Material Safety Data Sheet # 183
For Printing Inks and related Materials

Date of preparation: 3/19/08
Updated: 1/17/2012
MSDS #: 183

I. PRODUCT IDENTIFICATION
Manufacturer: Gans Ink and Supply Co, Inc.
Address:         1441 Boyd Street
Los Angeles, CA 90033
Emergency phone: (323) 264-2200

HMIS HAZARD IDENTIFICATION

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Class:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aqueous Coating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturer’s code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-1876</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gloss Ink Train Coating AQ-301</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

II. HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>CAS #</th>
<th>%</th>
<th>Exposure Limits</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia Hydroxide</td>
<td>1336-21-6</td>
<td>0 – 1</td>
<td>ACGIH TWA/TLV</td>
<td>25 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA/ PEL</td>
<td>50 ppm</td>
</tr>
<tr>
<td>Sodium Dioctylsulfosuccinate</td>
<td>577-11-7</td>
<td>1 – 5</td>
<td>OSHA PEL</td>
<td>NE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH TLV/ TWA</td>
<td>NE</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>20 – 25</td>
<td>OSHA PEL</td>
<td>50 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH TLV/ TWA Ceiling</td>
<td>100 mg/m3</td>
</tr>
</tbody>
</table>

NE= Not Established

The amount of Ammonium Hydroxide reported in Section 2 is calculated to be the excess neutralizer after creation of the polymer solution.

III. HEALTH HAZARD INFORMATION

Effects of Overexposure

**Inhalation:** Inhalation of excessive concentrations of vapors or mists may cause irritation of nose and throat and respiratory tract. No chronic health hazards are associated with the components present in this product.

**Skin Contact:** Avoid skin contact. Prolonged or repeated contact with skin may cause mild irritation. Symptoms may include redness, itching, drying and cracking of skin. Skin contact is expected to be the primary route of occupational exposure.

**Eye Contact:** Avoid eye contact. Contact with eyes may cause mild irritation. Symptoms may include stinging, tearing, redness, swelling and / or burning.

**Ingestion:** Do not ingest. Ingestion is an unlikely route of exposure under conditions of intended use. Deliberate ingestion of excessive quantities may be harmful. See Notes to Physician section below.

IV. FIRST AID PROCEDURES

Emergency & First Aid Procedures

**Eyes:** Immediately flush eyes with large amounts of water and continue flushing for 15 minutes, lifting upper and lower lids occasionally. Seek immediate medical attention if irritation or redness persists.
Skin: Remove contaminated clothing. Wash contaminated area thoroughly with soap and water. Solvents should not be used to clean skin because of increased penetration potential. If redness or irritation persists, seek immediate medical attention. Wash clothing and thoroughly clean shoes before reuse.

Inhalation: Remove victim from exposure. If breathing has stopped or is irregular, administer artificial respiration and supply oxygen if it is available. If victim is unconscious, remove to fresh air and seek immediate medical attention.

Ingestion: Rinse mouth and drink plenty of water. Do not induce vomiting, seek immediate medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

V. FIRE AND EXPLOSION DATA

<table>
<thead>
<tr>
<th>Flash Point °F:</th>
<th>&gt; 200 °F (Closed Cup)</th>
<th>Auto-ignition Temperature °F: No Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Limits in Air (%)</td>
<td>Lower Limit: No Data</td>
<td>Upper Limit: No Data</td>
</tr>
<tr>
<td>Extinguishing Media:</td>
<td>Use water spray, foam or dry chemical extinguishing media.</td>
<td></td>
</tr>
<tr>
<td>Special Fire Fighting Procedures:</td>
<td>The use of self–contained breathing apparatus is recommended for fire fighters. Water may be used as an extinguishing medium. Water can be used to cool containers exposed to heat or flame. Use caution when approaching or handling fire-exposed containers.</td>
<td></td>
</tr>
<tr>
<td>Unusual Fire &amp; Explosion Hazard:</td>
<td>The container may burn and leak in the heat of a fire. CO₂, CO, smoke and other oxides of nitrogen and sulfur may be generated as products of combustion.</td>
<td></td>
</tr>
</tbody>
</table>

VI. ACCIDENTAL RELEASE

Steps to be taken in event of spill or release: Keep unnecessary personnel away from spill area. Ventilate area of spill. Use appropriate personal protective equipment. Absorb small spills with an inert absorbent material such as vermiculite, sand, dirt, etc. If large spill, dike off area before collecting for recovery or disposal area. Dispose in accordance with local, state and federal regulations. Clean up with a strong detergent and water. Keep all materials out of drains, sewers, or waterways.

VII. HANDLING AND STORAGE

Handling and Storage: Store in containers in a cool, well-ventilated area. Avoid prolonged contact with skin, contact with eyes, and breathing of mist or vapor. Keep containers closed when not in use. Do not store in areas with excessive hot or cold temperatures. It is recommended that containers of these products be stored at temperatures between 40 °F and 115 °F (4.5°C – 45 °C) The slight ammonia smell can become stronger if the coating will be heated higher than room temperature. Protect from freezing. Wear chemical safety goggles or glasses, apron and impervious gloves when handling. Take precautionary measures against static discharges. Always wash hands and face with soap and water before eating, drinking, and smoking.

Other Precautions: For industrial use only. Do not ingest. Avoid prolonged contact with skin, contact with eyes, and breathing of mist or vapor.

VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ventilation Requirements: General mechanical ventilation is adequate to keep product vapor concentrations within specified time weighted TLV ranges.

Personal Protective Equipment

Respirator: Respiratory protection is not required under conditions of normal use. If vapor or mist in generated when the material is heated or handled, use an organic vapor respirator with a dust and mist filter. All respirators must be NIOSH / MSHA certified. Do not use compressed oxygen in hydrocarbon atmospheres.

Skin: Use impervious gloves when handling. Use a chemical resistant apron if a splash hazard exists. Readily accessible safety showers are recommended.

Eye: Use approved eye protection to safeguard against potential eye contact, irritation and injury. Wear plastic face shield, or splash-proof safety glasses or goggles. Eye protection should meet the specifications of ANSI Z87.1 Provide readily accessible eye wash stations.
IX. PHYSICAL AND CHEMICAL DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Range °F</td>
<td>212 °F</td>
</tr>
<tr>
<td>Relative Density (H₂O = 1)</td>
<td>1.045</td>
</tr>
<tr>
<td>Material Density Lbs./Gal.</td>
<td>8.70</td>
</tr>
<tr>
<td>% Volatiles by Weight</td>
<td>30.46</td>
</tr>
<tr>
<td>VOC: lbs/gal</td>
<td>2.65 g/L</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Soluble</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>8.7± 0.7</td>
</tr>
</tbody>
</table>

X. STABILITY AND REACTIVITY INFORMATION

| Stability (Thermal, Light, etc.) | Stable under normal conditions of storage and intended use. |
| Conditions to avoid              | Avoid excessive heat, (> 140 F) and sources of ignition. Avoid storage below 40 °F (4.5°C) and above 115 °F. Avoid excessive cold, product may congeal or stratify if cold. |
| Hazardous Polymerization        | Will not occur.            |
| Materials to avoid              | Keep away from strong acids. |
| Hazardous Decomposition Products | CO₂, CO, smoke and other oxides of nitrogen and sulfur may be generated as products of combustion. |

XI. TOXICOLOGICAL INFORMATION

CARCINOGEN: This product contains no listed carcinogens according to IARC, ACGIH, OSHA or the National Toxicology Program (NTP) in concentrations of 0.1 percent or greater.

Mutagen: No Data
Teratogen: No Data
Reproductive Toxicity: No Data

Sodium Dioctylsulfosuccinate
Oral: LD50 : 1900 mg/kg (rat)
Draize Test, Skin: 10 mg/24H Moderate (rabbit)
Draize Test, Eye: 1% Severe (rabbit)
Inhalation: No Information available

Ammonium Hydroxide
Oral: LD50: 350 mg/kg (rat)
Skin Irritant: Severe irritant (rabbit)
Eye Irritant: Severe irritant (rabbit)
Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

Ethylene Glycol
Acute animal toxicity data:
Ingestion: LD50, > 4,700 mg/kg (rat)
Inhalation: LC50 (1h) : > 20mg/kg (rat)
Skin: LD50: > 2,000 mg/kg (rat)
Eye Irritation: Severe eye irritation

Chronic Health Hazard
This product contains ethylene glycol, which has been shown to cause dose-related teratogenic effects in rats and mice when given by gavage or drinking water at high concentrations or doses. Ethylene glycol has also caused teratogenic effects in mice when administered as an aerosol at a concentration of 2,500 mg/m³ for 6 hours a day throughout the period of organogenesis. Repeated ingestion of ethylene glycol has caused bladder and kidney stone formation, and kidney damage in laboratory animals. Two chronic feeding
studies, using rats and mice, have not produced any evidence that ethylene glycol caused dose-related increases in tumor incidence.

XII. ECOLOGICAL INFORMATION

Information pertaining to the ecological fate of the “pure” form of the hazardous components identified in Section 2 is presented below. This information reflects the known hazards associated with the components and may not reflect that of the purchased material due to concentration (dilution) effects. Review and interpretation by your Hazard Communication Department is recommended.

Sodium Diocysulfocinate
No information available

Ammonium Hydroxide
Fish: Rainbow Trout: LC50: 0.008 mg/L; 24 hr
Fish: Fathead minnow: LC50: 8.2 mg/L; 24 hr
Water Flea: Daphnia: EC50: 0.66 mg/L; 48 hr

Ethylene Glycol
Environmental Toxicity:
Fish: 96h, LC50 > 100 mg/l

Do not allow to enter waterways, drains, sewers or lakes.

XIII. DISPOSAL INFORMATION

Waste Disposal Method: Dispose of in accordance with local, county, state and federal regulations. Material may be incinerated or land filled at a licensed facility in accordance with local, state, and federal regulations. DO NOT introduce this product directly into public sewer systems. Since emptied containers may retain product residues, all hazard precautions given in this data sheet should be observed.

XIV. TRANSPORT INFORMATION

Flammability Classification:
OSHA: Class III B
DOT Proper Ship Name (ground): Resin Compounds Liquid
   Class: Not applicable
   UN ID: Not applicable
   Packing Group: Not applicable

IMDG Proper Ship Name (ocean): Resin Compounds Liquid
Class: Not applicable
UN ID: Not applicable
Packing Group: Not applicable

ICAO/ IATA Proper Ship Name (air): Resin Compounds Liquid
Class: Not applicable
UN ID: Not applicable
Packing Group: Not applicable

TDG Proper Ship Name (ground): Resin Compounds Liquid
Class: Not applicable
UN ID: Not applicable
Packing Group: Not applicable
XV. REGULATORY INFORMATION

SARA Title III Section 313 (40 CFR 372) Component(s) above ‘de minimus’ level:
This material contains the following chemicals subject to the reporting requirements of the SARA
Superfund Amendments and Reauthorization Act.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia Hydroxide</td>
<td>1336-21-6</td>
<td>0 – 1</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>20 - 25</td>
</tr>
</tbody>
</table>

TSCA Section 8(b) Inventory Status:
All component(s) of this product are either listed or exempt on the TSCA Inventory.

CERCLA Reportable Quantities
Components present which could require reporting under CERCLA 40 CFR 302.4

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS#</th>
<th>CERCLA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Hydroxide</td>
<td>1336-21-6</td>
<td>1000 lbs.</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>5,000 lbs.</td>
</tr>
</tbody>
</table>

Clean Air Act Amendment (HAPs)
This product contains the following chemicals which are defined as Hazardous Air Pollutants under the Title
III of the Clean Air Act Amendment of 1990.

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<tbody>
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<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>20 - 25</td>
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</table>

Coalition of Northeast Governors (CONEG) Legislation:
This product is certified to be in full compliance with CONEG Model Toxics Legislation for packaging and
packaging components.

Canadian WHMIS Classification
Components present listed in the WHMIS hazardous ingredient disclosure list.

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U.S. State Regulations

California Proposition 65:
This product does not intentionally contain any chemicals known by the state of California to cause cancer
and/or reproductive harm. Moreover, Gans Ink and Supply Co., Inc. does not routinely analyze its products
for impurities which may be such chemicals.

XVI. OTHER INFORMATION

The information herein is presented in good faith, based on the data available to us and is believed to be
correct as of the date hereof. However, Gans Ink and Supply Co., Inc. makes no warranty, expressed or
implied regarding the accuracy of this data or the results to be obtained from the use thereof. Gans Ink and
Supply Co., Inc. assumes no responsibility for any damages of any nature directly or indirectly resulting
from the use of or reliance upon the information contained herein. Users must make their own
determination as to the suitability of the product for their purpose prior to use. In accordance with good
practices of personal cleanliness and hygiene, handle with due care and avoid unnecessary contact with this
product.