

MATERIAL SAFETY DATA SHEET

MSDS DATE:07/31/07

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: COLLOIDAL SILVER PASTE

SYNONYMS: N/A

PRODUCT CODES: 12640

MANUFACTURER: ELECTRON MICROSCOPY SCIENCES

DIVISION: 1560 INDUSTRY ROAD/P.O. BOX 550

ADDRESS: HATFIELD, PA 19440

EMERGENCY PHONE: 215-412-8400

CHEMTREC PHONE: 800-424 -9300

FAX PHONE: 215-412-8450

CHEMICAL NAME: N/A

CHEMICAL FAMILY: N/A

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT:

SILVER

ARCOSOLVE PM

TOLUENE

D-LIMONENE

ETHANOL

ETHYL ACETATE

<u>CAS NO.</u>	<u>% WT</u>	<u>% VOL</u>	<u>SARA 313 REPORTABLE</u>
7440-22-4	N/A	~60	
107-98-2	N/A	N/A	
108-88-3	N/A	< 10	
5989-27-5	N/A	N/A	
64-17-5	N/A	< 4	
	<u>ppm</u>	<u>mg/m3</u>	
OSHA PEL-TWA:	100	0.1	
OSHA PEL STEL :	1000	N/A	
OSHA PEL CEILING:	400	N/A	
ACGIH TLV-TWA:	N/A	0.1	
ACGIH TLV STEL:	N/A	N/A	
ACGIH TLV CEILING:	N/A	N/A	

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: IMMEDIATE EFFECTS: FLAMMABLE MATERIAL. CAUTION! MAY CAUSE SKIN IRRITATION

ROUTES OF ENTRY: INHALATION, INGESTION, SKIN, AND EYE CONTACT

POTENTIAL HEALTH EFFECTS

EYES: MAY CAUSE EYE IRRITATION

SKIN: MAY CAUSE SKIN IRRITATION

INGESTION: N/A

INHALATION: N/A

ACUTE HEALTH HAZARDS: N/A

CHRONIC HEALTH HAZARDS: N/A

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MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: N/A

CARCINOGENICITY

OSHA: 0 ACGIH: 0 NTP: 0 IARC: 0
OTHER: N/A

SECTION 4: FIRST AID MEASURES

EYES: FLUSH WITH WATER FOR 15 MINUTES. EYELIDS SHOULD BE HELD AWAY FROM THE EYEBALL TO ENSURE THOROUGH RINSING. IF IRRITATION OCCURS, SEEK MEDICAL ATTENTION

SKIN: WASH WITH SOAP AND WATER. IF IRRITATION OCCURS. SEEK MEDICAL ATTENTION.

INGESTION: DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. IF VICTIM IS CONSCIOUS AND ALERT, GIVE 2-4 CUPS FULL OF MILK OR WATER. GET MEDICAL AID

INHALATION: REMOVE FROM EXPOSURE TO FRESH AIR IMMEDIATELY. GET MEDICAL AID IF COUGH OR OTHER SYMPTOMS APPEAR

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: N/A

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: N/A
(% BY VOLUME) LOWER: N/A

FLASH POINT:

F: 24 DEG

C: N/A

METHOD USED: N/A

AUTOIGNITION TEMPERATURE: N/A

F: N/A

C: N/A

NFPA HAZARD CLASSIFICATION

HEALTH: N/A

FLAMMABILITY: N/A

REACTIVITY: N/A

OTHER: N/A

HMIS HAZARD CLASSIFICATION

HEALTH: 2

FLAMMABILITY: 3

REACTIVITY: 0

PROTECTION: B

EXTINGUISHING MEDIA: CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER

SPECIAL FIRE FIGHTING PROCEDURES: AS IN ANY FIRE, WEAR SELF CONTAINED BREATHING APPARATUS PRESSURE DEMAND, (MSHA/NIOSH APPROVED OR EQUIVALENT) AND FULL PROTECTIVE GEAR

UNUSUAL FIRE AND EXPLOSION HAZARDS: CAN BURN IN FIRE, RELEASING TOXIC VAPORS, VAPORIZED EASILY AT NORMAL TEMPERATURES

HAZARDOUS DECOMPOSITION PRODUCTS: FORMS CARBON DIOXIDE, AND CARBON MONOXIDE

SECTION 6: ACCIDENTAL RELEASE MEASURES

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ACCIDENTAL RELEASE MEASURES: WEAR PROTECTIVE EQUIPMENT. FOR AN UNCONTROLLED RELEASE OF THIS PRODUCT TO THE ENVIRONMENT, TAKE IMMEDIATE STEPS TO STOP AND CONTAIN RELEASE. NOTIFY LOCAL AUTHORITIES, IF REQUIRED. CLEAN UP WITH RAGS OR PAPER AND PLACE IN CONTAINER FOR REFINING. WASTE DISPOSAL METHODS: DISPOSE OF WASTE ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: USED WITH ADEQUATE VENTILATION. AVOID CONTACT WITH SKIN AND EYES. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER CLOSED WHEN NOT IN USE.

OTHER PRECAUTIONS: N/A

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION: REQUIRED: USED ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP AIRBORNE CONCENTRATIONS BELOW THE PERMISSIBLE EXPOSURE LIMITS.

RESPIRATORY PROTECTION: GOOD GENERAL VENTILATION SHOULD BE SUFFICIENT TO CONTROL AIRBORNE LEVELS. A NIOSH APPROVED DUST/MIST RESPIRATOR IS RECOMMENDED WHEN TLV LEVELS ARE EXCEEDED.

EYE PROTECTION: WEAR CHEMICAL SAFETY GLASSES WITH SIDE SHIELDS OR FACE SHIELD

SKIN PROTECTION: USE APPROPRIATE PROTECTIVE CLOTHING, GLOVES AND SHOES. USE APPROPRIATE CHEMICAL GLOVES

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: EYE WASH FACILITIES AVAILABLE WHERE EYE CONTACT CAN OCCUR

WORK HYGIENIC PRACTICES: WASH THOROUGHLY AFTER HANDLING. WASH CLOTHING BEFORE REUSE.

EXPOSURE GUIDELINES: SEE COMPOSITION/ INFORMATION ON INGREDIENTS (SECTION 2)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: GREY

ODOR: STRONG ODOR

PHYSICAL STATE: PASTE LIQUID

pH AS SUPPLIED: N/A

pH (Other): N/A

BOILING POINT:

F: 167 DEG

C: N/A

MELTING POINT: N/A

F: N/A

C: N/A

FREEZING POINT: N/A

F: N/A

C: N/A

VAPOR PRESSURE (mmHg): N/A

@

F: N/A

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C: N/A
VAPOR DENSITY (AIR = 1): N/A

@

F: N/A
C: N/A

@

F: N/A
C: N/A

EVAPORATION RATE: N/A

BASIS (=1): N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (con't)

SOLUBILITY IN WATER: N/A

PERCENT SOLIDS BY WEIGHT: N/A

PERCENT VOLATILE: N/A
BY WT/ BY VOL @

F: N/A
C: N/A

VOLATILE ORGANIC COMPOUNDS (VOC): N/A

WITH WATER: N/A	LBS/GAL
WITHOUT WATER: N/A	LBS/GAL

MOLECULAR WEIGHT: N/A
VISCOSITY: N/A

@

F: N/A
C: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY: STABLE UNDER NORMAL CONDITIONS OF USE. KEEP CAP TIGHT

CONDITIONS TO AVOID (STABILITY): INCOMPATIBLE MATERIALS

INCOMPATIBILITY (MATERIAL TO AVOID): STRONG OXIDIZERS, ACIDS AND ALKALI

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: CARBON DIOXIDE AND CARBON MONOXIDE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID (POLYMERIZATION): N/A

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: THIS PRODUCT DOES NOT CONTAIN ANY COMPOUNDS LISTED BY NTP OR IARC OR REGULATED BY OSHA AS A CARCINOGEN.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: ECOLOGICAL DATA IS NOT AVAILABLE. MATERIAL SHOULD BE TREATED AS HARMFUL TO AQUATIC ORGANISMS.

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SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: COMPLY WITH FEDERAL, STATE, LOCAL REGULATIONS.

RCRA HAZARD CLASS: N/A

SECTION 13: DISPOSAL CONSIDERATIONS (con't)

RCRA 40 CFR 261 CLASSIFICATION: CAN BE RECYCLED TO RECOVER PRECIOUS METAL. ENSURE PROPER DISPOSAL COMPLIANCE WITH PROPER AUTHORITIES BEFORE DISPOSAL.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: FLAMMABLE LIQUID, N.O.S. (1-METHOXY-2-PROPANOL, TOLUENE)

HAZARD CLASS: 3

ID NUMBER: UN1993

PACKING GROUP: III

LABEL STATEMENT: N/A

WATER TRANSPORTATION

PROPER SHIPPING NAME:

HAZARD CLASS: SAME

ID NUMBER:

PACKING GROUP:

LABEL STATEMENTS:

AIR TRANSPORTATION

PROPER SHIPPING NAME:

HAZARD CLASS: SAME

ID NUMBER:

PACKING GROUP:

LABEL STATEMENTS:

OTHER AGENCIES: N/A

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): TOLUENE: RQ= 1000 LBS (45.4 KG), SILVER: RQ=1000 LBS (45.4 KG), ETHYL ACETATE: RQ= 5000 LBS (2270 KG)

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): FOLLOWING INGREDIENTS OF THIS PRODUCT ARE LISTED IN SARA 313:

311/312 HAZARD CATEGORIES: N/A

313 REPORTABLE INGREDIENTS: SILVER: 60% MAXIMUM. TOLUENE: 10% MAXIMUM. ETHYL ACETATE: 4% MAXIMUM. SILVER 60% MAXIMUM

STATE REGULATIONS: CALIFORNIA PROPOSITION 65: CONTAINS TOLUENE AND ETHANOL. THESE CHEMICALS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

INTERNATIONAL REGULATIONS:

CANADA WHMIS: N/A

EUROPE EINECS NUMBERS: N/A

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SECTION 16: OTHER INFORMATION

OTHER INFORMATION: N/A

PREPARATION INFORMATION: N/A

DISCLAIMER: IN COMPLIANCE WITH THE OSHA HAZARD COMMUNICATION STANDARD, 29 C.F.R 1910. 1200, WE ARE PROVIDING YOU WITH A MSDS FOR THE HAZARDOUS MATERIAL YOU ARE PURCHASING.

IT IS YOUR RESPONSIBILITY TO EDUCATE YOUR EMPLOYEES ON THE SAFE USE OF THE HAZARDOUS MATERIAL.

ELECTRON MICROSCOPY SCIENCES MAKES NO PRESENTATION AS TO THE ACCURACY OF THE INFORMATION IN THE MSDS. THE INFORMATION IS BELIEVED TO BE CORRECT; HOWEVER, YOU (THE CUSTOMER), SHOULD PERFORM YOUR OWN INVESTIGATION AND INDEPENDENT VERIFICATION. IF YOU RESELL THE PRODUCT, YOU ARE RESPONSIBLE TO FORWARD THE INFORMATION IN THE MSDS TO YOUR CUSTOMER.