

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-109
Product Name: TH-109 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	Phone Number: (914)524-6685
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

Acute Toxicity: Inhalation, Category 4

Acute Toxicity: Oral, Category 4

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.

H332 - Harmful if inhaled.

H302 - Harmful if swallowed.

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.
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.
P312 - Call a POISON CENTER/doctor/... if you feel unwell.
P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330 - Rinse mouth.
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.
P321 - Specific treatment see ... on this label.

GHS Storage and Disposal Phrases:

- P403+235 - Store in cool/well-ventilated place.
P501 - Dispose of contents/container to
P405 - Store locked up.

2.3 Adverse Human Health Ingredient CAS# 78-93-3, Methyl ethyl ketone:

Effects and Symptoms: Chronic: Chronic inhalation may cause effects similar to those of acute inhalation. 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.

2.3.1 Inhalation:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

2.3.2 Skin Contact:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

2.3.3 Eye Contact:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
Causes eye irritation. Vapors may cause eye irritation. Animal evidence suggests that MEK is a moderate to severe eye irritant.

2.3.4 Ingestion:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

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 -100.0 %	201-159-0 606-002-00-3	Flam. Liq. 2: H225 Eye Damage 2: H319 STOT (SE) 3: H335 H336
67-56-1	Methanol	5.0 -10.0 %	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

Section 4. First Aid Measures

4.1 Description of First Aid

Measures:

In Case of Inhalation: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingredient CAS# 67-56-1, Methanol:
Remove victim to fresh air. If not breathing give artificial respiration.

In Case of Skin Contact:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
Flush with copious amounts of water for at least 15 minutes.
Call a physician.

In Case of Eye Contact:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Get medical aid.

Ingredient CAS# 67-56-1, Methanol:
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.

In Case of Ingestion:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
Wash out mouth with water provided person is conscious. Call a physician immediately.

4.2 Important Symptoms and Effects, Both

Ingredient CAS# 67-56-1, Methanol:
Gastrointestinal disturbances. May cause convulsions.

Acute and Delayed:

CONDITIONS AGGRAVATED BY EXPOSURE:
The toxicological properties have not been thoroughly investigated.

Note for the Doctor:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
Treat symptomatically and supportively.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

5.2 Flammable Properties and Hazards:

Flash Pt: -7.00 C Method Used: Estimate

Explosive Limits: LEL: UEL:

Autoignition Pt: 404.00 C

5.3 Fire Fighting Instructions: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:

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.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:

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.

Ingredient CAS# 67-56-1, Methanol:

User Exposure: Avoid prolonged or repeated exposure. Do not breathe dust.

7.2 Precautions To Be Taken in Storing:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:

Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Ingredient CAS# 67-56-1, Methanol:

Keep container closed. Keep away from heat and open flame.

Store at -20°C.

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
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	

8.2 Exposure Controls:

**8.2.1 Engineering Controls
(Ventilation etc.):**

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
Safety shower and eye bath. Mechanical exhaust required.

8.2.2 Personal protection equipment:

Eye Protection:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
Wear chemical splash goggles.

Protective Gloves:

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
Wear appropriate protective gloves to prevent skin exposure.

**Other Protective
Clothing:**

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
Wear appropriate protective clothing to prevent skin exposure.

**Respiratory Equipment
(Specify Type):**

Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.

Ingredient CAS# 67-56-1, Methanol:
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.

**Work/Hygienic/Mainten
ance Practices:**

Ingredient CAS# 67-56-1, Methanol:
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 Liquid Solid

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

Melting Point: -87.00 C

Boiling Point: 80.00 C

Flash Pt: -7.00 C Method Used: Estimate

Evaporation Rate: 3.4 - 6 (BuAC=1)

Explosive Limits: LEL: UEL:

Vapor Pressure (vs. Air or mm Hg): 85 MM_HG at 20.0 C

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

Specific Gravity (Water = 1): ~ 0.804

Density: ~ 6.7 LB/GA

Solubility in Water: Miscible

Autoignition Pt: 404.00 C

9.2 Other Information

Percent Volatile: > 99.0 % by volume.

Section 10. Stability and Reactivity

10.1 Reactivity:

10.2 Stability: Unstable Stable

10.3 Conditions To Avoid -

Hazardous Reactions:

Possibility of Hazardous Reactions: Will occur Will not occur

10.4 Conditions To Avoid - Instability: Ingredient CAS# 78-93-3, Methyl ethyl ketone: ignition sources, Excess heat, confined spaces.

10.5 Incompatibility - Materials To Avoid: Ingredient CAS# 78-93-3, Methyl ethyl ketone: Strong oxidizing agents, Strong acids, 2-propanol,

Ingredient CAS# 67-56-1, Methanol: acids, Acid chlorides, Acid anhydrides, Alkali metals, Oxidizing agents, Reducing agents.

10.6 Hazardous Decomposition Or Byproducts: Ingredient CAS# 78-93-3, Methyl ethyl ketone: Carbon monoxide, Carbon dioxide, Peroxides, Ingredient CAS# 67-56-1, Methanol: Phosphorous oxides.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: Ingredient CAS# 67-56-1, Methanol:
ROUTE OF EXPOSURE:
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.

Carcinogenicity/Other Information: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
CAS# 78-93-3: Not 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: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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.
Other: No information available.

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: Ingredient CAS# 78-93-3, Methyl ethyl ketone:
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).

Ingredient CAS# 67-56-1, Methanol:
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.

Section 14. Transport Information

GHS Classification: Flammable Liquids, Category 2 - Danger! Highly flammable liquid and vapor
Acute Toxicity: Inhalation, Category 4 - Warning! Harmful if inhaled
Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
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

DOT Hazard Class: 3 FLAMMABLE LIQUID
UN/NA Number: UN1210 **Packing Group:** III

14.1 LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Printing ink related material

UN Number: 1210 **Packing Group:** III
Hazard Class: 3 - FLAMMABLE LIQUID **TDG Classification:**

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name:

UN Number: 1210 **Packing Group:** III
Hazard Class: 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 B: Toxic Materials (Mutagenicity, skin sensitization, irritation, etc.)

Section 16. Other Information

Revision Date: 10/10/2013

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.