### Section 1. Identification

<table>
<thead>
<tr>
<th>GHS product identifier</th>
<th>Metalon® JR-700LV Carbon ink</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other means of</td>
<td>Liquid.</td>
</tr>
<tr>
<td>identification</td>
<td></td>
</tr>
<tr>
<td>Product type</td>
<td></td>
</tr>
</tbody>
</table>

**Relevant identified uses of the substance or mixture and uses advised against**

| Identified uses        | Ink.                         |

**Supplier’s details**

- NCC Nano LLC dba NovaCentrix
  - 400 Parker Drive, Suite 1110, Austin, TX  78728
  - Tel.: 512-491-9500
  - Fax: 512-491-0002
  - Email: msds@novacentrix.com
  - Website: www.novacentrix.com

**Emergency telephone number (with hours of operation)**

- CHEMTEL 24-HOUR EMERGENCY TELEPHONE NUMBER
  - N.A. Toll Free: 1-800-255-3924
  - International: 01-813-248-0585

### Section 2. Hazards identification

**OSHA/HCS status**

- This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture**

- SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

**GHS label elements**

**Hazard pictograms**

- ![Danger symbol]

**Signal word**

- Warning

**Hazard statements**

- H319 - Causes serious eye irritation.

**Precautionary statements**

**Prevention**

- P280 - Wear eye or face protection.
- P264 - Wash hands thoroughly after handling.

**Response**

- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 - If eye irritation persists: Get medical attention.

**Storage**

- Not applicable.

**Disposal**

- Not applicable.

**Hazards not otherwise classified**

- None known.
Section 3. Composition/information on ingredients

**Substance/mixture:** Mixture  
**Other means of identification:** Not available.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>≥10 - &lt;25</td>
<td>107-21-1</td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥10 - ≤25</td>
<td>56-81-5</td>
</tr>
<tr>
<td>Carbon black</td>
<td>≥5 - ≤10</td>
<td>1333-86-4</td>
</tr>
</tbody>
</table>

The exact percentage (concentration) in the composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

**Inhalation**: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin contact**: Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

**Eye contact**: Causes serious eye irritation.

**Inhalation**: No known significant effects or critical hazards.

**Skin contact**: No known significant effects or critical hazards.

**Ingestion**: No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

**Eye contact**: Adverse symptoms may include the following: pain or irritation, watering, redness.

**Inhalation**: No known significant effects or critical hazards.
Section 4. First aid measures

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician**
- No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**Specific treatments**
- No specific treatment.

**Protection of first-aiders**
- No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**
- Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**
- None known.

**Specific hazards arising from the chemical**
- No specific fire or explosion hazard.

**Hazardous thermal decomposition products**
- Decomposition products may include the following materials:
  - Carbon dioxide
  - Carbon monoxide

**Special protective actions for fire-fighters**
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters**
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**
- No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**
- If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**
- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods and materials for containment and cleaning up**
Section 6. Accidental release measures

Spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane diol</td>
<td>ACGIH TLV (United States, 3/2018).  STEL: 10 mg/m³ 15 minutes. Form: Inhalable fraction. Aerosol only. STEL: 50 ppm 15 minutes. Form: Vapor fraction</td>
</tr>
<tr>
<td></td>
<td>TWA: 25 ppm 8 hours. Form: Vapor fraction</td>
</tr>
<tr>
<td>Glycerol</td>
<td>OSHA PEL (United States, 5/2018).  TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</td>
</tr>
<tr>
<td></td>
<td>TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td>Carbon black</td>
<td>NIOSH REL (United States, 10/2016).  TWA: 3.5 mg/m³ 10 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.1 mg of PAHs/cm³ 10 hours. OSHA PEL (United States, 5/2018). TWA: 3.5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 3/2018). TWA: 3 mg/m³ 8 hours. Form: Inhalable fraction</td>
</tr>
</tbody>
</table>

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures
Section 8. Exposure controls/personal protection

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state: Liquid. [Low viscosity]
Color: Black.
Odor: Not available.
Odor threshold: Not available.

pH: 7 to 9 [Conc. (% w/w): 100%]

Melting point: Not available.
Boiling point: Not available.
Flash point: Not available.
Evaporation rate: Not available.
Flammability (solid, gas): Not available.
Lower and upper explosive (flammable) limits: Not available.

Vapor pressure: Not available.
Vapor density: Not available.
Relative density: 1 to 2
Solubility: Not available.
Partition coefficient: n-octanol/water: Not available.
Auto-ignition temperature: Not available.
Section 9. Physical and chemical properties

**Decomposition temperature** : Not available.
**Viscosity** : Kinematic (room temperature): 0.15 cm²/s (15 cSt)
**Flow time (ISO 2431)** : Not available.

Section 10. Stability and reactivity

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** : No specific data.

**Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

**Information on toxicological effects**

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4700 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Carbon black</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;15400 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>1 hours 100 mg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>6 hours 1440 mg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>555 mg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sensitization**

There is no data available.

**Mutagenicity**

There is no data available.

**Carcinogenicity**

There is no data available.

**Reproductive toxicity**

There is no data available.

**Teratogenicity**

There is no data available.

**Specific target organ toxicity (single exposure)**

There is no data available.

**Specific target organ toxicity (repeated exposure)**

There is no data available.

**Aspiration hazard**
Section 11. Toxicological information

There is no data available.

Information on the likely routes of exposure

Potential acute health effects

Eye contact: Causes serious eye irritation.
Inhalation: No known significant effects or critical hazards.
Skin contact: No known significant effects or critical hazards.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Inhalation: No known significant effects or critical hazards.
Skin contact: No known significant effects or critical hazards.
Ingestion: No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Long term exposure
Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects

General: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>2941.18 mg/kg</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>Acute LC50 6900000 µg/L Fresh water</td>
<td>Crustaceans - Ceriodaphnia dubia - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td>Carbon black</td>
<td>Acute LC50 41000000 µg/L Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td>Carbon black</td>
<td>Acute LC50 8050000 µg/L Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td>Carbon black</td>
<td>Acute EC50 37.563 mg/L Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability
There is no data available.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>-1.36</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

Soil/water partition coefficient (K<sub>OC</sub>) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>
Section 14. Transport information

DOT-RQ Details
DOT-RQ Details : Ethanol
Additional information
Reportable quantity : 29411.8 lbs / 13352.9 kg [2351.6 gal / 8902 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Special precautions for user
Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed
Clean Air Act Section 602 Class I Substances : Not listed
Clean Air Act Section 602 Class II Substances : Not listed
DEA List I Chemicals (Precursor Chemicals) : Not listed
DEA List II Chemicals (Essential Chemicals) : Not listed
SARA 302/304
No products were found.
SARA 304 RQ : Not applicable.
SARA 311/312
Classification : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanediol</td>
<td>ACUTE TOXICITY (oral) - Category 4</td>
</tr>
<tr>
<td></td>
<td>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A</td>
</tr>
</tbody>
</table>

SARA 313

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form R - Reporting requirements Ethanediol</td>
<td>107-21-1</td>
</tr>
<tr>
<td>Supplier notification Ethanediol</td>
<td>107-21-1</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: Ethanediol; Glycerol; Carbon black
New York : The following components are listed: Ethanediol

Section 15. Regulatory information

New Jersey: The following components are listed: Ethanediol; Glycerol; Carbon black
Pennsylvania: The following components are listed: Ethanediol; Glycerol; Carbon black

California Prop. 65

WARNING: This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Naphthalene and Ethylbenzene, which are known to the State of California to cause cancer, and Ethanediol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Section 16. Other information

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

History

Date of issue mm/dd/yyyy: 03/15/2020
Date of previous issue: Not applicable
Version: 1
Prepared by: KMK Regulatory Services Inc.
Key to abbreviations: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.