

MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name :TH-76
 Name of company :Hitachi Industrial Equipment Systems Co., Ltd
 Address :1-1,Higashitaga-cho 1-chome, Hitachi-shi, Ibaraki-ken, Japan
 Tel :+81-294-36-8682
 Fax :+81-294-36-8975
 Recommended use of the chemical
 and restrictions on use :Printing Ink for industrial Marking

2 HAZARDS IDENTIFICATION

Physico-chemical endpoints :Flammable liquid Category 2
 Acute toxicity - oral :Category 5
 Acute toxicity - dermal :Not available
 Acute toxicity - inhalation (air) :Not identified
 Acute toxicity - inhalation (vapors) :Not available
 Acute toxicity - inhalation (dust, mist) :Not identified
 Skin corrosion/irritation :Not available
 Eye damage/irritation : Category 2
 Sensitization - respiratory : Not identified
 Sensitization - skin : Not identified
 Germ cell mutagenicity : Category 1
 Carcinogenicity : Not available
 Toxic to reproduction : Category 1
 Effects on or via lactation : Not identified
 Specific target organ systemic toxicity : (Single exposure)
 Category 1 Sensory system
 Category 1 Systemic toxicity
 Category 1 Central nervous system
 Category 2 Kidney
 Category 3 Respiratory system
 :(Repeated exposure)
 Category 1 Liver
 Category 1 Sensory system
 Category 1 Central nervous system
 Category 1 Peripheral nervous system
 Category 2 Nervous system
 Aspiration toxicity : Category 2
 Hazardous to the aquatic environment
 -Acute hazard : Not available
 -Chronic hazard : Not available

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GHS label elements

Hazard symbols:

**Signal word:** Danger**Hazard statement and precautionary statement:**

- Highly flammable liquid and vapour
- May be harmful if swallowed
- Causes skin irritation
- Causes damage to sensory system, systemic toxicity and central nervous system-single exposure
- May cause damage to kidney-single exposure
- May cause respiratory irritation-single exposure
- Causes damage to liver, sensory system, central nervous system and peripheral nervous system through prolonged or repeated exposure.
- May cause damage to nervous system through prolonged or repeated exposure

Precautionary statements:

- Keep out of reach of children. Read label before use. If medical advice is needed: Have product container or label at hand.

Prevention

- Keep away from ignition sources such as heat/sparks/open flame— No smoking.
- Take precautionary measures against static discharge.
- Wear protective gloves and eye/face protection as specified by the competent authority.
- Do not breathe dust/mist/vapors.
- Use only in a well-ventilated area. Call a doctor/physician if you feel unwell.
- Do not eat, drink or smoke when using this product.
- Avoid contact during pregnancy/while nursing.
- Wash hands thoroughly after handling.

Response

- In case of fire, use dry chemical, CO₂, water splay (fog) or foam for extinction.
- IF SWALLOWED: Call a doctor/physician if you feel unwell. Rinse mouth.
- IF ON SKIN: Gently wash with plenty of soap and water.
- Wash/Decontaminate removed clothing before reuse.
- If skin irritation occurs, seek medical advice/attention.
- IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician.
- Collect spillage.

Storage

- Store in cool/well-ventilated place. Store locked up.
- Call a doctor/physician if exposed or you feel unwell.

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Disposal

- Waste must be disposed of according to applicable regulations.

3 Composition/information on ingredients**Substance or mixture; mixture****Composition;**

Chemical name	concentration (%)	CAS number
2-butanone	80-90	78-93-3
Methanol	10-20	67-56-1
Ethanol	1-10	64-17-5

4 First-aid measures**Inhalation;**

Remove the victim from the contamination immediately to fresh air. Keep the victim warm and quiet and arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Skin contact;

Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible. Wash the affected area under running water using a mild soap. If irritation persists, arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Eye contact;

Gently rinse the affected eyes with clean water for at least 15 minutes. Remove contact lenses if easily possible. and refer for medical attention.

Ingestion;

Never give anything by mouth to someone who is unconscious or convulsing. If the victim is responsive, give him one or two glasses of water. And refer for medical attention.

5 Fire-fighting measures**Suitable extinguishing media;**

Use dry chemical, CO₂, water spray (fog) or foam.

Fire fighting procedures;

Use water spray to cool fire-exposed surfaces and to protect personnel. Shut off "fuel" to fire. If a leak or spill has not ignited, use water spray to disperse the vapors.

Avoid spraying water directly into storage containers due to danger of boil over.

Unusual fire/explosion hazard;

Flammable liquid, can release vapors that form flammable mixtures at temperatures at or above the flashpoint.

Special protective equipment and precautions for fire fighters;

Fire fighters should wear boots, overalls, gloves, eye and face protection and breathing apparatus.

6 Accidental release measures

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Shut off all sources of ignition; No smoking or flames in area. Absorb spill with inert material (e.g., dry sand or earth), then place in closed containers using non-sparking tools. Flush residual spill (area) with copious amounts of water.

7 Handling and storage

Handling;

Use only in the well-ventilated areas.
Make available in the work area emergency shower and eyes wash.
Avoid contact with skin or eyes.

Storage;

Close up the container and keep it in dark cool(0~20) place.
Keep away from combustible materials and sources of ignition.

8 Exposure controls/personal protection

Exposure guidelines;

ACGIH TLV-TWA (ppm)	
2-butanone	:200
Methanol	:200(skin)
Ethanol	:1000
ACGIH STEL(ppm)	
2-butanone	:300
Methanol	:250(skin)
Ethanol	:No data

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Clear
Odor	:Solvent odor
Boiling point	:80
Flash point	:-2.0 (closed cup)
Upper/lower flammability or explosive limits	:Lower 1.7 vol%, Upper 37 vol%
Vapor pressure	:10.9kPa (20)
Vapor density (Air = 1)	:None known
Relative density	:0.80(20)
Solubility (Water)	:None known
Partition coefficient: n-octanol/water	:None known
Auto-ignition temperature	:422 to 515
Decomposition temperature	:No data

10 Stability and reactivity

Stability: The product is stable.
Conditions and materials to avoid: Not available
Hazardous decomposition products: These products are carbon oxides

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11 Toxicological information

Acute toxicity;

2-butanone

LD50(oral,rat): 2737mg/kg(TXAPA9 19, 699, 1971)
LCLo(ihl,rat): 23500mg/m³/8H(AIHAAP 20, 364, 1959)
LD50(skin,rabbit): 6480mg/kg(SHELL* MSDS-5390-4)
TCLo(ihl,human): 1000mg/m³(VCVGK* -, 417, 1994)
LDLo(oral,human): 714.3mg/kg(VCVGK* -, 417, 1994)

Methanol

LD50(oral,rat): 5628mg/kg(GTPZAB 19(11),27,1975)
LC50(ihl,rat): 64000ppm/4H(NPIRI* 1,74,1974)
TDLo(oral,man): 9450μL/kg(AJEMEN 16,538,1998)
TCLo(ihl,human): 300ppm(NPIRI* 1,74,1974)

Ethanol

TDLo(oral,man): 700mg/kg(NTOTDY 8,77,1986)
LD50(oral,rat): 9000mg/kg(VCVGK* -, 93, 1984)
LC50(ihl,rat): 20000ppm/10H(NPIRI* 1,44,1974)
TCLo(ihl,human): 2500mg/m³/20M(VCVGK* -, 93,1984)

Skin corrosion/irritation;

2-butanone

Skin; rabbit; 402mg/24H; Mild(TXAPA9 19, 276, 1971)

Methanol

Skin; rabbit; 20mg/24H; Moderate(85JCAE -,187,1986)

Ethanol

Skin; rabbit; 20mg/24H; Moderate(85JCAE -, 189, 1986)

Serious eye damage/irritation;

2-butanone

Eye; rabbit; 80mg(TXAPA9 19, 276, 1971)

Methanol

Eye; rabbit; 100mg/24H; Moderate(85JCAE -,187,1986)

Ethanol

rabbit; 100mg/4S; Moderate(FCTOD7 20,573,1982)

Respiratory or skin sensitization;

2-butanone

Methanol

Allergic dermatitis; human, skin(PATTY 4th,1994)

No skin sensitization ;Magnusson-Kligman maximization test, guinea pig(EHC 196,1997: DFGOT vol. 16,2001)

Ethanol

Not available

Germ cell mutagenicity;

2-butanone

Reverse mutation assay in *S.typhimuriun* and *E.coli*; Negative

Sex chromosome loss and nondisjunction; *S.cerevisiae*; 33800ppm(MUREAV 149, 339, 1985)

Methanol

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Mutation in microorganisms; mouse; lymphocyte; 7900mg/L(ENMUDM 7(Suppl 3),10,1985)
 Ethanol
 DNA damage; S.cerevisiae; 850mmol/L(MUREAV 326,165,1995)
 Mutation in microorganisms; S.typhimurium; 11pph(ENVRAL 52, 225, 1990)
 Cytogenetic analysis; human; lymphocyte; 2.5pph/24H(MUREAV 537, 117, 2003)

Carcinogenicity;

2-butanone
 Not available
 Methanol
 Not available
 Ethanol
 TDLo(ori,mouse): 320mg/kg/50W-I(CALEDQ 13,345,1981)

Reproductive toxicity;

2-butanone
 TCLo(ihl,rat): 2900mg/m3(female 6-10 D preg); Specific Developmental Abnormalities - craniofacial(VCVGK* -, 418, 1994)
 Methanol
 TCLo(ihl,rat): 10000ppm/7H(7-15 D preg)(FAATDF 5,727,1985)
 TDLo(ori,rat): 5200µL/kg(10 D preg)(REPTED 11,503,1997)
 Ethanol
 TDLo(ori,woman): 250mg/kg(37 W preg); Effects on Embryo or Fetus - other effects to embryo(AJOGAH 145,251,1983)
 TDLo(ori,rat): 22.5gm/kg(female 11-20 D preg); Specific Developmental Abnormalities - Central Nervous Systems(NETEEC 24, 719, 2002)

STOST-single exposure;

2-butanone
 The influence of the central nervous system, rat/mouse(EHC 143, 1992; PATTY 4th, 1994; IRIS 2003)
 The influence of kidney, oral, rat(DFGOT vol 12,1999; IRIS 2003; ATSDR 1992)
 The respiratory tract irritation, human (ACGIH 7th, 2001; DFGOT vol 12,1999; PATTY 4th, 1994; ATSDR 1992)
 Methanol
 The restraint of central nervous system and damage of the visual organ, human, oral or ihl(EHC 196,1997; ACGIH, 7th,2001; DFGOT vol.16, 2001),
 The respiratory tract irritation, rat,(EHC 196,1997; PATTY 4th,1994),
 Anesthesia, rat , mouse and rhesus monkey(EHC 196,1997;PATTY 4th,1994)
 Ethanol
 Human ihl, 5000ppm(9,4mg/L), respiratory tract irritation and confusion(ACGIH 2001)

STOST-repeated exposure;

2-butanone
 The sensory paralysis of hand and arm, human(EHC 143, 1992; DFGOT vol 12, 1999; IRIS 2003)
 The damage of central nervous system, human(DFGOT vol 12, 1999; IRIS 2003)
 Methanol
 The restraint of central nervous system and damage of the visual organ, human, oral or ihl(EHC 196,1997; ACGIH, 7th,2001; DFGOT vol.16, 2001),
 The respiratory tract irritation, rat,(EHC 196,1997; PATTY 4th,1994),
 Anesthesia, rat , mouse and rhesus monkey(EHC 196,1997;PATTY 4th,1994)
 Ethanol

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Not available

Aspiration hazard.

2-butanone

Not available

Methanol

Not available

Ethanol

Not available

12 Ecological information**Toxicity :**

2-butanone

LD50(ori,rat): 2737mg/kg(TXAPA9 19, 699, 1971)

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LC50(ihl,rat): 64000ppm/4H(NPIRI* 1,74,1974)

TDLo(ori,man): 9450µL/kg(AJEMEN 16,538,1998)

TCLo(ihl,human): 300ppm(NPIRI* 1,74,1974)

Ethanol

TDLo(ori,man): 700mg/kg(NTOTDY 8,77,1986)

LD50(ori,rat): 9000mg/kg(VCVGK* -, 93, 1984)

LC50(ihl,rat): 20000ppm/10H(NPIRI* 1,44,1974)

TCLo(ihl,human): 2500mg/m3/20M(VCVGK* -, 93,1984)

Persistence and degradability:

2-butanone

Not available

Methanol

This material is biodegradable.

Ethanol

This material is biodegradable.

Bioaccumulative potential:

2-butanone

Not available

Methanol

Not available

Ethanol

Not available

Mobility in soil:

2-butanone

Not available

Methanol

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Not available
Ethanol
Not available

13 Disposal considerations

Scrap materials may be disposed by licensed contractor or burn in an approved incinerator.
Do not dump into sewer, on the ground or into any body of water.
Follow national and local regulations.

14 Transport information

Follow all regulations in your country.

UN Number	:1210
UN Proper Shipping Name	:Printing ink, flammable
Transport hazard class	:Class 3(Flammable liquid)
Packing Group	:
Environmental hazards	:No

15 Regulatory information

Follow all regulations in your country.

Content of RoHS Directive material Cd<100ppm Pb, Hg, Hexavalent Cr, PBB, PBDE<1000ppm

16 References

- 1) Solvent, dye MSDS
- 2) Results of Eco-toxicity tests of chemicals conducted by Ministry of the Environment in Japan (-2006)
- 3) International Chemical Safety Cards

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