Manufacturer's Name & Address:
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Section 01 : General Information

Common Name: ACR 434 GOLD MAKE-UP SALT
Chemical Name: ELECTROPLATING GOLD MAKE-UP SALT
Chemical Family: CYANIDE SALT
Chemical Formula: KAu(CN)2
Preparation Date: 09/12/89
Last Revision Date: 07/09/87
Revision Number: 8909C

Section 02 : Hazardous Ingredients

Section 2A: Hazardous Ingredients

L/I	Chemical & Common Name	CAS-Reg-No	%'age	Applicable Exposure Limits PEL-OSHA	TLV-ACGIH
1.	R Potassium gold cyanide	13967-50-5	100	5 mg/m3 asCN	5 mg/m3 asCN

Section 2B: Carcinogenic Ingredients

L/I	Chemical & Common Name	CAS-Reg-No	%'age	Reference Source IARC	OSHA
1.	None				

Section 2C: Mutagenic Ingredients

L/I	Chemical & Common Name	CAS-Reg-No	%'age	Reference Source IARC	OSHA
1.	None				

Section 2D: Teratogenic Ingredients

L/I	Chemical & Common Name	CAS-Reg-No	%'age	Reference Source IARC	OSHA
1.	None				

Section 03 : Health Hazard Data

Acute Health Effects:
Toxic effect studies in animals showed overexposure may lead to asphyxia, dyspnea, ataxia, tremors, coma and eventual death caused by the interruption of the metabolic process.
Human health effects of overexposure initially include: skin irritation with discomfort or rash, eye irritation or burns with tearing or blurred vision and very possibly permanent eye damage. There can be nonspecific discomfort such as nausea, headaches, dizziness, vomiting and weakness. Higher exposures may lead to rapid respiration, lowered blood pressure, unconsciousness, convulsions and eventual death. Evidence suggests that there is significant permeation through the skin and that individuals with a preexisting disease of the central nervous system may have increased susceptibility to more toxic effects of overexposure.

Chronic Health Effects:
Chronic exposure to cyanide are non-specific and rare.

Routes Of Entry:
May be fatal if inhaled, absorbed through the skin or swallowed. Contact with acid rapidly liberates dangerous amounts of HCN gas. Contact with water or weak alkali solutions can liberate smaller but still dangerous amounts of HCN gas. Can cause severe burns to the eye and irritation to the skin areas.
Move the affected person from the hazardous exposure area. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's rescue procedures and know the location of rescue equipment before the need arises. The following toxicity data are the "Reported (Estimated) Human Response to Various Concentrations of HCN Vapors" according to a NIOSH criteria data document. 300ppm...Rapidly fatal, 100-200ppm...fatal within .5-1 hr, 45-54ppm... tolerated for .5-1 hr. without immediate or delayed effects, 20-40ppm...slight symptoms after several hours, 10ppm...TLV/TWA for a normal 8 hr. day, no adverse effect. 2-5ppm...odor threshold.

Medical Conditions Aggravated By Exposure:
Inhalation or ingestion of cyanide salts or solutions may be rapidly fatal. Larger doses by inhalation or swallowing may cause the victim to rapidly lose consciousness, stop breathing, and expire. In some cases there are convulsions. At low levels of exposure, the earlier symptoms include weakness, headache, confusion, nausea, and vomiting.

Emergency And First Aid Procedures:
Treatment for cyanide poisoning can be provided in two ways, "First Aid" and "Medical Treatment". Both require immediate action to prevent further harm or death. First aid using amyl nitrite and oxygen is generally given by a person qualified to administer first aid before medical help arrives. Medical treatment involves intravenous injections and must be administered by qualified medical personnel. Experience has shown that if first aid is given promptly this is the only treatment needed.
Medical treatment is given if the victim does not respond to first aid. It provides a larger quantity of antidote including sodium thiosulfate to

chemically destroy cyanide in the body. Amyl nitrite and medical treatment kits for cyanide poisoning can be obtained from a laboratory supply facility dealing with safety supplies.
CONSCIOUS: for inhalation and/or absorption if the victim is alert, oxygen may be all that is needed. If the victim is not fully conscious or shows signs of poisoning, then continue the following instructions.
UNCONSCIOUS AND BREATHING: Break an amyl nitrite ampoule in a cloth and hold under the victim's nose for 15 seconds. Remove for 15 seconds and then repeat procedure 5-6 times. If necessary, use a fresh ampoule every 3 minutes until the victim regains consciousness (usually 1-4 ampoules). Give oxygen to aid recovery. Where more severe poisoning has occurred, consider holding the amyl nitrite under the nose continuously for the first ampoule or more.
NOT BREATHING: Give artificial respiration, preferably with an oxygen resuscitator. Give amyl nitrite by placing the broken ampoule in the face piece of the resuscitator, being careful not to allow the ampoule to enter the victim's mouth. If using manual artificial respiration, give the amyl nitrite antidote as in the previous paragraphs except keep the ampoule under the nose with replacement every 3 minutes.
MEDICAL TREATMENT: Medical treatment is normally provided by a physician, but in extreme cases might be provided by a professionally trained "qualified medical person" where a need exists and where state and local laws permit.
Sodium nitrite and sodium thiosulfate are given intravenously. If the victim is not responding to amyl nitrite, a solution of sodium nitrite (10 ml of a 3% solution) is given intravenously at the rate of 2.5 ml/minute, then immediately inject the thiosulfate (50 ml of a 25% solution) at the same rate, taking care to avoid extravasation. This is a fairly lengthy treatment (approx. 25-30 min.). Consideration must be given to the weight and condition of the patient. The sodium nitrite is about one third of a lethal dose, so care should be taken to avoid excessive use. It is not essential that the full quantities be given; injections can be stopped at any point if recovery is evident. The patient must be carefully watched for a 24-48 hour period if the cyanide exposure was severe. Further treatment can be administered, but only by a qualified physician, and that is if the patient has developed methemoglobinemia (blue skin).

Section 04 : Chemical Data

Boiling Point:	N/A
Vapor Pressure:	N/A
Vapor Density:	N/A
Specific Gravity:	3.45
Per Cent Volatile By Volume:	N/A
Evaporation Rate Based On:	N/A
Evaporation Rate:	N/A

Solubility (Specify Solvents):
Completely soluble in water. The cyanide salt dissolved in water forms an equilibrium between ionized cyanide and highly volatile hydrogen cyanide; although in very small quantity, extreme care should be taken when dissolving the salt.

Appearance & Odor:
White crystalline material, with no discernible odor.

Section 05 : Physical Hazard Data

Flash Point: N/A
Flammable Limits: Non-flammable
Lel: N/A
Uel: N/A

Flammability Data:
The material will not burn. The cyanide salt or solution will not be destroyed in an ordinary fire involving combustible materials such as wood or paper. The compound would require a very hot fire in order to decompose.

Extinguishing Media:
DO NOT use carbon dioxide which can react with the cyanide in the presence of moisture to form hydrogen cyanide which is very flammable. Water would be best used to extinguish the fire.

Usual Fire Fighting Procedures:
Firefighters should wear proper protective equipment and self-contained breathing appartus with full facepiece in the positive pressure mode. The cyanide material can pose a threat to the environment during a fire in that hosing down the fire with water can dissolve the cyanide and wash it to the environment, causing undo contamination. The runoff should try to be contained and then detoxified with hypochlorite solution.

Unusual Fire Fighting Procedures:
Closed containers of cyanides exposed to the heat of fire may explode. The closed containers can be hosed down with water to keep them cool. Toxic HCN gases can be released in an intense fire.

Incompatibility:
Contact with acid solutions forms highly toxic and flammable hydrogen cyanide. Will react violently with strong oxidizing agents, i.e.,nitrates, permanganates.

Hazardous Decomposition Products:
Containers should be securely closed as moisture will cause slow decompositon and the formation of toxic HCN and ammonia gases.

Hazardous Polymerization:
Will not occur.

Stability:
This material is stable

Section 06 : Spill Or Leak Procedures

Steps To Be Taken In Case Material Is Released Or Spilled:
Soak up the spill or powder with an inert material and return to the recycling facility for the recovery of the precious metal material. This material cannot be washed to any sewer or drain.

Waste Disposal Method:
Must be disposed of in accordance with all Federal, State, and local regulations. Do not flush cyanide to any sewer or drain that may contain acid disposal as this will cause the evolution of hydrocyanic gas which is extremely poisonous and toxic; also, this substance is highly toxic to marine life. Comply with all regulatory agencies in the event of a major release to the environment. Flush spill area with a dilute solution of sodium or calcium hypochlorite and remove to a waste treatment system for further disposal. Under Federal and State Regulations, cyanide bearing precious metal materials are now considered hazardous waste and therefore, must be manifested to a permitted recycling facility for reclamation.

Section 07 : Exposure Control Information

Respiratory Protection:
Do not breathe in dust. Wear an approved dust respirator when there is danger of inhaling cyanide dust. The respirator should be one approved by the Mining Enforcement and Safety Administration or by NIOSH. Minimum respiratory protection is required for levels of cyanide above 5 mg/m3. For greater than 50 mg/m3 a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. A combination respirator which includes a Type C supplied air respirator with a full facepiece operated in pressure demand or other positive pressure or continuous flow mode and an auxiliary self-contained breathing apparatus, also in the same modes. For any emergency escape, any gas mask providing protection against hydrogen cyanide and particulates can be worn.

Ventilation - Local Exhaust:
Local exhaust ventilation to keep dust, mist and HCN gas below exposure limits.

Ventilation - Special:
General dilution ventilation control could be an added safeguard in the area of cyanide operation.

Protective Gloves:
Employees should be provided with and required to wear impervious gloves to prevent any possibility of skin contact with the chemical substance.

Eye Protection:
The individual or employee must wear approved chemical splash goggles and/or face shield to avoid eye contamination.

Other Protective Equipment:
Employees should be provided with and required to use impervious clothing to prevent any possibility of skin contact with this hazardous substance.

Work Practices:
Skin that becomes contaminated with this substance should be immediately washed or showered with soap.

Hygienic Practices:
Eating and smoking should not be permitted in areas where these hazardous substances are handled, processed, or stored. Employees who handle these materials should wash their hands thoroughly with soap and water before eating, smoking, or using the toilet facilities. OSHA cautions that since this substance may penetrate the skin, especially if broken, control of the vapor or dust inhalation may not be sufficient to prevent absorption of an excessive dose and therefore recommends proper hygienic practices at all times.

Section 08 : Special Precautions

Precautions To Be Taken In Handling & Storage:
Store in a dry, well ventilated area away from food stores or beverages.
The presence of the cyanide herein precedes all hazardous conditions of this product. Any other material that may be present in this product is by DOT, EPA, OSHA and any other Federal or State agency standards, non-hazardous.

Other Precautions:
Containers should be kept closed when not in use to avoid the absorption of moisture. Do not store with other chemicals that are incompatible.

Section 09 : Special Health Precautions

Special Health Precautions:

HEALTH	FLAMMABILITY	REACTIVITY	CONTACT	
[3]	[0]	[1]	[3]	4-EXTREME
POISON			LIFE THREAT.	3-SEVERE
				2-MODERATE
				1-SLIGHT
				0-NO KNOWN HAZARD

NFPA 704M RATING 3-0-0

PRECAUTIONARY LABEL STATEMENTS

POISON! DANGER!
EXCEPTIONAL CONTACT HAZARD-READ MATERIAL SAFETY DATA SHEET
MAY BE FATAL IF SWALLOWED OR INHALED
CONTACT WITH ACID LIBERATES POISONOUS GAS.
CAUSES EYE BURNS AND MAY IRRITATE SKIN.

DOT SHIPPING INFORMATION 49 CFR 172.101, ET AL
PROPER SHIPPING NAME: Potassium cyanide, solution or solid (RQ if net weight is

HAZARD CLASS: Poison B 10 lbs. or more)
UN NO. 1680
DOT LABEL Poison

This product, either from a spent bath or a strip solution, when generated and sent out for refining will be designated as a hazardous waste.
This precious metal bearing hazardous waste will then be subject to all regulations of 40 CFR Subpart F, SECTION 266, Recyclable Materials Utilized for Precious Metal Recovery. Therefore the proper shipping name of this material will be: RQWaste Potassium cyanide solution. All other information will remain the same, with the addition of the Waste code under the proper shipping name in () to satisfy EPA regulations. Waste code # F007, F008, or F009, D011 for silver

Section 10 : Transportation

As mentioned in Section 06 :(SEE DISPOSAL METHOD), this substance is now a hazardous waste and must be treated accordingly. When the substance is to be sent to a Designated Facility for reclaim, it must be manifested and have the proper shipping name and labels on the drum, according to EPA and DOT regs.
PROPER SHIPPING NAME: RQ Waste Potassium Cyanide Solution
HAZARD CLASS: Poison B
ID.#: UN 1680, Poison label (skull & crossbone)
A hazardous waste label must be included on the drum. All information is to be shown on the side of the drum, not on the top. All information is to be printed or typed. The Hazard Class,(Poison B) is not to be put on the drum.The Poison label satisfies this requirement. RQ, means Reportable Quantity, this satisfies the new regs for CERCLA.

TSCA INVENTORY STATUS....All components appear on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

(R)THIS CHEMICAL IS REGULATED AS A TOXIC CHEMICAL UNDER SECTION 313 TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372, AND MUST BE REPORTED ON THE EPA FORM R.

ALL PERTINENT INFORMATION FOR REPORTING THIS CHEMICAL WILL BE FOUND UNDER SECTION 02: HAZARDOUS INGREDIENTS. ALL CHEMICALS CODED WITH THE LETTER R IS FOR REPORTING PURPOSES.

All information, recommendations and suggestions appearing herein concerning our product are based upon data believed to be reliable, however, it is the user's responsibility to determine the safe handling and suitability for his or her own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by American Chemical & Refining Company, Inc. as to the effects of such use, the results obtained, or the safety and toxicity of the product nor does the Company per se assume any liability arising out of use, by others, of the product referred to herein. Nor is the information herein to be construed as absolutely complete since more information may be desirable or necessary when particular or exceptional conditions or circumstances exist, or because of applicable laws or government regulations.

PREPARED/REVISED BY: KALMAN Le BOW
TITLE: COORDINATOR of ENVIRONMENTAL REGULATIONS

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