

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Metalon™ HPS-DEV High Performance Silver Ink

GENERAL USE: Commercial ink

PRODUCT DESCRIPTION: Gray viscous liquid or paste with alcoholic odor



MANUFACTURER'S NAME

NCC Nano LLC dba Novacentrix

DATE PREPARED: March 2, 2015

SUPERSEDES: November 11, 2014

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ADDRESS (NUMBER, STREET, P.O. BOX)

400 Parker Drive, Suite 1110

TELEPHONE NUMBER FOR INFORMATION

(512) 491-9500

(CITY, STATE AND ZIP CODE)

Austin, TX 78728

COUNTRY

USA

EMERGENCY TELEPHONE NUMBER

ChemTel Inc. 1- (800) 255-3924 Intl. + 01 (813) 248-0585

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! Harmful or fatal if swallowed. Prolonged contact may cause skin and eye irritation. May be harmful if absorbed through the skin. Vapors may cause drowsiness and dizziness. May be harmful if swallowed. Target organs include blood, cardiovascular system, central nervous system, ears, gastrointestinal tract, kidneys, and liver. Hazard Symbols for this product - N, Xi. Risk Phrases - R22, R36/37/38, R42/43, R67. See Section 15 for explanation of Risk Phrases.

POTENTIAL HEALTH EFFECTS

INHALATION: High concentrations are irritating to the respiratory tract. May cause headache, dizziness, drowsiness, nausea, vomiting, and malaise.

SKIN: Brief contact may cause slight irritation. Prolonged contact may cause moderate reddening, swelling and possible necrosis.

EYES: Contact causes severe irritation and pain associated with redness and swelling of the conjunctiva.

INGESTION: May cause headache, dizziness, diarrhea and general weakness. Large doses may result in red blood cell hemolysis.

CARCINOGENICITY

NTP?

No

IARC MONOGRAPHS?

No

OSHA REGULATED?

No

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	CAS #	EINECS #	%(by weight)	OSHA PEL		ACGIH TWA		RQ LBS
				ppm	mg/m3	ppm	mg/m3	
Silver (a,b,c)	7440-22-4	231-131-3	50 - 90		0.01		0.1	1000
Diethylene glycol monobutyl ether (a,b,c)	112-34-5	203-961-6	0 - 20		not established			
2-Propanol (a)	67-63-0	200-661-7	0 - 25	400		200		
1-Butanol (a)	71-36-3	200-751-6	0 - 25	50		20		5000
N-methyl-2-pyrrolidinone (a)	872-50-4	212-828-1	0 - 5					

The remaining components of this product are non-hazardous or are in small enough quantities as to not meet regulatory thresholds for disclosure. These components contain no substances or impurities which would influence the classification of this product.

(a,c) See Section 15

(b) Indicates that the Resource Conservation and Recovery Act (RCRA) has determined the waste for this chemical is listed as hazardous and must be handled according to regulations in 40 CFR 260-281.

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SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air. Provide oxygen if breathing is difficult. If affected person is not breathing, administer CPR and seek emergency medical attention.

SKIN: Remove contaminated clothing. Wash affected area with soap and water. Launder contaminated clothing before reuse. If irritation persists, seek medical attention.

EYES: Check for and remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open. If irritation persists, seek medical attention.

INGESTION: Give two glasses of water for dilution. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT (METHOD USED) > 93.3°C (> 200°F)	FLAMMABLE LIMITS	LEL: Not applicable	UEL: Not applicable
	AUTOIGNITION TEMPERATURE:	Not determined	NFPA CLASS: IIIB

GENERAL HAZARDS: Product will support combustion. Products of combustion include silver oxide, nitrogen oxides, carbon monoxide, carbon dioxide, and various hydrocarbons.

EXTINGUISHING MEDIA
Carbon dioxide, water fog, dry chemical, chemical foam.

FIRE FIGHTING PROCEDURES
Self - contained respiratory equipment; cool containers to prevent pressure buildup and possible explosion when exposed to extreme heat.
Caution - material will support combustion!

UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers can explode due to buildup of pressure when exposed to extreme heat.

HAZARDOUS COMBUSTION PRODUCTS
Smoke fumes, silver oxide, nitrogen oxides, carbon monoxide, carbon dioxide, and various hydrocarbons.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Confine and absorb into approved absorbent; place material into approved containers for disposal; for spills in excess of allowable quantities (RQ) notify the National Response Center (800) 424 - 8802; refer to CERCLA 40 CFR 302 for detailed instructions; refer to SARA Title III, Section 313, 40 CFR 372 for reporting requirements. Do not discharge into lakes, ponds, streams or public waters.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container tightly closed when not in use. Store product in a dry, cool, and properly ventilated area. Avoid exposure to heat, open flame, and sparks. Avoid contact of product with eyes, skin, and clothes. Avoid inhalation of vapor or mist. Keep this product out of the reach of children.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS
The use of local exhaust ventilation is recommended. No other special controls are indicated.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: None required while threshold limits are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Respiratory protection must be provided in accordance with OSHA regulations (29 CFR 1910.134) or European Standard EN 149, as applicable.

PROTECTIVE GLOVES: Neoprene, butyl or nitrile rubber gloves with cuffs.

EYE PROTECTION: Chemical splash goggles. Refer to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Coveralls, apron, or other equipment should be worn to minimize skin contact.

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Safety showers and safety eyewash nearby.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Gray viscous liquid or paste with alcoholic odor	VAPOR DENSITY (AIR = 1) > 1
SPECIFIC GRAVITY (WATER = 1) 1.8 - 5.4	EVAPORATION RATE (Water = 1) ≤ 1
SOLUBILITY IN WATER Disperses	% VOLATILE (BY WEIGHT) Not specified
pH 6.5 - 8.0	VAPOR PRESSURE Not specified
BOILING POINT Not specified	FREEZING POINT Not specified
VISCOSITY Not specified	VOLATILE ORGANIC COMPOUNDS (VOC's) Not specified

SECTION 10 - STABILITY AND REACTIVITY

STABILITY UNSTABLE: _____
 STABLE: X
 CONDITIONS TO AVOID: High temperatures, oxidizing conditions, open flame, and sparks. May form peroxides of unknown stability.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids, bases, light metals, and halogenated compounds.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, smoke fumes, silver oxide, nitrogen oxides, carbon monoxide, carbon dioxide, and various hydrocarbons may be produced.

HAZARDOUS POLYMERIZATION MAY OCCUR: _____
 WILL NOT OCCUR: X

SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Ingredients	CAS #	EINECS #	LD50 of Ingredient Species and Route	LC50 of Ingredient Species
Silver (a,b,c)	7440-22-4	231-131-3	Not established	Not established
Diethylene glycol monobutyl ether (a,b,c)	112-34-5	203-961-6	5660 mg / kg Oral - rat	Not established
2-Propanol (a)	67-63-0	200-661-7	5045 mg / kg Oral - rat	16000 ppm Inhalation - rat (8h)
1-Butanol (a)	71-36-3	200-751-6	790 mg / kg Oral - rat	8000 ppm Inhalation - rat (4h)
N-methyl-2-pyrrolidinone (a)	872-50-4	212-828-1	3914 mg / kg Oral - rat	Not established

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Silver-bearing inks should be reclaimed for silver value. Dispose of in accordance with local, state, and federal regulations. Do not flush to sanitary sewer or waterway. Refer to 40 CFR 260 - 299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals. According to the European Waste Catalogue, waste codes are application specific and should be assigned by the user based on the application for which the product is used.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Non - Hazardous for Transport

DOT HAZARD CLASS / Pack Group: Not regulated	IATA HAZARD CLASS / Pack Group: Not regulated
REFERENCE: Not applicable	IMDG HAZARD CLASS: Not regulated
UN / NA IDENTIFICATION NUMBER: None	RID/ADR Dangerous Goods Code: Not regulated
LABEL: None required	UN TDG Class / Pack Group: Not regulated
HAZARD SYMBOLS: None	Hazard Identification Number (HIN): None

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

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SECTION 15 - REGULATORY INFORMATION

TSCA (Toxic Substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories
 Immediate Health Hazard, Acute Health Hazard, Chronic Health Hazard

313 Reportable Ingredients:

(a) Indicates a toxic chemical subject to annual reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CERCLA (Comprehensive Response Compensation and Liability Act)

(c) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has notification requirements for releases or spills to the environment of the Reportable Quantity (RQ for this mixture = 1000 lbs) or greater amounts, according to 40 CFR 302.

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

There is a reportable chemical present (N-methyl-2-pyrrolidinone) which is known in the state of California to cause reproductive toxicity.

CPR (Canadian Controlled Products Regulations)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. WHMIS Classification: D2B

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number and listed on the Canadian Ingredient Disclosure List are shown in Section 3.

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List)


Components of this product identified by CAS number are listed on the DSL or NDSL, or are otherwise in compliance with the New Substances Notification (NSN) regulations. Only ingredients classified as "hazardous" are listed in Section 3 unless otherwise indicated.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

WGK Water Quality Index: 1

VbK Index: Not applicable

Risk Phrases	SYMBOL(S) REQUIRED FOR LABEL	Safety Phrases
R22 Harmful if swallowed		S2 Keep out of the reach of children
R36/37/38 Irritating to eyes, respiratory system, and skin		S3/7/9 Keep container closed in a cool, well-ventilated place
R42/43 May cause sensitization by inhalation and skin contact		S15 Keep away from heat
R67 Vapors may cause drowsiness and dizziness		S20/21 When using do not eat, drink, or smoke S24/25 Avoid contact with skin and eyes S29/35 Do not empty into drains; dispose of this material and its container in a safe way

SECTION 16 - OTHER INFORMATION

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

HMIS HAZARD RATINGS

HEALTH	2	* = Chronic Health Hazard	2 = MODERATE
FLAMMABILITY	1	0 = INSIGNIFICANT	3 = HIGH
PHYSICAL HAZARD	0	1 = SLIGHT	4 = EXTREME

PERSONAL PROTECTIVE EQUIPMENT C Safety Glasses, Gloves, Apron

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REVISION SUMMARY:

This MSDS has been revised in the following sections:
No changes noted

MSDS Prepared by:

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The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.