

# MATERIAL SAFETY DATA SHEET

## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** HPS-108AE1 High Performance Silver Ink

**GENERAL USE:** Commercial ink

**PRODUCT DESCRIPTION:** Gray viscous liquid with mild amine odor



**MANUFACTURER'S NAME**

NCC Nano LLC dba Novacentrix

**DATE PREPARED:** March 10, 2016

**SUPERSEDES:** New

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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!** May be harmful if swallowed. May be harmful if inhaled or absorbed through the skin. Prolonged contact may cause moderate irritation to eyes, skin, and respiratory tract. Hazard Symbols for this product - Xi. Risk Phrases - R22, R36/37/38. See Section 15 for explanation of Risk Phrases.

### POTENTIAL HEALTH EFFECTS

**INHALATION:** High concentrations may be irritating to the respiratory tract. May cause headache, dizziness, nausea, and vomiting.

**SKIN:** Brief exposure may cause slight irritation. Repeated or prolonged exposure may cause moderate irritation or dermatitis. May be harmful if absorbed through the skin.

**EYES:** May cause serious irritation with possible symptoms such as burning sensation, tearing, redness, or swelling.

**INGESTION:** This product may be harmful if ingested. May cause abdominal discomfort or pain, dizziness, nausea, and vomiting. Large doses may be fatal.

**CARCINOGENICITY**

NTP?

No

IARC MONOGRAPHS?

No

OSHA REGULATED?

No

## SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| HAZARDOUS COMPONENTS         | CAS #     | EINECS #  | %<br>(by weight) | OSHA PEL |       | ACGIH TWA |                 | RQ   |
|------------------------------|-----------|-----------|------------------|----------|-------|-----------|-----------------|------|
|                              |           |           |                  | ppm      | mg/m3 | ppm       | mg/m3           | LBS  |
| Silver (a,b,c)               | 7440-22-4 | 231-131-3 | 50 - 70          |          | 0.01  |           | 0.1             | 1000 |
| N-methyl-2-pyrrolidinone (a) | 872-50-4  | 212-828-1 | 0 - 5            |          |       |           | not established |      |

All 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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| <b>SECTION 4 - FIRST AID MEASURES</b>  |  |
| 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.  |  |
| <b>SECTION 5 - FIRE FIGHTING MEASURES</b>  |  |
| FLASH POINT (METHOD USED)<br>> 93.3°C (> 200°F)  | FLAMMABLE LIMITS LEL: Not applicable UEL: Not applicable<br>AUTOIGNITION TEMPERATURE: Not determined NFPA CLASS: <b>IIIB</b> |
| GENERAL HAZARDS: Product is flammable and will support combustion. Products of combustion include silver oxide, carbon monoxide, carbon dioxide, nitrogen oxides, and various hydrocarbons.  |  |
| EXTINGUISHING MEDIA<br>Carbon dioxide, water fog, dry chemical, chemical foam.   |  |
| FIRE FIGHTING PROCEDURES<br>Self - contained respiratory equipment. Closed containers may be ruptured by heat and impurities due to temperature increase and pressure buildup within the containers. Cool containers with water spray / fog to prevent further heat generation, pressure buildup, and possible explosion when exposed to extreme heat.   |  |
| UNUSUAL FIRE AND EXPLOSION HAZARDS<br>Closed containers may rupture or explode due to generation of heat or pressure when exposed to extreme heat.   |  |
| HAZARDOUS COMBUSTION PRODUCTS<br>Smoke fumes, silver oxide, carbon monoxide, carbon dioxide, nitrogen oxides, and various hydrocarbons.  |  |
| <b>SECTION 6 - ACCIDENTAL RELEASE MEASURES</b>   |  |
| 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.  |  |
| <b>SECTION 7 - HANDLING AND STORAGE</b>  |  |
| PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container tightly closed when not in use. Store and use product in a 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.  |  |
| <b>SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION</b>   |  |
| <b>ENGINEERING CONTROLS</b><br>The use of local exhaust ventilation is recommended. No other special controls are indicated.   |  |
| <b>PERSONAL PROTECTION:</b><br>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.<br>PROTECTIVE GLOVES: Neoprene, butyl or nitrile rubber gloves with cuffs.<br>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<br>Gray viscous liquid with mild amine odor | VAPOR DENSITY (AIR = 1)<br>> 1                      |
| SPECIFIC GRAVITY (WATER = 1)<br>1.8 - 2.4                       | EVAPORATION RATE (Water = 1)<br>≤ 1                 |
| SOLUBILITY IN WATER<br>Disperses                                | % VOLATILE (BY WEIGHT)<br>Not specified             |
| pH<br>6.5 - 7.5   | VAPOR PRESSURE<br>Not specified                     |
| BOILING POINT<br>Not specified                                  | FREEZING POINT<br>Not specified                     |
| VISCOSITY<br>100 - 200 cP                                       | VOLATILE ORGANIC COMPOUNDS (VOC's)<br>Not specified |

**SECTION 10 - STABILITY AND REACTIVITY**

|                                     |   |
|-------------------------------------|---|
| STABILITY<br>UNSTABLE:<br>STABLE: X | CONDITIONS TO AVOID: Low (<2°C) and high temperatures, open flame, and sparks |
|-------------------------------------|---|

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids, and strong bases

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

|   |  |
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| HAZARDOUS POLYMERIZATION<br>MAY OCCUR:<br>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            |
| N-methyl-2-pyrrolidinone (a) | 872-50-4  | 212-828-1 | 3914 mg / kg<br>Oral - rat           |                            |
| (a,c) See Section 15         |           |           |                                      |                            |

**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. One of the ingredients in this mixture, silver, is classified as very toxic to aquatic life.

**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<br>REFERENCE: Not Applicable<br>UN / NA IDENTIFICATION NUMBER: None<br>LABEL: None Required<br>HAZARD SYMBOLS: None | IATA HAZARD CLASS / Pack Group: Not regulated<br>IMDG HAZARD CLASS: Not regulated<br>RID/ADR Dangerous Goods Code: Not regulated<br>UN TDG Class / Pack Group: Not regulated<br>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  
 Fire 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 = 1200 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

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|---|--|---|
| <p><b>Risk Phrases</b><br/>                 R22 Harmful if swallowed<br/><br/>                 R36/37/38 Irritating to eyes, respiratory system, and skin</p> | <p><b>SYMBOL(S) REQUIRED FOR LABEL</b></p> <p>Irritant      Dangerous to the environment</p>  | <p><b>Safety Phrases</b><br/>                 S1/2 Keep locked up and out of the reach of children<br/>                 S20/21 When using do not eat, drink, or smoke<br/>                 S24/25 Avoid contact with skin and eyes<br/>                 S29/35 Do not empty into drains; dispose of this material and its container in a safe way</p> |
|---|--|---|

**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 |
| CHRONIC HEALTH  | * | 0 = INSIGNIFICANT         | 3 = HIGH     |
| FLAMMABILITY    | 1 | 1 = SLIGHT                | 4 = EXTREME  |
| PHYSICAL HAZARD | 0 |                           |              |

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.