/A)

Conditions to Avoid:	Decomposition will not occur if used and stored according to specifications.
Incompatibilities with Other Materials:	Materials to be avoided: Alkali metals
Reactivity:	Dangerous reactions: No dangerous reactions known.
Hazardous Decomposition Products:	Thermal decomposition: Decomposition will not occur if used and stored according to specifications. Dangerous products of decomposition: Toxic metal oxide fume

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SECTION 11 : TOXICOLOGICAL INFORMATION : (N/A)

Beryllium :

Acute Health Effects:	LD/LC50 values that are relevant for classification: LD50: 3000 mg/kg (rat) LDLo: 1 gm/kg (man) LDLo: 8 gm/kg (rbt)
Skin Effects:	LD50 values that are relevant for classification: Dermal: LD50: > 10 gm/kg (rbt)
Ingestion Effects:	LD50 values that are relevant for classification: Oral: LD50: 4000 mg/kg (mus)
Inhalation Effects:	LC50 values that are relevant for classification: Inhalative: LC50/1H: > 42 mg/m3/1H (rat)
Chronic Effects:	Subacute to chronic toxicity: Acute exposure to beryllium may cause dermatitis, chronic skin ulcers, rhinitis, nasopharyngitis, epistaxis, bronchitis, pneumonitis possibly fatal, fever, rales, dyspnea and substernal pain. Chronic exposure causes a delayed form of lung disease which may be delayed for five years or more after exposure stops. Symptoms include coughing, shortness of breath, loss of appetite, weight loss and fatigue. Cyanosis is common with elevated pulse and respiratory rates. This disease may progress to death from cardiac or respiratory failure. Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals: Liver − hepatitis (hepatocellular necrosis), zonal Blood − changes in serum composition. Nutritional and Gross Metabolic − weight loss or decreased weight gain. Biochemical − Metabolism (Intermediary) − other proteins. Biochemical − Enzyme inhibition, induction, or change in blood or tissue levels − phosphatases. Tumorigenic − neoplastic by RTECS criteria. Lung, Thorax, or Respiration − structural or functional change in trachea or bronchi. Lungs, Thorax, or Respiration − tumors. Lungs, Thorax, or Respiration − bronchiogenic carcinoma. Musculoskeletal − tumors.
Sensitization:	Sensitization possible through skin contact.
Irritation:	Irritation of skin: Mild: 50 mg/24H (rbt) Irritation of eyes: Mild: 100 mg (rbt) Moderate: 100 mg/24H (rbt) Primary irritant effect: On the skin: Powder: Irritant effect On the eye: Powder: Irritant effect
Other Toxicological Information:	Other information (about experimental toxicology): Tumorigenic effects have been observed on tests with laboratory animals. Mutagenic effects have been observed on tests with bacteria. Mutagenic effects have been observed on tests with human and/or animal DNA cells. Mutagenic effects have been observed on tests with laboratory animals. Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. EPA−B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies. IARC−1: Carcinogenic to humans: sufficient evidence of carcinogenicity. NTP−2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals. ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

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SECTION 12 : ECOLOGICAL INFORMATION : (N/A)

General notes:	Do not allow material to be released to the environment without proper governmental permits.

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SECTION 13 : DISPOSAL CONSIDERATIONS : (N/A)

Waste Disposal:	Product: Recommendation: Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.

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SECTION 14 : TRANSPORT INFORMATION : (N/A)

Transportation Information:	Not a hazardous material for transportation.
DOT Hazard Class:	None
DOT Subpart E Labeling Requirement:	6.1+4.1
IATA:	Label: 6.1+4.1
IATA Class:	None
RID/ADR:	Land transport ADR/RID (cross−border)
RID/ADR Class:	None
Maritime Transportation CGVS/GGVE/IMDG:	Maritime transport IMDG:
CGVS/GGVE/IMDG Class:	None
CGVS/GGVE/IMDG Subsidiary Risk Label:	6.1+4.1
	Air transport ICAO−TI: ICAO Class: None Label: 6.1+4.1 Transport/Additional information: Not dangerous according to the above specifications.

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SECTION 15 : REGULATORY INFORMATION : (N/A)

Beryllium :

TSCA 8(b): Inventory Status:	All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
Section 313 Toxic Release Form:	Information about limitation of use: For use only by technically qualified individuals. This product contains beryllium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.
State:	This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.
European Community Chemical Inventory Status:	Product related hazard informations: Hazard symbols: T+ Very toxic
Risk Phrases:	49 May cause cancer by inhalation. 25 Toxic if swallowed. 26 Very toxic by inhalation. 36/37/38 Irritating to eyes, respiratory system and skin. 43 May cause sensitization by skin contact. 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
Safety Phrase:	53 Avoid exposure − obtain special instructions before use. 45 In case of accident or if you feel unwell, seek medical advice immediately.

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SECTION 16 : ADDITIONAL INFORMATION : (N/A)

HMIS:	
Health Hazard:	3 (acute effects)
Fire Hazard:	0
Reactivity:	0
MSDS Revision Date:	06/30/2006
Disclaimer:	

Notes:

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HMIS ratings (scale 0−4)

ADDENDUM : Other Client Information

Notes: , EVMAUBE4QXQD

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