Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Code: JP-F80
Product Name: JP-F80 Printing Ink
X Code:

1.2 Relevant identified uses of the substance or mixture and uses advised against:

1.3 Details of the Supplier of the Safety Data Sheet:
Company Name: Hitachi America, Ltd.
50 Prospect Avenue
Tarrytown, NY 10591
Information: Garan Myers (866)-583-0048

1.4 Emergency telephone number:
Emergency Contact: Chemtrec (800)424-9300

Section 2. Hazards Identification

2.1 Classification of the Substance or Mixture:
2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:
Flammable Liquids, Category 2
Serious Eye Damage/Eye Irritation, Category 2A
Target Organ Systemic Toxicity (single exposure), Category 3

2.2 Label Elements:
2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:

GHS Signal Word: Danger

GHS Hazard Phrases:
H225 - Highly flammable liquid and vapor.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

GHS Precaution Phrases:
P233 - Keep container tightly closed.
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/.../ equipment.
P243 - Take precautionary measures against static discharge.
P242 - Use only non-sparking tools.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

GHS Response Phrases:
P370+378 - In case of fire, use ... to extinguish.
P303+361+353 - IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313 - If eye irritation persists, get medical advice/attention.
P309+311 - Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:
P403+235 - Store in cool/well-ventilated place.
P501 - Dispose of contents/container to....
P405 - Store locked up.
P403+233 - Store container tightly closed in well-ventilated place - if product is as volatile as to generate hazardous atmosphere.

2.3 Adverse Human Health

2.3.1 Inhalation:
Causes respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness. May cause central nervous system effects such as nausea and headache. Neurobehavioural effects of exposure to MEK (200 ppm for 4 hrs) were studied with 137 volunteers. There were no statistically significant effects observed in biochemical, psychomotor, sensorimotor and psychological tests. Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation.

2.3.2 Skin Contact:
May be absorbed through the skin in harmful amounts. Repeated or prolonged exposure may cause drying and cracking of the skin. Only one human case of skin sensitization was located. Negative results were obtained in an animal test; MEK did not produce skin sensitization in the mouse ear thickness test. May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Dermal absorption has been considered toxicologically insignificant. The cases of deep coma associated with skin contact are thought to be a consequence of gross isopropanol vapor inhalation in rooms with inadequate ventilation, rather than being attributable to percutaneous absorption of isopropanol per se.

2.3.3 Eye Contact:
Causes eye irritation. Vapors may cause eye irritation. Animal evidence suggests that MEK is a moderate to severe eye irritant. Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury. In the eyes of a rabbit, 0.1 ml of a rabbit, 0.1 ml of 70% isopropyl alcohol caused conjunctivitis, isopropyl alcohol caused conjunctivitis, iritis, and corneal opacity.

2.3.4 Ingestion:
May cause irritation of the digestive tract. Possible aspiration hazard. May cause central nervous system depression. Animal evidence suggests that MEK can be aspirated (inhaled) into the lungs during ingestion or vomiting. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. The probable oral lethal dose in humans is 240 ml (2696 mg/kg), but ingestion of only 20 ml (224 mg/kg) has, but in gestion of only 20 ml (224 mg/kg) has caused poisoning.
Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Concentration</th>
<th>EC No./EC Index No.</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-93-3</td>
<td>Methyl ethyl ketone</td>
<td>60.0 -90.0 %</td>
<td>201-159-0 606-002-00-3</td>
<td>Flam. Liq. 2: H225 Eye Damage 2A: H319 TOST (SE) 3: H335 H336</td>
</tr>
<tr>
<td>67-63-0</td>
<td>Isopropyl alcohol</td>
<td>1.0 -5.0 %</td>
<td>200-661-7 603-117-00-0</td>
<td>Flam. Liq. 2: H225 Eye Damage 2A: H319 TOST (SE) 3: H335 H336</td>
</tr>
<tr>
<td>85-68-7</td>
<td>Butyl benzyl phthalate</td>
<td>1.0 -5.0 %</td>
<td>201-622-7 607-430-00-3</td>
<td>Toxic Repro. 1B: H360 Aquatic (A) 1: H400 Aquatic (C) 1: H410</td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

In Case of Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

In Case of Skin Contact: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

In Case of Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

In Case of Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

Note for the Doctor: Treat symptomatically and supportively. Urine acetone test may be helpful in diagnosis. Hemodialysis should be considered in severe intoxication.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: In case of fire, use carbon dioxide, dry chemical powder or appropriate foam. Water may be ineffective because it will not cool material below its flash point. Water may be ineffective. Do NOT use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.

5.2 Flammable Properties and Hazards:

Flash Pt: > -7.00 C  Method Used: Estimate
Explosive Limits: LEL: UEL: 
Autoignition Pt: 350.00 C

5.3 Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Vapors may form explosive mixtures with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. May form explosive peroxides.
Section 6. Accidental Release Measures

6.3 Methods and Material For Containment and Cleaning Up: Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Use water spray to dilute spill to a non-flammable mixture. A vapor suppressing foam may be used to reduce vapors.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor. Take precautionary measures against static discharges. Avoid breathing dust, mist, or vapor. Do not allow to evaporate to near dryness.

7.2 Precautions To Be Taken in Storing: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep away from heat, sparks and flame. Do not store in direct sunlight. Store in a tightly closed container. Keep from contact with oxidizing materials. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation. Store protected from moisture. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. All peroxidizable substances should be stored away from heat and light and be protected from ignition sources.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>Britain EH40</th>
<th>France VL</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TWA: 600 mg/m³ (200 ppm)</td>
<td>TWA: 600 mg/m³ (200 ppm)</td>
<td>TWA: 600 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 899 mg/m³ (300 ppm)</td>
<td>STEL: 900 mg/m³ (300 ppm)</td>
<td>STEL: 900 mg/m³</td>
</tr>
<tr>
<td>78-93-3</td>
<td>Methyl ethyl ketone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67-63-0</td>
<td>Isopropyl alcohol</td>
<td>TWA: 999 mg/m³ (400 ppm)</td>
<td>STEL: 1250 mg/m³ (500 ppm)</td>
<td></td>
</tr>
<tr>
<td>85-68-7</td>
<td>Butyl benzyl phthalate</td>
<td>TWA: 5 mg/m³ ()</td>
<td>STEL: ()</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-93-3</td>
<td>Methyl ethyl ketone</td>
<td>PEL: 200 ppm</td>
<td>TLV: 200 ppm</td>
<td></td>
</tr>
<tr>
<td>67-63-0</td>
<td>Isopropyl alcohol</td>
<td>PEL: 400 ppm</td>
<td>TLV: 200 ppm</td>
<td></td>
</tr>
<tr>
<td>85-68-7</td>
<td>Butyl benzyl phthalate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exposure Controls:

8.2.1 Engineering Controls (Ventilation etc.): Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design. Use explosion-proof ventilation equipment.

8.2.2 Personal protection equipment:
- Eye Protection: Wear chemical splash goggles.
- Protective Gloves: Wear appropriate protective gloves to prevent skin exposure. Wear appropriate gloves to prevent skin exposure.
- Other Protective Clothing: Wear appropriate protective clothing to prevent skin exposure.
- Respiratory Equipment: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties
- Physical States: [ ] Gas [ X ] Liquid [ ] Solid
- Appearance and Odor: Slightly yellow solvent odor.
- Melting Point: -88.00 °C
- Boiling Point: 80.00 °C - 82.00 °C
- Flash Pt: > -7.00 °C Method Used: Estimate
- Evaporation Rate: ~ 4.4 (BuAC=1)
- Explosive Limits: LEL: UEL:
- Vapor Pressure (vs. Air or mm Hg): ~ 80 MM_HG at 20.0 °C
- Vapor Density (vs. Air = 1): > Air
- Specific Gravity (Water = 1): .836
- Density: ~ 6.98 LB/GA
- Solubility in Water: Miscible
- Autoignition Pt: 350.00 °C

9.2 Other Information
- Percent Volatile: 87.25 % by volume.

Section 10. Stability and Reactivity

10.1 Reactivity:
10.2 Stability: Unstable [ ] Stable [ X ]
10.3 Conditions To Avoid - Hazardous Reactions:
- Possibility of Hazardous Reactions: Will occur [ ] Will not occur [ X ]

10.4 Conditions To Avoid - Instability:
- Ignition sources, Excess heat, Light.

10.5 Incompatibility - Materials To Avoid:
- Strong oxidizing agents, Strong acids, 2-propanol, Strong bases, Amines, Ammonia, ethylene oxide, isocyanates, acetaldehyde, chlorine, phosgene. Attacks some forms of plastics, rubbers, and coatings. aluminum at high temperatures.
10.6 **Hazardous Decomposition Or Byproducts:**
Carbon monoxide, Carbon dioxide.

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**Section 11. Toxicological Information**

11.1 **Information on Toxicological Effects:**

**Carcinogenicity/Other Information:**
CAS# 78-93-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 67-63-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Carcinogenicity:**
NTP? No  IARC Monographs? No  OSHA Regulated? No

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**Section 12. Ecological Information**

12.1 **Toxicity:**
Environmental: Substance evaporates in water with T1/2 = 3D (rivers) to 12D (lakes). Substance is not expected to bioconcentrate in marine life. Physical: Substance photodegrades in air with T1/2 = 2.3 days. Oxidizes rapidly by photo-chemical reactions in air. Readily biodegradable meeting the 10 day window criterion. Not expected to bioaccumulate significantly.

Ecotoxicity: Fish: Fathead Minnow: 1000 ppm; 96h; LC50Daphnia: 1000 ppm; 96h; LC50Fish: Gold orfe: 8970-9280 ppm; 48h; LC50 IPA has a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a low potential to affect the germination of some plants, a high potential to biodegrade (low persistence) with unacclimated microorganisms from activated sludge. No information available.

Physical: THOD: 2.40 g oxygen/gCOD: 2.23 g oxygen/gBOD-5: 1.19-1.72 g oxygen/g. Other: No information available.

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**Section 13. Disposal Considerations**

13.1 **Waste Disposal Method:**
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series:

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**Section 14. Transport Information**

**GHS Classification:**
Flammable Liquids, Category 2 - Danger! Highly flammable liquid and vapor Serious Eye Damage/Eye Irritation, Category 2A - Warning! Causes serious eye irritation Target Organ Systemic Toxicity (single exposure), Category 3 - Warning! May cause respiratory irritation, or may cause drowsiness and dizziness

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Printing ink

**DOT Hazard Class:** 3  FLAMMABLE LIQUID

**UN/NA Number:** UN1210  Packing Group: II

**14.1 LAND TRANSPORT (Canadian TDG):**

**TDG Shipping Name:** Printing ink

**UN Number:** 1210  Packing Group: II

**Hazard Class:** 3 - FLAMMABLE LIQUID  TDG Classification:
14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: 
UN Number: 1210  Packing Group: II
Hazard Class: 3 - FLAMMABLE LIQUID

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Printing ink

Canadian WHMIS Classification:
CLASS B, DIVISION 2: Flammable Liquids
CLASS D, DIVISION 2, SUBDIVISION B: Toxic Materials (Mutagenicity, skin sensitization, irritation, etc.)

Section 16. Other Information

Revision Date: 02/13/2014

Additional Information About This Product:
The information and recommendations contained herein are, to the best of Hitachi's knowledge and belief, accurate and reliable as of the date issued. Because many factors may affect processing or application/use, HITACHI recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the descriptions, designs, date and information furnished by Hitachi hereunder are given gratis and Hitachi assumes no obligation or liability for the description, designs, data and information given or results obtained. All such being given and accepted at your risk.