

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

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

**1.1 Product Code:** TH-76  
**Product Name:** TH-76 Make-up Ink

**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 2**

**Specific Target Organ Toxicity (single exposure), Category 1**

**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.

H331 - Toxic if inhaled.

H302 - Harmful if swallowed.

H311 - Toxic in contact with skin.

H319 - Causes serious eye irritation.

H370 - Causes damage to organs

**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.

P271 - Use only outdoors or in a well-ventilated area.

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 - Wash hands thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P361+364 - Take off immediately all contaminated clothing and wash it before reuse.

P260 - Do not breathe 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.

P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P311 - Call a POISON CENTER/doctor/....

P322 - Specific measures see ... on this label.

P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330 - Rinse mouth.

P302+352 - IF ON SKIN: Wash with plenty of soap and water.

P312 - Call a POISON CENTER/doctor/... if you feel unwell.

P321 - Specific treatment see ... on this label.

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.

**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** Chronic: Chronic inhalation may cause effects similar to those of acute inhalation.

**Effects and Symptoms:** Prolonged or repeated skin contact may cause defatting and dermatitis. Animal studies have reported that fetal effects/abnormalities may occur when maternal toxicity is seen. Chronic overexposure to vapors may cause lung damage. Chronic inhalation and ingestion may cause chronic fluoride poisoning (fluorosis) characterized by weight loss, weakness, anemia, brittle bones, and stiff joints. Effects may be delayed. Chronic exposure to fluoride compounds may cause systemic toxicity.

**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. Causes chemical burns to the respiratory tract. The toxicological properties of this substance have not been fully investigated. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause headache, loss of appetite, nausea, fatigue, abdominal pain, darkened urine and jaundice.

**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. Causes skin burns. May be absorbed through the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

**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. Causes eye burns. May cause chemical conjunctivitis and corneal damage.

**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. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. The toxicological properties of this substance have not been fully investigated. Ingestion of large amounts of fluoride may cause salivation, nausea, vomiting, abdominal pain, fever, labored breathing. Exposure to fluoride compounds can result in systemic toxic effects on the heart, liver, and kidneys. It may also deplete calcium levels in the body leading to hypocalcemia and death. Fluoride can reduce calcium levels leading to fatal hypocalcemia. May cause systemic effects.

### Section 3. Composition/Information on Ingredients

CAS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
78-93-3	Methyl ethyl ketone	60.0 -90.0 %	201-159-0 606-002-00-3	Flam. Liq. 2: H225 Eye Damage 2: H319 STOT (SE) 3: H335 H336
67-56-1	Methanol	10.0 -30.0 %	200-659-6 603-001-00-X	Flam. Liq. 2: H225 Acute Tox.(O) 3: H301 Acute Tox.(D) 3: H311 Acute Tox.(I) 3: H331 STOT (SE) 1: H370
64-17-5	Ethyl alcohol	2.85 -6.65 %	200-578-6 603-002-00-5	Flam. Liq. 2: H225

### 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. Remove victim to fresh air. If not breathing give artificial respiration. Get medical aid immediately. Remove from exposure and move to fresh air immediately. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**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. Flush with copious amounts of water for at least 15 minutes. Call a physician. Get medical aid immediately. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Destroy contaminated shoes.

**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 contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**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. Wash out mouth with water provided person is conscious. Call a physician immediately. Do NOT

induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water.

**4.2 Important Symptoms and Effects, Both**

Gastrointestinal disturbances. May cause convulsions.

**Acute and Delayed:**

CONDITIONS AGGRAVATED BY EXPOSURE:

The toxicological properties have not been thoroughly investigated.

**Note for the Doctor:**

Treat symptomatically and supportively.

**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. Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam. Use agent most appropriate to extinguish fire. Do NOT get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**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. Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Can burn in a fire, releasing toxic vapors. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

**Section 6. Accidental Release Measures**

**6.1 Protective Precautions, Protective Equipment and Emergency**

**Procedures:**

**6.2 Environmental Precautions:**

**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. PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for cleaning up.

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete. Avoid runoff into storm sewers and ditches which lead to waterways. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as

sawdust. Do not get water inside containers.

## 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. User Exposure: Avoid prolonged or repeated exposure. Do not breathe dust. Use with adequate ventilation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Discard contaminated shoes.
- 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 container closed. Keep away from heat and open flame.  
Store at -20°C. Keep container closed when not in use. Store in a tightly closed container. Corrosives area.

## Section 8. Exposure Controls/Personal Protection

### 8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
78-93-3	Methyl ethyl ketone	TWA: 600 mg/m3 (200 ppm) STEL: 899 mg/m3 (300 ppm)	TWA: 600 mg/m3 (200 ppm) STEL: 900 mg/m3 (300 ppm)	TWA: 600 mg/m3 STEL: 900 mg/m3
67-56-1	Methanol	TWA: 266 mg/m3 (200 ppm) STEL: 333 mg/m3 (250 ppm)	TWA: 260 mg/m3 (200 ppm) STEL: 1300 mg/m3 (1000 ppm)	TWA: 260 mg/m3
64-17-5	Ethyl alcohol	TWA: 1920 mg/m3 (1000 ppm) STEL: ()	TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm)	
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
78-93-3	Methyl ethyl ketone	PEL: 200 ppm	TLV: 200 ppm STEL: 300 ppm	
67-56-1	Methanol	PEL: 200 ppm	TLV: 200 ppm STEL: 250 ppm	
64-17-5	Ethyl alcohol	PEL: 1000 ppm	TLV: 1000 ppm	

### 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. Safety shower and eye bath. Mechanical exhaust required. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

### 8.2.2 Personal protection equipment:

- Eye Protection:** Wear chemical splash goggles. Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Protective Gloves:** Wear appropriate protective gloves to prevent skin exposure.

**Other Protective Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respiratory Equipment (Specify Type):** 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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). (EU). Use supplied-air or SCBA respirators. Europe permits the use of type AXBEK full-face cartridge respirators (EN 14387).  
Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing. 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.

**Work/Hygienic/Maintenance Practices:** Wash thoroughly after handling.

EXPOSURE LIMITS.  
Country Source Type Value.  
Poland NDS 100 MG/M3  
Poland NDSch 300 MG/M3  
Poland NDSP -

## Section 9. Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

**Physical States:** [ ] Gas [ X ] Liquid [ ] Solid

**Appearance and Odor:** solvent odor. Clear (Upon aging, clear or colorless fluids may develop a slight yellow tint which will not affect the product performance).

**Melting Point:** -114.10 C - -88.00 C

**Boiling Point:** 78.00 C - 82.00 C

**Flash Pt:** > -7.00 C Method Used: Estimate

**Evaporation Rate:** 1.9 - 4.6 (BuAC=1)

**Explosive Limits:** LEL: UEL:

**Vapor Pressure (vs. Air or mm Hg):** 82 MM\_HG at 20.0 C

**Vapor Density (vs. Air = 1):** > Air

**Specific Gravity (Water = 1):** .802

**Density:** ~ 6.69 LB/GA

**Solubility in Water:** Miscible

**Autoignition Pt:** 350.00 C

**9.2 Other Information**

**Percent Volatile:** 99.0 % 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** Will occur [ ] Will not occur [ X ]

**Hazardous Reactions:**

**10.4 Conditions To Avoid -** ignition sources, Excess heat, Incompatible materials, acids, Strong oxidants, Bases.

**Instability:**

**10.5 Incompatibility -** Strong oxidizing agents, Strong acids, 2-propanol, acids, Acid chlorides, Acid anhydrides,  
**Materials To Avoid:** Alkali metals, Oxidizing agents, Reducing agents.

**10.6 Hazardous** Carbon monoxide, Carbon dioxide, Phosphorous oxides, irritating and toxic fumes and  
**Decomposition Or** gases, fluoride fumes.

**Byproducts:**

**Section 11. Toxicological Information**

**11.1 Information on**

**ROUTE OF EXPOSURE:**

**Toxicological Effects:** Skin Contact: May cause skin irritation.

Skin Absorption: Harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract.

Harmful if inhaled.

Ingestion: Harmful if swallowed.

**TARGET ORGAN(S) OR SYSTEM(S)**

Eyes. Kidneys. Liver. Heart. Epidemiology: No information found.

Teratogenicity: No information available. Reproductive Effects: Mutagenicity:

Neurotoxicity:

**Carcinogenicity/Other** CAS# 78-93-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 599-00-8: Not  
**Information:** listed by ACGIH, IARC, NTP, or CA Prop 65.

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

**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.

**12.2 Persistence and Degradability:**

**12.3 Bioaccumulative Potential:**

**12.4 Mobility in Soil:**

**12.5 Results of PBT and**

vPvB assessment:

### 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:  
CAS# 78-93-3: waste number U159 (Ignitable waste, Toxic waste). APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION.  
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. RCRA U-Series: None listed.

### Section 14. Transport Information

**GHS Classification:** Flammable Liquids, Category 2 - Danger! Highly flammable liquid and vapor  
Serious Eye Damage/Eye Irritation, Category 2 - Warning! Causes serious eye irritation  
Specific Target Organ Toxicity (single exposure), Category 1 - Danger! Causes damage to {<target organs>}

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

**DOT Proper Shipping Name:** Printing ink related material

<b>DOT Hazard Class:</b>	3	FLAMMABLE LIQUID	
<b>UN/NA Number:</b>	UN1210	<b>Packing Group:</b>	II

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

**TDG Shipping Name:** Printing ink related material

<b>UN Number:</b>	1210	<b>Packing Group:</b>	II
<b>Hazard Class:</b>	3 - FLAMMABLE LIQUID	<b>TDG Classification:</b>	

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:**

<b>UN Number:</b>	1210	<b>Packing Group:</b>	II
<b>Hazard Class:</b>	3 - FLAMMABLE LIQUID		

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Printing ink related material

### Section 15. Regulatory Information

**Canadian WHMIS Classification:**

CLASS B, DIVISION 2: Flammable Liquids  
CLASS D, DIVISION 2, SUBDIVISION A: Very Toxic Materials (carcinogens,  
reproductive toxicity, etc.)

**Section 16. Other Information**

**Revision Date:** 11/20/2013

**Additional Information About**

**This Product:**

**Company Policy or**

**Disclaimer:**

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, data 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.