

MSDS

Catalog number 06-0250

FORMULARY POP LEAD-GOLD COMBINED TONER FIXER

1-liter kit

These directions assume the user is familiar with the Formulary instruction for Printing-Out-Paper (POP) (Catalog number 07-0110). The chemicals in this kit are intended to replace both the toner and the fixer of the standard POP process. Care must be used with this combined treatment to ensure complete fixing has taken place.

CHEMICALS CONTAINED IN THIS KIT

Your kit contains the following chemicals:

<u>Chemical</u>	<u>Amount</u>
sodium thiosulfate	200 g
alum (potassium alum)	15 g
lead acetate	2 g
gold chloride, 1% solution	50 ml

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning on each package. This kit contains two chemicals that need special attention: lead acetate and gold chloride.

Lead Acetate is a heavy metal salt which can accumulate in the system and, in this case, lead to lead poisoning. Do not breathe the dust of this compound when mixing the solution and take special care that none of the compound is inadvertently ingested. Use rubber gloves when working with solutions containing lead acetate.

If you should spill a solution of lead acetate on your skin, wash thoroughly with soap and water.

Gold Chloride is a caustic and can cause skin burns. In dilute solution, gold chloride will stain the skin purple. The stain is due to gold metal bonded to the protein of the skin and cannot be chemically removed. The only procedure for removing these spots is to let them wear off.

The user assumes all risks upon accepting these chemicals. IF FOR ANY REASON YOU DO NOT WISH TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICALS FOR A FULL REFUND.

REPORT NUMBER: 703

UNIVAR USA INC.

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MSDS NO: MZS5230

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 03/30/05

VERSION: 004

PRODUCT: SODIUM THIOSULFATE

ORDER NO: 231068

PROD NO : 503233

PHOTOGRAPHERS FORMULARY
CALL IN ADVANCE TO MEET
7079 HWY 83 N.
BOX 89
CONDON , MT 59826

UNIVAR USA INC.

(425)889-3400

6100 CARILLON POINT , KIRKLAND

, WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

PRODUCT NAME: SODIUM THIOSULFATE
MSDS NUMBER: MZS5230
DATE ISSUED: 3/21/2005
SUPERSEDES: 5/22/2002
ISSUED BY: 008614

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SODIUM THIOSULFATE

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1. PRODUCT IDENTIFICATION

SYNONYMS: SODIUM THIOSULFATE, PENTAHYDRATE; THIOSULFURIC ACID,
DISODIUM SALT, PENTAHYDRATE
CAS NO: 7772-98-7 (ANHYDROUS) 10102-17-7 (PENTAHYDRATE)
MOLECULAR WEIGHT: 248.17
CHEMICAL FORMULA: $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$
Distributed by:
Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98033

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UNIVAR USA INC.

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425-889-3400

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO	PERCENT	HAZARDOUS
SODIUM THIOSULFATE	7772-98-7	100%	YES

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

POTENTIAL HEALTH EFFECTS

INHALATION:

MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT. SYMPTOMS MAY INCLUDE COUGHING AND SHORTNESS OF BREATH.

INGESTION:

LOW LEVEL OF TOXICITY BY INGESTION. DIARRHEA MAY OCCUR BY INGESTION OF LARGE QUANTITIES.

SKIN CONTACT:

IRRITATION MAY OCCUR FROM PROLONGED SKIN CONTACT.

EYE CONTACT:

CONTACT MAY CAUSE MECHANICAL IRRITATION.

CHRONIC EXPOSURE:

CHRONIC EXPOSURE MAY CAUSE SKIN EFFECTS.

AGGRAVATION OF PRE-EXISTING CONDITIONS:

NO INFORMATION FOUND.

4. FIRST AID MEASURES

INHALATION:

REMOVE TO FRESH AIR. GET MEDICAL ATTENTION FOR ANY BREATHING DIFFICULTY.

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PRODUCT: SODIUM THIOSULFATE

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PROD NO : 503233

INGESTION:

INDUCE VOMITING IMMEDIATELY AS DIRECTED BY MEDICAL PERSONNEL. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.

SKIN CONTACT:

WASH EXPOSED AREA WITH SOAP AND WATER. GET MEDICAL ADVICE IF IRRITATION DEVELOPS.

EYE CONTACT:

WASH THOROUGHLY WITH RUNNING WATER. GET MEDICAL ADVICE IF IRRITATION DEVELOPS.

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5. FIRE FIGHTING MEASURES

FIRE:

NOT CONSIDERED TO BE A FIRE HAZARD.

EXPLOSION:

NOT CONSIDERED TO BE AN EXPLOSION HAZARD.

FIRE EXTINGUISHING MEDIA:

USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE.

SPECIAL INFORMATION:

USE PROTECTIVE CLOTHING AND BREATHING EQUIPMENT APPROPRIATE FOR THE SURROUNDING FIRE.

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6. ACCIDENTAL RELEASE MEASURES

VENTILATE AREA OF LEAK OR SPILL. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS SPECIFIED IN SECTION 8. SPILLS: SWEEP UP AND CONTAINERIZE FOR RECLAMATION OR DISPOSAL. VACUUMING OR WET SWEEPING MAY BE USED TO AVOID DUST DISPERSAL.

=====

7. HANDLING AND STORAGE

KEEP IN A TIGHTLY CLOSED CONTAINER, STORED IN A COOL, DRY, VENTILATED AREA. PROTECT AGAINST PHYSICAL DAMAGE. ISOLATE FROM INCOMPATIBLE SUBSTANCES. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (DUST, SOLIDS); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT.

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PRODUCT: SODIUM THIOSULFATE

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PROD NO : 503293

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS:

NONE ESTABLISHED.

VENTILATION SYSTEM:

IN GENERAL, DILUTION VENTILATION IS A SATISFACTORY HEALTH HAZARD CONTROL FOR THIS SUBSTANCE. HOWEVER, IF CONDITIONS OF USE CREATE DISCOMFORT TO THE WORKER, A LOCAL EXHAUST SYSTEM SHOULD BE CONSIDERED.

PERSONAL RESPIRATORS (NIOSH APPROVED):

FOR CONDITIONS OF USE WHERE EXPOSURE TO DUST OR MIST IS APPARENT AND ENGINEERING CONTROLS ARE NOT FEASIBLE, A PARTICULATE RESPIRATOR (NIOSH TYPE N95 OR BETTER FILTERS) MAY BE WORN. IF OIL PARTICLES (E.G. LUBRICANTS, CUTTING FLUIDS, GLYCERINE, ETC.) ARE PRESENT, USE A NIOSH TYPE R OR P FILTER. FOR EMERGENCIES OR INSTANCES WHERE THE EXPOSURE LEVELS ARE NOT KNOWN, USE A FULL-FACE POSITIVE-PRESSURE, AIR-SUPPLIED RESPIRATOR.

WARNING: AIR-PURIFYING RESPIRATORS DO NOT PROTECT WORKERS IN OXYGEN-DEFICIENT ATMOSPHERES.

SKIN PROTECTION:

WEAR PROTECTIVE GLOVES AND CLEAN BODY-COVERING CLOTHING.

EYE PROTECTION:

SAFETY GLASSES. MAINTAIN EYE WASH FOUNTAIN AND QUICK-DRENCH FACILITIES IN WORK AREA.

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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:

MONOCLINIC, COLORLESS CRYSTALS.

BOILING POINT:

> 100C (> 212F)

ODOR:

ODORLESS.

MELTING POINT:

48C (118F) LOSES WATER @ 100C (212F)

SOLUBILITY:

79G/100 ML WATER @ 4C (39F)

VAPOR DENSITY (AIR=1):

NO INFORMATION FOUND.

DENSITY:

1.75

VAPOR PRESSURE (MM HG):

NO INFORMATION FOUND.

PH:

NO INFORMATION FOUND.

EVAPORATION RATE (BUAC=1):

NO INFORMATION FOUND.

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% VOLATILES BY VOLUME @ 21C (70F):

0

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10. STABILITY AND REACTIVITY

STABILITY:

STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE. STABILITY LIMITED IN SOLUTION.

HAZARDOUS DECOMPOSITION PRODUCTS:

OXIDES OF SULFUR AND HYDROGEN SULFIDE.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR.

INCOMPATIBILITIES:

SODIUM NITRATE, HALOGENS, AND OXIDIZING AGENTS. REACTS WITH ACIDS TO RELEASE SULFUR DIOXIDE.

CONDITIONS TO AVOID:

INCOMPATIBLES.

=====

11. TOXICOLOGICAL INFORMATION

NO LO50/LC50 INFORMATION FOUND RELATING TO NORMAL ROUTES OF OCCUPATIONAL EXPOSURE.

-----\CANCER LISTS\-----

---NTP CARCINOGEN---

INGREDIENT	---NTP CARCINOGEN---		IARC CATEGORY
	KNOWN	ANTICIPATED	
SODIUM THIOSULFATE (7772-98-7)	NO	NO	NONE

=====

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

NO INFORMATION FOUND.

ENVIRONMENTAL TOXICITY:

NO INFORMATION FOUND.

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13. DISPOSAL CONSIDERATIONS

WHATEVER CANNOT BE SAVED FOR RECOVERY OR RECYCLING SHOULD BE MANAGED IN AN APPROPRIATE AND APPROVED WASTE DISPOSAL FACILITY. PROCESSING, USE OR CONTAMINATION OF THIS PRODUCT MAY CHANGE THE WASTE MANAGEMENT OPTIONS. STATE AND LOCAL DISPOSAL REGULATIONS MAY DIFFER FROM FEDERAL DISPOSAL REGULATIONS.

DISPOSE OF CONTAINER AND UNUSED CONTENTS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS.

14. TRANSPORT INFORMATION

NOT REGULATED.

15. REGULATORY INFORMATION

-----\CHEMICAL INVENTORY STATUS - PART 1\-----				
INGREDIENT	TSCA	EC	JAPAN	AUSTRALIA
SODIUM THIOSULFATE (7772-98-7)	YES	YES	YES	YES

-----\CHEMICAL INVENTORY STATUS - PART 2\-----				
INGREDIENT	KOREA	--CANADA--		PHIL.
		DSL	NSL	
SODIUM THIOSULFATE (7772-98-7)	YES	YES	NO	YES

-----\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 1\-----				
INGREDIENT	-SARA 302-		-----SARA 313-----	
	RQ	TFQ	LIST	CHEMICAL CATG
SODIUM THIOSULFATE (7772-98-7)	NO	NO	NO	NO

-----\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 2\-----			
INGREDIENT	CERCLA	-RCRA-	-TSCA-
		261.33	8(D)
SODIUM THIOSULFATE (7772-98-7)	NO	NO	NO

CHEMICAL WEAPONS CONVENTION: NO TSCA 12(B): NO CDTA: NO

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VERSION: 004

PRODUCT: SODIUM THIOSULFATE

ORDER NO: 231068

PROD NO : 503233

SARA 311/312: ACUTE: YES CHRONIC: NO FIRE: NO PRESSURE: NO
REACTIVITY: NO (PURE / SOLID)

AUSTRALIAN HAZCHEM CODE: NONE ALLOCATED.
POISON SCHEDULE: NONE ALLOCATED.

WHMIS: THIS MSDS HAS BEEN PREPARED ACCORDING TO THE HAZARD CRITERIA OF
THE CONTROLLED PRODUCTS REGULATIONS (CPR) AND THE MSDS CONTAINS
ALL OF THE INFORMATION REQUIRED BY THE CPR.

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16. OTHER INFORMATION

NFPA RATINGS:

HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

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VERSION: 004

PRODUCT: SODIUM THIOSULFATE

ORDER NO: 231068

PROD NO : 503233

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR

UNIVAR USA INC.

DURING BUSINESS HOURS, PACIFIC TIME

(425)889-3400

04/25/05 15:42

PRODUCT: 503233

CUST NO: 113365

ORDER NO: 231068

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PROCESS.

*** E N D O F M S D S ***

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UNIVAR USA INC.

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MSDS NO: P16497V

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 09/27/04

VERSION: 005

PRODUCT: POTASSIUM ALUM

ORDER NO: 232327

PROD NO : 665905

PHOTOGRAPHERS FORMULARY

CALL IN ADVANCE TO MEET

7079 HWY 83 N.

BOX 89

CONDON ,MT 59826

UNIVAR USA INC.

(425)889-3400

6100 CARILLON POINT , KIRKLAND

, WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

PRODUCT NAME: POTASSIUM ALUM

MSDS NUMBER: P16497V

DATE ISSUED: 3/2004

SUPERSEDES: 3/1/1997

ISSUED BY: 008466

IDENTITY (As used on Label and List)

POTASSIUM ALUM

Section I

Manufacturer's Name

Emergency Telephone Number

HOLLAND COMPANY, INC.

413-743-1292

Address (Number, Street, City, State and Zip Code)

153 HOWLAND AVENUE

ADAMS, MASSACHUSETTS 01220

Telephone Number for Information 413-743-1292

Date Prepared MARCH 2004

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Names(s))

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VERSION: 005

PRODUCT: POTASSIUM ALUM

ORDER NO: 232327

PROD NO : 665905

OSHA PEL	Other Limits		% (Optional)
	ACGIH TLV	Recommended	
KAl (SO4)2 12H2O	2mg(AL)/M3		

POTASH ALUM

CRYSTAL ALUM

POTASSIUM ALUMINUM SULFATE

Hazardous substance applies when discharged into
navigable water, category (P) harmful amount 5000 pounds

CAS No. 7784-24-9

DOT: Non-hazardous

HMIS designation 1H, 0F, 0R

Section III - Physical/Chemical Characteristics

Boiling Point N/A Specific Gravity (H2O-1) 1.97

Vapor Pressure (mm Hg.) N/A Melting Point

Vapor Density (AIR -1) N/A Evaporation Rate N/A

(Butyl Acetate = 1)

Solubility in Water: Moderate

Appearance and Odor Colorless, odorless crystals or white powder

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Flammable Limits LEL UEL

N/A Not flammable N/A N/A

Extinguishing Media

Not flammable

Special Fire Fighting Procedures

May release Sulfur Dioxide or Sulfur Trioxide at high heat.

Unusual Fire and Explosion Hazards

Section V - Reactivity Data

Stability Unstable Conditions to Avoid:

Stable X

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

Sulfur Dioxide (SO2) possibly Sulfur Trioxide (SO3)

Hazardous Polymerization

May Occur

Will Not Occur X

Conditions to Avoid N/A

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Irritation	Irritation	May be harmful

Health Hazards (Acute and Chronic)

Irritation of skin and mucous membrane

Carcinogenicity: NTP? IARC Monographs? OSHA regulated?

N/A

N/A

PRODUCT: POTASSIUM ALUM

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PROD NO : 665905

Signs and Symptoms of Exposure:

Irritation possible from inhalation, eye contact or prolonged skin contact.

Medical Conditions Generally Aggravated by Exposure: N/A

Emergency and First Aid Procedures:

Wash skin, flush residue with plenty of water for at least 15 minutes and get medical attention. For ingestion get medical attention.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

Shovel up and remove, flush residue with water.

Neutralize with alkalis

Waste Disposal Method

Dissolve in water and flush to waste as permitted by applicable regulations.

Precautions to Be Taken in Handling and Storing

Store in cool dry place.

Other Precautions

Section VIII - Control Measures

Respiratory Protection (Specify Type):

NIOSH approved respirator where required.

Ventilation

Local Exhaust:

Special:

As necessary to eliminate dust

N/A

Mechanical (General):

Other: Conc in air for mist

N/A

N/A

Protective Gloves

Eye Protection

Rubber or vinyl

Safety glasses-chemical safety goggles.

Other Protective Clothing or Equipment:

Clothing sufficient to protect skin from dust.

Work/Hygienic Practices:

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VERSION: 005

PRODUCT: POTASSIUM ALUM

ORDER NO: 232327

PROD NO : 665905

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR

UNIVAR USA INC.

DURING BUSINESS HOURS, PACIFIC TIME

(425)889-3400

06/03/05 15:44

PRODUCT: 665905

CUST NO: 113365

ORDER NO: 232327

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DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY
ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM
THE PUBLICATION OR USE OF, OR RELIANCE UPON , INFORMATION CONTAINED HEREIN.
THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT
RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER
PROCESS.






*** END OF MSDS ***

11/9/03

10-0700

GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>2</td></tr><tr><td>Fire Hazard</td><td>1</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	2	Fire Hazard	1	Reactivity	0	<div></div> <div>See Section 15.</div>
Health Hazard	2							
Fire Hazard	1							
Reactivity	0							

Section 1. Chemical Product and Company Identification

Page Number: 1

Common Name/ Trade Name	Lead acetate trihydrate	Catalog Number(s).	L1040, L1041
		CAS#	6080-56-4
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	RTECS	OF8050000
		TSCA	TSCA 8(b) inventory: No products were found.
Commercial Name(s)	Not available.	CI#	Not available.
Synonym	Lead Acetate; Lead (II) trihydrate; Acetic acid lead (II) salt trihydrate	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000	
Chemical Name	Lead Acetate Trihydrate		
Chemical Family	Not available.		
Chemical Formula	Pb(CH ₃ COO) ₂ ·3H ₂ O		
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		

Section 2. Composition and Information on Ingredients

		Exposure Limits			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Lead acetate trihydrate	6080-56-4	0.15			100

Toxicological Data on Ingredients	Lead acetate trihydrate: ORAL (LD50): Acute: 4665 mg/kg [Rat].
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Section 3. Hazards Identification

Potential Acute Health Effects	Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).
Potential Chronic Health Effects	Hazardous in case of skin contact (permeator), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Classified POSSIBLE for human. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system. The substance may be toxic to the reproductive system. Repeated or prolonged exposure to the substance can produce target organs damage.

Continued on Next Page

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not available.
Products of Combustion	These products are carbon oxides (CO, CO ₂). Some metallic oxides.
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Not available.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions	Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as acids.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 0.05 (mg (Pb)/m ³) from OSHA (PEL) [United States] TWA: 0.15 (mg/m ³) from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Crystalline solid.)	Odor	Acetic (Slight.)
Molecular Weight	379.32 g/mole	Taste	Not available.
pH (1 % soln/water)	Not available.	Color	White.
Boiling Point	Decomposition temperature: 100°C (212°F)		
Melting Point	75°C (167°F)		
Critical Temperature	Not available.		
Specific Gravity	2.55 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Soluble in cold water.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Excess heat, and incompatible materials
Incompatibility with various substances	Reactive with acids.
Corrosivity	Not available.
Special Remarks on Reactivity	Incompatible with Bromates, Phenol Chloral Hydrate, sulfides, and acids.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 4665 mg/kg [Rat].
Chronic Effects on Humans	<p>CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.</p> <p>MUTAGENIC EFFECTS: Classified POSSIBLE for human.</p> <p>TERATOGENIC EFFECTS: Classified POSSIBLE for human.</p> <p>DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE].</p> <p>Causes damage to the following organs: blood, kidneys, the nervous system.</p> <p>May cause damage to the following organs: the reproductive system.</p>
Other Toxic Effects on Humans	<p>Hazardous in case of skin contact (irritant), of ingestion, of inhalation.</p> <p>Slightly hazardous in case of skin contact (permeator).</p>
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	<p>May affect genetic material based on animal data</p> <p>May cause cancer (tumorigenic) based on animal data.</p> <p>May cause adverse reproductive effects (female/male fertility and other female/male effects) and birth defects based on animal data.</p> <p>Passes through the placental barrier in animal. Excreted in maternal milk in animal.</p>
Special Remarks on other Toxic Effects on Humans	<p>Acute Potential Health Effects:</p> <p>Skin: May cause severe local irritation.</p> <p>Eyes: May cause local irritation or abrasion. Lead acetate can produce encrustation of the cornea with direct eye exposure.</p> <p>Inhalation: Can be absorbed through the respiratory system. May cause respiratory tract irritation (local irritation of the bronchia, and lungs). Symptoms such as metallic taste, chest and abdominal pain, and increased lead blood levels may follow. Also see symptoms of ingestion.</p> <p>Ingestion: May cause gastrointestinal tract irritation. May affect behavior/brain, metabolism, liver, cardiovascular system, urinary system, and blood. Ingestion can result in lead colic, headache, abdominal cramps, nausea, muscle weakness, depression, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness, high lead levels in the blood and urine, with shock, coma and death in extreme cases.</p> <p>Chronic Potential Health Effects:</p> <p>Skin: May be absorbed through the skin on prolonged exposure. See symptoms of ingestion.</p> <p>Ingestion/Inhalation: The hallmarks of chronic lead poisoning are peripheral motor polyneuropathy, ANEMIA, KIDNEY DAMAGE, HYPERTENSION. Also see symptoms of acute poisoning.</p>

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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Section 14. Transport Information

DOT Classification CLASS 6.1: Poisonous material.

Identification : Lead acetate UNNA: 1616 PG: III

Special Provisions for Transport Marine Pollutant

DOT (Pictograms)

**Section 15. Other Regulatory Information and Pictograms**

Federal and State Regulations California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead acetate trihydrate—
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead acetate trihydrate
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead acetate trihydrate
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead acetate trihydrate
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead acetate trihydrate

California Proposition 65 Warnings California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead acetate trihydrate
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead acetate trihydrate

Other Regulations OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications

WHMIS (Canada) Not controlled under WHMIS (Canada).

DSCL (EEC)

R36/38- Irritating to eyes and skin.
R40- Possible risks of irreversible effects.
R62- Possible risk of impaired fertility.
R63- Possible risk of harm to the unborn child.

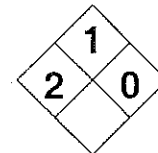
S2- Keep out of the reach of children.
S36/37- Wear suitable protective clothing and gloves.
S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	0
Personal Protection	(E)

National Fire Protection Association (U.S.A.)

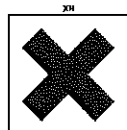
Health



Flammability

Reactivity

Specific hazard

WHMIS (Canada) (Pictograms)**DSCL (Europe) (Pictograms)**

TDG (Canada)
(Pictograms)ADR (Europe)
(Pictograms)

Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent.



Splash goggles.

Section 16. Other Information

MSDS Code L3120

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 2/5/2002.

Verified by Sonia Owen.

Printed 2/26/2002.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.

SIGMA-ALDRICH

MATERIAL SAFETY DATA SHEET

Date Printed: 06/17/2004

Date Updated: 03/10/2004

Version 1.2

Section 1 - Product and Company Information

Product Name	GOLD(I) CHLORIDE, 99.9%
Product Number	481130
Brand	ALDRICH

Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
GOLD(I) CHLORIDE, 99.9%	10294-29-8	No

Formula	AuCl
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Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Corrosive.

Causes burns. May cause sensitization by skin contact.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

EYE EXPOSURE

Assure adequate flushing of the eyes by separating the eyelids with fingers.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Dry chemical powder.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid inhalation. Do not get in eyes, on skin, on clothing.

STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT

Other: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing. Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	N/A	
Property	Value	At Temperature or Pressure
Molecular Weight	232.42 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	289 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	7.57 g/cm3	
Bulk Density	N/A	

Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Surface Tension	N/A
Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point	N/A
Explosion Limits	N/A
Flammability	N/A
Autoignition Temp	N/A
Refractive Index	N/A
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	N/A

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Decomposes on heating to chlorine gas, hydrogen chloride and metallic gold.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption.

SENSITIZATION

Skin: May cause allergic skin reaction.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause stomatitis, metallic taste, itching, erythema, eczema, erythema multiforme, exfoliative dermatitis, thrombocytopenia, leucopenia, agranulocytosis, and aplastic anemia. Exposure can also cause a gray-to-blue pigmentation (chrysiasis) in the skin and mucous membranes, especially in areas exposed to light. Gold deposits may occur in the eyes causing keratitis and corneal ulceration.

Section 12 - Ecological Information

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Catalysts and expensive metals should be recovered for reuse or recycling. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Corrosive solid, acidic,
inorganic, n.o.s.
UN#: 3260
Class: 8
Packing Group: Packing Group II
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Corrosive solid, acidic,
inorganic, n.o.s.
IATA UN Number: 3260
Hazard Class: 8
Packing Group: II

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: C
Indication of Danger: Corrosive.
R: 34 43
Risk Statements: Causes burns. May cause sensitization by skin contact.
S: 26 27 36/37/39 45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Corrosive.
Risk Statements: Causes burns. May cause sensitization by skin contact.
Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

