

Material Safety Data Sheet

Metallograph™ Copper-Silver Screen Ink IINK-SSC

SECTION 1 *Product Identification and General Information*

Manufacturer: IIMAK
Product Information: 716-691-6333 (contact Senior R&D Manager)
Emergency Phone Number (24 Hour): Chemtrec 1-800-424-9300 (for chemical emergencies)
Product Numbers: Metallograph™ Silver Coated Copper Screen Ink IINK-SSC
Chemical Name: Conductive Composite Screen Printing Ink
Date MSDS Prepared: 8/25/2011

This MSDS has been prepared for the purposes of Hazard Communication, under 29 CFR 1910.1200.

SECTION 2 *Composition/Information on Ingredients*

Contents	Percent by Weight	CAS No.	OSHA PEL	LISTED CARCINOGEN (IARC/OSHA/NTP)
Glycol Ether TPM	10% - 15%	25498-49-1	Not Established	No
Polymer Binder	10% - 15%	Proprietary	Not Established	No
Dipropylene Glycol Monomethyl Ether	25% - 30%	34590-94-8	150 ppm	No
Copper	45% - 50%	7440-50-8	1 mg/m ³	No
Silver	<10%	7440-22-4	0.01 mg/m ³	No

There is no toxicity data available for this mixture. The hazards associated with overexposure to this mixture are assumed to be due to exposure to the components.

SECTION 3 *Hazards Identification*

Health Hazard Information (Acute and Chronic):

Eye Contact: Vapors are irritating to the eyes. Splashes can produce painful irritation and eye damage.

Skin Contact: Skin contact may cause irritation. Symptoms include redness, itching, and pain. May be absorbed through the skin. May cause greenish-black or blue-gray skin discoloration.

Ingestion: Ingestion is considered a medical emergency. May cause nausea, vomiting, pain, and a metallic taste in the mouth. Ingestion of larger doses could cause stomach ulceration, jaundice, and liver, and kidney damage.

Inhalation: Inhalation of the vapors and dusts may cause irritation of the nose, throat, and the upper respiratory tract. Symptoms of overexposure may include congestion of nasal mucous membranes, ulceration and perforation of the nasal septum. Inhalation of fumes may cause metal fume fever, a flu-like illness with symptoms such as high temperature, metallic taste in mouth, nausea, general weakness, and muscle aches.

Primary Routes of Entry: Inhalation, skin absorption, skin contact, and eye contact.

Chronic Exposure: Chronic ingestion could cause liver and kidney damage. Prolonged or repeated inhalation could cause respiratory irritation and chronic respiratory disease. Prolonged or repeated contact could cause discoloration of the skin, eyes, and hair. A bluish discoloration indicates silver overexposure, a conditions called argyria, which may be permanent.

Pre-Existing Conditions: May aggravate persons with pre-existing skin disorders, digestive, liver, and kidney problems.

SECTION 4 *First Aid Procedures*

Eye Contact: Flush with copious amounts of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion: Inducing vomiting should only be performed under the direct supervision of medical personnel. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

SECTION 5 *Fire-Fighting Measures*

Flash Point: 120°F - 185°F

Fire and Explosion Hazards: Combustible Liquid. Dangerous fire hazard when exposed to heat or flame.

Extinguishing Media: Class D fire extinguisher using sodium chloride preferred. Do NOT use water.

Special Fire Fighting Procedures: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire-exposed containers cool.

Unusual Fire and Explosion Hazards: This combustible liquid must be kept away from sparks, open flame, hot surfaces, and all sources of heat and ignition. Decomposition materials may emit acrid smoke and irritating fumes. Never use welding or cutting torch on or near drum (including empty) because product can ignite explosively.

SECTION 6 *Accidental Release Measures*

Spill Procedure: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (i.e., vermiculite, dry sand, and earth), and place in a chemical waste container. Do not use combustible materials, such as sawdust. Do not flush to sewer! If leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

US Regulations (CERCLA) require reporting spills and releases to soil, water, and air in excess of reportable quantities.

SECTION 7 *Handling and Storage*

Precautions: Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be NO SMOKING areas. Use non-sparking tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

SECTION 8 *Exposure Controls/Personal Protection*

Eye Protection: Use chemical safety glasses or goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below their respective threshold limit values.

Respiratory Protection: Appropriate respiratory protection is required when exposure to airborne contaminant is likely to exceed acceptable limits. Respirators should be selected and used in accordance with OSHA Part 1910.134 and manufacturer's recommendations.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or overalls, as appropriate, to prevent skin contact. Check with your safety supplier for the proper chemical-resistant gloves.

SECTION 9 *Physical and Chemical Properties*

Appearance: Liquid silver/white suspension

Odor: Ethereal-like odor

Vapor Density: >1 (Air = 1)

Physical State: Liquid

Specific Gravity: >1 (Water = 1)

SECTION 10 *Stability and Reactivity*

Stability: Stable

Conditions to Avoid: Heat, flames, sparks, ignition sources and incompatibles.

Incompatibility (materials to avoid): Reactive with oxidizing agents. Acetylene, chlorine, fluorine, 1-bromo-2-propyne, potassium dioxide, ammonia, and sulfuric acid.

Hazardous Decomposition Products: Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

SECTION 11 *Toxicological Information*

Toxicological Data: There is no available data for the product itself.

Sensitization to Material: May cause allergic contact dermatitis in hypersensitive individual. Symptoms may include itching, redness, swelling, and postulation.

SECTION 12 *Ecological Information*

Environmental Toxicity: The ecological characteristics of this product have not been fully investigated. The product should not be allowed to enter drains or water courses or be deposited where it can affect ground or surface waters. Do not discharge product unmonitored into the environment.

SECTION 13 *Disposal Considerations*

Waste Disposal Method: Recovered non-usable material may be regulated as a hazardous waste due to its ignitability and/or its toxic characteristics. It is the responsibility of the user to determine if the material is a RCRA "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations. State and/or local regulations may be more restrictive.

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Amherst, New York 14228-2396

SECTION 14 *Transport Information*

USDOT and IMDG Regulations

Proper Shipping Name – UN1210, Printing Ink, 3, PG III
Hazard Class – 3 (Flammable Liquid)
Identification Number – UN1210
Label Required – Flammable

IATA Regulations

Proper Shipping – UN1210, Printing Ink, 3, PG III

SECTION 15 *Regulatory Information*

Toxic Substances Chemical Inventory (TSCA): This product (and/or all of its components) is in compliance with USEPA TSCA.

SECTION 16 *Other Information*

HMIS Hazard Rating: Health – 2; Fire – 2; Reactivity – 1; PPE – Goggles & Shield; Apron; Vent Hood; Proper Gloves; Fire Extinguisher

DISCLAIMER:

The information accumulated herein is believed to be accurate and represents the best data currently available. It is the user's responsibility to determine suitability of use. No warranty, expressed or implied, is made and IIMAK assumes no legal responsibility or liability resulting from its use. Materials comprising <1% by weight, or <0.1% by weight if the chemical is a carcinogen, are not listed herein.
