

MATERIAL SAFETY DATA SHEET

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Vendor Update: 10/8/2009
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MSDS Number: CW2200 ;

I. CHEMICAL PRODUCT IDENTIFICATION

Product Name: CIRCUITWORKS CONDUCTIVE PEN
HMIS Ratings:

Health: Moderate(2)
 Flammability: Serious(3)
 Instability/Reactivity: Slight(1)
 Personal Protective Equipment: B

NFPA Ratings:

Health: Moderate(2)
 Flammability: Serious(3)
 Instability/Reactivity: Slight(1)

II. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Ingredients	C.A.S. Number	% By Weight	ACGIH TLV TWA/STEL	OSHA PEL TWA/STEL	Other TWA/STEL	LD50	LC50
SILVER	7440-22-4	35.0-65.0	0.1 MG/M3	0.1 MG/M3		>10000 MG/KG(MOUSE): (ORAL); 5000 MG/KG: (DERMAL)	
Notes							
PROPYLENE GLYCOL METHYL ETHER ACETATE	108-65-6	2.0-20.0				8,500 MG/KG (ORAL); >5000 MG/KG: (DERMAL)	>4300 PPM
Notes							
ETHYLENE GLYCOL MONOBUTYL ACETATE	112-07-2	2.0-20.0				2400 MG/KG(ORAL); 500 MG/24H MLD: (DERMAL)	
Notes							
N-BUTYL ACETATE	123-86-4	5.0-35.0	150 PPM 200 PPM	150 PPM		10,768 MG/KG(ORAL); 500 MG/24H MLD: (DERMAL)	2000 PPM/4H
Notes							
ARCYLIC RESIN	MIXTURE	15.0-40.0				NA	NA
Notes							

III. HAZARDS IDENTIFICATION PRIMARY ROUTE OF ENTRY

Eyes: VAPORS OF THIS PRODUCT MAY IRRITATE THE EYES. LIQUID IS IRRITATING AND MAY CAUSE TEARING, REDNESS, SWELLING OR TEMPORARY CORNEAL DAMAGE.

Skin: CONTACT MAY CAUSE IRRITATION. PROLONGED CONTACT MAY CAUSE DERMATITIS.

Ingestion: HARMFUL IF SWALLOWED. MAY CAUSE NERVOUS SYSTEM DEPRESSION.

Inhalation: HARMFUL IF INHALED. MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, DROWSINESS, IRRITATION OF THE RESPIRATORY TRACT/MUCOUS MEMBRANES. EXTREME OVER-EXPOSURE MAY CAUSE LOSS OF

CONSCIOUSNESS AND NARCOSIS.

Signs and Symptoms of**Exposure:****IV. FIRST AID MEASURES**

Eyes:	IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER. AFTER INITIAL FLUSHING, REMOVE ANY CONTACT LENSES AND CONTINUE FLUSHING FOR AT LEAST 15 MINUTES. HAVE EYES EXAMINED BY A PHYSICIAN IF DISCOMFORT PERSISTS.
Skin:	REMOVE CONTAMINATED CLOTHING AND WASH SKIN WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION DEVELOPS OR PERSISTS. WASH CLOTHING SEPARATELY BEFORE REUSE.
Ingestion:	IF SWALLOWED, GIVE TWO OR MORE GLASSES OF WATER IMMEDIATELY. DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.
Inhalation:	IN CASE OF EXPOSURE TO HIGH CONCENTRATIONS OF VAPOR OR MIST, REMOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE OXYGEN AND CALL A PHYSICIAN. IF BREATHING HAS STOPPED, APPLY ARTIFICIAL RESPIRATION AND CALL A PHYSICIAN.

V. FIRE FIGHTING MEASURES

Flash Point:	76°F (24°C)
Lower Flammability Limit:	1.5(% BY VOLUME IN AIR)
Upper Flammability Limit:	10.0(% BY VOLUME IN AIR)
Extinguishing Agents:	USE ALCOHOL FOAM, WATER FOAM, CARBON DIOXIDE, DRY CHEMICAL, OR WATER SPRAY. WATER MAY NOT BE EFFECTIVE IN FIGHTING THE FIRE BUT CAN BE USED TO COOL OVERHEATED AREAS. CARE MUST BE TAKEN TO NOT SPREAD THE FIRE.
Unusual Fire or Explosion Hazards:	SOLVENT VAPORS ARE AN EXPLOSION HAZARD. KEEP MATERIAL AWAY FROM ALL SOURCES OF IGNITION, EXTREME HEAT, SPARKS OR OPEN FLAME. MATERIAL CAN BE EASILY IGNITED AND BURNS WITH INTENSE HEAT.
Fire Fighting Procedures:	REMOVE ALL IGNITION SOURCES. USE WATER SPRAY TO COOL OVER HEATED CONTAINERS. TAKE CARE NOT TO SPREAD FIRE WITH WATER. AS IN ANY FIRE, WEAR SELF-CONTAINED BREATHING APPARATUS (PRESSURE DEMAND, OSHA/NIOSH APPROVED OR EQUIVALENT) AND FULL PROTECTIVE GEAR.

VI. ACCIDENTAL RELEASE MEASURES

Containment/Cleanup:	LARGE SPILLS: REMOVE ALL SOURCES OF IGNITION(SPARKS, OPEN FLAMES, ETC.). WEAR SELF-CONTAINED BREATHING APPARATUS AND APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT. VENTILATE AREA AND CONTAIN AND ABSORB SPILL WITH INERT MATERIAL. COLLECT SPILL BY SCOOPING UP LIQUIDS AND ABSORBENT MATERIAL AND PLACE IN A CHEMICAL WASTE CONTAINER FOR PROPER DISPOSAL. DO NOT FLUSH TO SEWER. PREVENT MATERIAL FROM ENTERING STORM SEWERS, DITCHES THAT LEAD TO WATERWAYS AND GROUND. SMALL SPILLS: ABSORB SPILL WITH ABSORBENT MATERIAL, THEN PLACE IN A CHEMICAL WASTE CONTAINER FOR PROPER DISPOSAL.
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VII. HANDLING AND STORAGE

Other: AVOID PROLONGED OR REPEATED CONTACT WITH SKIN, EYES, OR CLOTHING. WASH HANDS BEFORE EATING. USE WITH ADEQUATE VENTILATION. AVOID BREATHING PRODUCT VAPOR. DO NOT REUSE THIS CONTAINER. STORAGE: STORE IN A COOL, DRY PLACE, AWAY FROM HEAT, SPARKS OR FLAMES. KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE. DO NOT STORE IN DIRECT SUNLIGHT. KEEP OUT OF REACH OF CHILDREN.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: WEAR SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES.

Skin: RUBBER OR OTHER CHEMICALLY RESISTANT GLOVES WHEN HANDLING THIS MATERIAL.

Respiratory: IF VAPOR CONCENTRATION EXCEEDS TLV, USE NIOSH APPROVED ORGANIC VAPOR CARTRIDGE RESPIRATOR.

Engineering: GOOD GENERAL VENTILATION SHOULD BE SUFFICIENT TO CONTROL AIRBORNE LEVELS. LOCAL EXHAUST VENTILATION MAY BE NECESSARY TO CONTROL ANY AIR CONTAMINANTS TO WITHIN THEIR TLVS DURING THE USE OF THIS PRODUCT.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: SILVER

Boiling Point: 259–378°F(127–192°C)

pH: NA

Solubility in Water: >10%

Specific Gravity: 1.8–2.0

Vapor Pressure: 5–6 MMHG @ 20°C

Vapor Density: > (AIR=1)

Physical State: PAINT

Volatile Content: PERCENT VOLATILE: 30–40%

Other: EVAPORATION RATE: >1 (BUTYL ACETATE=1)

X. STABILITY AND REACTIVITY

Stability: STABLE

Hazardous Polymerization: WILL NOT OCCUR. MATERIAL IS NOT KNOWN TO POLYMERIZE.

Hazardous Decomposition Products: MAY RELEASE CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN, MONOMERS AND SMOKE. DEPENDING ON CONDITIONS, SOME HIGHLY REACTIVE PEROXIDES MAY BE FORMED.

Incompatible Products: DO NOT MIX STRONG OXIDIZERS, ACIDS, BASES, CAUSTICS, AMINES AND ALKALI CONTAMINATION.

Conditions To Avoid: AVOID HEAT, SPARKS, OPEN FLAME AND STRONG OXIDIZING CONDITIONS.

XI. TOXICOLOGICAL INFORMATION

Other: REPRODUCTIVE EFFECT: NONE
 TERATOGENIC EFFECTS: NONE
 MUTAGENIC EFFECTS: NONE
 CANCER INFORMATION: NO INGREDIENTS LISTED AS HUMAN CARCINOGENS BY NTP OR IARC

XII. ECOLOGICAL INFORMATION

Environmental Fate and Distribution: AVOID RUNOFF INTO STORM SEWERS AND DITCHES WHICH LEAD TO WATERWAYS. WATER RUNOFF CAN CAUSE ENVIRONMENTAL DAMAGE.

Other: US REGULATIONS REQUIRE REPORTING SPILLS OF THIS MATERIAL THAT COULD REACH ANY SURFACE WATERS.

XIII. DISPOSAL CONSIDERATIONS

Disposal Method: DISPOSE OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. WATER RUNOFF CAN CAUSE ENVIRONMENTAL DAMAGE.

XIV. TRANSPORT INFORMATION

D.O.T. Shipping Name: PAINT

Other: AIR/GROUND PKG INSTR.: Y309/173.150
AIR/GROUND MAX QTY: 1L-5L/5L

XV. REGULATORY INFORMATION

TSCA Status: ALL INGREDIENTS OF THIS PRODUCT ARE LISTED ON TSCA INVENTORY.

EPA Sara Title III Chemical Listings: SECTION 313 SUPPLIER NOTIFICATION: THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 (40 CFR 372):
SILVER; CAS#: 7440-22-4; % BY WT: 35.0-65.0

Other: WHIMIS: CLASS B2; CLASS D2B

XVI. OTHER INFORMATION

Other: NORMAL VENTILATION FOR STANDARD MANUFACTURING PRACTICES IS USUALLY ADEQUATE. LOCAL EXHAUST SHOULD BE USED WHEN LARGE AMOUNTS ARE RELEASED.

WARRANTY INFORMATION

THIS INFORMATION IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.