SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: FAS-WS 140
PRODUCT USE: Ink
PRODUCT COLOR: White
Not recommended for: Consumer Use

Manufacturer/Supplier:
PANNIER CORPORATION
207 SANDUSKY STREET
PITTSBURGH, PA 15212-5823 U.S.A.
412-323-4900
sales@pannier.com

24 Hr Emergency Telephone Number: INFOTRAC 1-800-535-5053

SECTION 2 - HAZARDS IDENTIFICATION

GHS Ratings:
- Flammable liquid: 2 Flash point < 23°C and initial boiling point > 35°C (95°F)
- Eye corrosive: 2 Eye Irritation: Reversible adverse effects on cornea, iris, conjunctiva, Draize score: Corneal opacity >= 1, Iritis > 1, Redness >= 2, Chemosis >= 2
- Carcinogen: 2 Limited evidence of human or animal carcinogenicity
- Reproductive toxin: 1B Presumed, Based on experimental animals

GHS Hazards:
- H225 Highly flammable liquid and vapour
- H351 Suspected of causing cancer
- H360 May damage fertility or the unborn child

GHS Precautions:
- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
- P233 Keep container tightly closed
- P240 Ground/bond container and receiving equipment
- P241 Use explosion-proof electrical/ventilating/light/manufacturer/equipment
- P242 Use only non-sparking tools
- P243 Take precautionary measures against static discharge
- P264 Wash contact area thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P281 Use personal protective equipment as required
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- P305+P351+P338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P308+P313 IF exposed or concerned: Get medical advice/attention
- P337+P313 Get medical advice/attention
- P370+P378 In case of fire: Use appropriate media for extinction
- P405 Store locked up
- P403+P235 Store in a well ventilated place. Keep cool
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Signal Word: Danger

Acute Toxicity
N/A

Conditions Aggravated
N/A

Chronic Effects
N/A
SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS number</th>
<th>Weight Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>60.00% - 70.00%</td>
</tr>
<tr>
<td>Titanium (IV) dioxide</td>
<td>13463-67-7</td>
<td>10.00% - 20.00%</td>
</tr>
<tr>
<td>Cellulose Nitrate</td>
<td>9004-70-0</td>
<td>1.00% - 5.00%</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>Trade Secret</td>
<td></td>
</tr>
<tr>
<td>Isopropanol</td>
<td>67-63-0</td>
<td>1.00% - 5.00%</td>
</tr>
<tr>
<td>Silicon dioxide</td>
<td>7631-86-9</td>
<td>1.00% - 5.00%</td>
</tr>
</tbody>
</table>

SECTION 4 - FIRST AID MEASURES

INHALATION - Move affected person to fresh air, rest in a half upright position, and loosen clothing. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Seek medical advice after significant exposure.

EYE CONTACT - Flush with large amounts of water for at least 15 minutes. Lift eyelids occasionally. Get prompt medical attention.

SKIN - Wash thoroughly with soap and water immediately. Remove all contaminated clothing immediately. Seek medical advice if irritation persists.

INGESTION - Seek medical advice. The decision to induce vomiting or not must be made by a physician after careful consideration of all materials ingested. Risk of aspiration into lungs.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable Extinguishing Media Carbon Dioxide---Dry Chemical---Foam---Water Fog Use water for cooling material stored in vicinity of fire.

Explosion Hazards Vapors are heavier than air and may travel along the ground to an ignition source some distance from material handling point. Ignition sources include pilot lights, smoking, heaters, electric motors, sparks from electrical switches and static discharges.

CAUTION: Never use cutting torch on empty containers! Residual solvent vapor in empty container may explode. Application to hot surfaces requires special precautions. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain Medical Attention.

Hazardous Combustion Products N/A

Recommended Fire Equipment Use self-contained breathing apparatus with a full-face piece operated in a pressure-demand or other positive pressure mode. Wear protective clothing.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

In Case of Spill Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread to drains, sewers, water supplies, or soil. Cover spill area with a suitable absorbent material (Kitty Litter, Oil-Dri, etc.). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swipe test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide diffuse.

To minimize vapor, cover the spillage with fire fighting foam (AFFF). Released material may be pumped into closed, but not sealing, metal containers for disposal. Process can generate heat.

Neutralization solutions
(1) Colorimetric Laboratories Inc. (CLI) decontamination solution.
(2) A mixture of 75% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10) and 5% n-propanol.
(3) A mixture of 80% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10).
(4) A mixture of 90% water 3-8% ammonium hydroxide or concentrated ammonia and 2% liquid detergent

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling Keep away from food, drink and heat. Keep away from sources of ignition. No smoking. Do not breathe vapor. Avoid contact with skin and eyes. Never use pressure to empty. Take precautionary measures against static discharges.
Storage temperature
Minimum: do not freeze
Maximum: 40°C (104°F)

Storage Period- See technical data sheet.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Chemical Name / CAS No</th>
<th>Other Exposure Limits</th>
<th>ACGIH Exposure Limits</th>
<th>OSHA A Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone 67-64-1</td>
<td>1000 ppm TWA; 2400 mg/m³ TWA</td>
<td>750 ppm STEL; 500 ppm TWA</td>
<td>NIOSH: 250 ppm TWA; 590 mg/m³ TWA</td>
</tr>
<tr>
<td>Titanium (IV) dioxide 13463-67-7</td>
<td>15 mg/m³ TWA (total dust)</td>
<td>10 mg/m³ TWA</td>
<td>N/A</td>
</tr>
<tr>
<td>Cellulose Nitrate 9004-70-0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Trade Secret Trade Secret</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Isopropanol 67-63-0</td>
<td>400 ppm TWA; 980 mg/m³ TWA</td>
<td>400 ppm STEL; 200 ppm TWA</td>
<td>NIOSH: 400 ppm TWA; 980 mg/m³ TWA; 500 ppm STEL; 1225 mg/m³ STEL</td>
</tr>
<tr>
<td>Silicon dioxide 7631-86-9</td>
<td>20 mppcf; TWA - Table Z-3 Mineral Dusts</td>
<td>N/A</td>
<td>NIOSH: 6 mg/m³ TWA</td>
</tr>
</tbody>
</table>

Provide sufficient ventilation in volume and pattern to keep air containment concentration below current applicable OSHA permissible exposure limit or ACGIH TLV limit, and volatiles below lower explosive limit. Heavy solvent vapors should be removed from the lower levels of area, and all ignition sources (non-explosion proof equipment) should be eliminated if flammable mixtures will be encountered. Remove decomposition products formed during welding or flame cutting of surfaces coated with this product. For baking finishes - vent vapors emitted on heating.

Respiratory Protection- Operator is to use an approved half mask organic vapor respirator under normal conditions. An air supplied, positive pressure respirator may be required if working conditions to not provide adequate ventilation to keep exposures below the limits.

Skin and Body Protection- Wear chemical resistant gloves (nitrile) and paint suits. The most suitable glove must be chosen in consultation with the gloves supplier who can inform about the breakthrough time of the glove material.

Eye Protection- Wear approved chemical safety goggles where exposure to vapor or contact with eyes is possible. Eye wash stations should also be made available.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

| pH | N/A |
| % Volume Solids | 14.79 |
| U.S. VOC Wt/Gal (wet) | 0.17 |
| Acetone: | |
| Color | White |
| Flash Point | 1 F, -17 C |
| Autoignition Temperature | 170°C |
| Vapor Pressure | 169.4 mmHg |
| Freezing Point | Not determined |
| Viscosity | Not determined |
| % Weight Solids | 30.49 |
| VOC Wt/Gal (wet) | 5.66 |
| Specific Gravity (SG) | 0.976 |
| Odor Threshold | Not determined |
| Boiling Point | 56°C |
| LEL/UEL | 2% - 13% |
| Evaporation Rate (nBuAc=1) | Not determined |
| Vapor Density | 2.1 |
| Partition coefficient | Not determined |

SECTION 10 - STABILITY AND REACTIVITY

This material is considered stable
Hazardous polymerization will not occur.

The following materials should be avoided in contact with the mixture
Reducing agents
Oxidizing agents
Strong acids
Strong bases

Hazardous decomposition products
Carbon oxides
Titanium/titanium oxides
SECTION 11 - TOXICOLOGICAL INFORMATION

Mixture Toxicity
Inhalation Toxicity LC50: 129mg/L

Component Toxicity
7631-86-9 Silicon dioxide
Oral LD50: 5,000 mg/kg (Rat)  Dermal LD50: 2,000 mg/kg (Rabbit)  Inhalation LC50: 2 mg/L (Rat)

LC50 and LD50 toxicity for this product are merely estimates and have yet to be determined. For individual component ecotoxicity, please refer to Section 11.

Possible Routes of Entry
Inhalation  Skin Contact  Eye Contact  Ingestion

Potential Target Organs
Eyes  Kidneys  Liver  Lungs  Central Nervous System  Skin  Respiratory System

The following components are possible carcinogens
*Materials labeled a carcinogen in dust form are supplied in solution, thus eliminating the hazard

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Description</th>
<th>% Weight</th>
<th>Carcinogen Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>13463-67-7</td>
<td>Titanium (IV) dioxide 10-20%</td>
<td>Titanium (IV) dioxide: NIOSH: Potential occupational carcinogen (dust*) IARC: Possible human carcinogen (dust*) OSHA: listed (dust*)</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 12 - ECOLOGICAL INFORMATION

Mixture Ecotoxicity
Toxicity- Do not release into environment. May cause long term adverse effects.
Persistence and degradability- N/A
Bioaccumulative potential- N/A
Mobility in Soil- N/A

Component Ecotoxicity
Acetone 96 Hr LC50 Oncorhynchus mykiss: 4.74 - 6.33 mL/L; 96 Hr LC50 Pimephales promelas: 6210 - 8120 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 8300 mg/L 48 Hr EC50 Daphnia magna: 10294 - 17704 mg/L [Static]; 48 Hr EC50 Daphnia magna: 12600 - 12700 mg/L

Isopropanol 96 Hr LC50 Pimephales promelas: 9640 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 11130 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: >1400000 µg/L 48 Hr EC50 Daphnia magna: 13299 mg/L 96 Hr EC50 Desmodesmus subspicatus: >1000 mg/L; 72 Hr EC50 Desmodesmus subspicatus: >1000 mg/L

Silicon dioxide 96 Hr LC50 Brachydanio rerio: 5000 mg/L [static] 48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L 72 Hr EC50 Pseudokirchneriella subcapitata: 440 mg/L

SECTION 13 - DISPOSAL CONSIDERATIONS
Dispose of in accordance with federal, state and local regulations. Controlled incineration is recommended for disposal of unused product. Prevent contamination of soil, drains and surface waters. Dispose of large containers to a licensed reconditioner. Dispose of small containers in compliance with local regulations.

SECTION 14 - TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Agency</th>
<th>Proper Shipping Name</th>
<th>UN Number</th>
<th>Packing Group</th>
<th>Hazard Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td>Printing Ink</td>
<td>UN1210</td>
<td>II</td>
<td>3</td>
</tr>
<tr>
<td>IATA</td>
<td>Printing Ink</td>
<td>UN1210</td>
<td>II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Pkg Instr: Y341/353/364</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMDG</td>
<td>Printing Ink</td>
<td>UN1210</td>
<td>II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EmS: F-E, S-D</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 15 - REGULATORY INFORMATION
The following chemicals are listed in California Title 8 CCR Sections as Hazardous Substances
7631-86-9 Silicon dioxide  67-63-0 Isopropanol
67-64-1 Acetone
7631-86-9 - None

The following chemicals are classified by China - Environmental Quality Standards for Surface Water -
The following chemicals have been listed by the EU-End of Life Vehicles (2000/53/EC) (ELV): -
None

The following chemicals are listed in the EU-Substances of Very High Concern (2008/67/ED) (SVHC): -
None

The following chemicals are listed in the EU-Restriction of the use of certain Hazardous Substances (2011/65/EU) (RoHS): -
None

The following chemicals are listed under the European Union- Waste Electrical and Electronic Equipment (2012/19/EU) (WEEE) -
None

The following chemicals are included in the Global Automotive Declarable Substance List (GADSL)
9004-70-0  Cellulose Nitrate

The following substances are required for notification by the Japanese Enforcement Order of the Industrial Safety and Health Law (ISHL):
7631-86-9  Silicon dioxide
67-63-0  Isopropanol
9004-70-0  Cellulose Nitrate
13463-67-7  Titanium (IV) dioxide
67-64-1  Acetone

The following chemicals are listed on the Massachusetts Right-to-Know Hazardous Substances List.
7631-86-9  Silicon dioxide
67-63-0  Isopropanol
9004-70-0  Cellulose Nitrate
13463-67-7  Titanium (IV) dioxide
67-64-1  Acetone

The following chemicals are listed on the New Jersey Right-to-Know Hazardous Substances List.
7631-86-9  Silicon dioxide
67-63-0  Isopropanol
9004-70-0  Cellulose Nitrate
13463-67-7  Titanium (IV) dioxide
67-64-1  Acetone

The following chemicals are listed on the Pennsylvania Right-to-Know Hazardous Substances List.
7631-86-9  Silicon dioxide
67-63-0  Isopropanol
9004-70-0  Cellulose Nitrate
13463-67-7  Titanium (IV) dioxide
67-64-1  Acetone

The following chemicals are listed by the State of California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
13463-67-7  Titanium (IV) dioxide  Carcinogen

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) requires certain facilities manufacturing, processing, or otherwise using listed toxic chemicals to report their environmental releases of such chemicals annually. The following chemicals are listed:
67-63-0  Isopropanol  1 to 5 %

Under Section 12(b) of the Toxic Substances Control Act (TSCA), exporters may need to notify the U.S. Environmental Protection Agency if they export or intend to export a product containing a chemical substance that is present on this list. The following substances are contained within this material: -
None

The following chemicals are listed as a Hazardous Air Pollutant under listed under the U.S. CAA (Clean Air Act) -
None

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulation</th>
<th>All Components Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Non-Domestic Substances List (NSDL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances Produced or Imported in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>REACH Registered or Pre-Registered Substances and Intermediates</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>Japanese Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan Inventory of Industrial Safety and Health Law Substances (ISHL)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Korean Existing Chemical Inventory (KECI)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory of Chemicals (NZIoC)</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>USA</td>
<td>Toxic Substances and Control Act (TSCA)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**EU Risk Phrases**

**Safety Phrase**
SECTION 16 - OTHER INFORMATION

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

Hazardous Material Information System (HMIS)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
<td>C</td>
</tr>
</tbody>
</table>

HMIS & NFPA Hazard Rating
Legend
* = Chronic Health Hazard
0 = INSIGNIFICANT
1 = SLIGHT.

National Fire Protection Association (NFPA)

Flammability
Health Instability
2 3 0 Special

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.