

MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name :TH-84
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
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Recommended use of the chemical
and restrictions on use :Printing Ink for industrial Marking

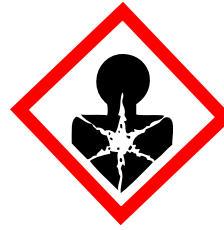
2 HAZARDS IDENTIFICATION

Classification of the substance or mixture :mixture
Physico-chemical endpoints :Flammable liquid category 2
Acute toxicity - oral :Category 5
Acute toxicity - dermal :Category 5
Acute toxicity - inhalation (vapors) :Category 5
Acute toxicity - inhalation (dust, mist) :Not identified
Skin corrosion/irritation :Category 2
Eye damage/irritation :Category 2
Sensitization - respiratory :Not identified
Sensitization - skin :Not available
Germ cell mutagenicity :Not identified
Carcinogenicity :Not identified
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 Sensory system
:Category 1 Central nervous system
:Category 1 Peripheral 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: Flame, Exclamation mark, Health hazard



Signal word: Danger

Hazard statement and precautionary statement:

- Highly flammable liquid and vapour
- May be harmful if swallowed
- May be harmful if inhaled May be harmful in contact with skin-Dermal
- Causes skin irritation
- Causes eye irritation
- May damage fertility or the unborn child
- 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 Sensory system, central nervous system, and peripheral nervous system through prolonged or repeated exposure.
- May be harmful if swallowed and enters airways

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.

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Storage

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

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	90-100	78-93-3
Methanol	1-3	67-56-1
acetone	1-3	67-64-1
2-Butoxyethanol	<1	111-76-2

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;

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

6 Accidental release measures

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)

acetone :500(skin)

2-Butoxyethanol :20

ACGIH STEL(ppm)

2-butanone :300

Methanol :250(skin)

acetone :750(skin)

2-Butoxyethanol :None known

9 Physical and chemical properties

Appearance

Physical state :Liquid

Color :Clear

Odor :Solvent odor

Boiling point :80 (2-butanone)

Flash point :−7.1 (closed cup)

Upper/lower flammability or explosive limits :Lower 1.8 vol%, Upper 11.5 vol% (2-butanone)

Vapor pressure :10.5kPa (20) (2-butanone)

Relative density (Air = 1) :2.41 (2-butanone)

Relative density :0.80-0.81 (20)

Solubility (Water) :29g/100mL (20)(2-butanone)

Partition coefficient: n-octanol/water :0.29 (2-butanone)

Auto-ignition temperature :505 (2-butanone)

Decomposition temperature :No measurement

10 Stability and reactivity

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Stability: The product is stable.

Conditions and materials to avoid: Not available

Hazardous decomposition products: These products are carbon oxides

11 Toxicological information

Acute toxicity;

2-butanone

Category 5:Oral 5520(Rat LD50 (mg/kg))

Not available:Dermal > 8000(Rabbit LD50 (mg/kg))

Category 5:Inhalation 11700 (Vaper) (Rat LC50(ppm/4h))

Methanol

Category 5:Oral 6200(Rat LD50(mg/kg))

Not available:Dermal 15800(RabbitLD50(mg/kg))

Not available:Inhalation >22500(Rat LC50(ppm/8H))

acetone

Not available:Oral 5000 (Rabbit LD50 (mg/kg)) (SIDS(1999))(ACGIH(2001))

Not available:Dermal 5000(Rabbit LD50(mg/kg)) (SIDS(1999));(ACGIH(2001))

Not identified:Inhalation No data

2-Butoxyethanol

LD50(oral,rat):470mg/kg(DOWCC MSD-46)

LD50(skin,rabbit): 135mg/kg(calculated)

LC50(ihl,rat): 2.2mg/L/4H(SIDS,1997)

Skin corrosion/irritation;

2-butanone

Category 2:Frequent/prolonged contact may irritate and cause dermatitis. Low order of toxicity.

Methanol

Not identified

acetone

Skin; rabbit; 500mg/24H; Mild(85JCAE -,280,1986)

2-Butoxyethanol

:Category 2

Serious eye damage/irritation;

2-butanone

Category 2B:Eye contact:severely irritating. If not removed promptly, will injure eye tissue, which may result in permanent damage.

Methanol

Category 2A

acetone

Eye; rabbit; 20mg; Severe(AJOPAA 29,1363,1946) Eye; rabbit; 20mg/24H; Severe(85JCAE -,280,1986)

2-Butoxyethanol

:Category 2

Respiratory or skin sensitization;

2-butanone

Not identified

Methanol

Not identified

acetone

Not available

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2-Butoxyethanol

:Not available

Germ cell mutagenicity;

2-butanone

Not available

Methanol

Not available

acetone

Cytogenetic analysis; hamster; fibroblast; 40gm/l(FCTOD7 22,623,1984)

2-Butoxyethanol

Mutation in microorganisms; S.typhimurium; 19µmol/plate

Carcinogenicity;

2-butanone

Not available

Methanol

Not identified

acetone

Not available

2-Butoxyethanol

:Not available

Reproductive toxicity;

2-butanone

Not available

Methanol

Not identified

acetone

TDLo(ori,rat): 273gm/kg(13 W male)(NTIS** PB91-185975)

TCLo(ihl,mammal): 31500?g/m3/24H(1-13D preg); (GTPZAB 26(6),24,1982)

2-Butoxyethanol

TDLo(ori,mouse): 9440mg/kg(7-14D preg): Fertility - post-implantation mortality(EVHPAZ 57,141,84)

STOST-single exposure;

2-butanone

Category 1(Central nervous system),Category 2(Kidney),Category 3(Respiratory)

Methanol

Category 1(Central nervous system,Sensory system,systemic toxicity)

acetone

Human, irritation of throat 12000ppm(ACGIH, 2001) ; Human irritation of throat, nose and trachea 1190mg/m3/6h(EHC 207, 1998); Human, irritation of throat 1000ppm/4h(EHC 207, 1998)

2-Butoxyethanol

Animal: Influence on the red blood corpuscle (SIDS,1997) Human: Symptoms such as not only influence on blood but also sopor, vertigo, respiratory distress, metabolic acidosis, urina cruentas, and liver function decreased such as haemoglobin, erythrocytopenias, and haemoglobinurias(SIDS (1997))

STOST-repeated exposure;

2-butanone

Category 1(Central nervous system,Peripheral nervous system)

Methanol

Category 1(Central nervous system,sensory system)

acetone

The increase of white blood cell and eosinophile leukocyte(ACGIH, 2001)

2-Butoxyethanol

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Human: Change in the blood parameter after the repeated exposure (CaPSAR,1999),(HSDB,2004)

Aspiration hazard.

2-butanone

Category 1 Vapor concentrations above exposure

Methanol

Not identified

acetone

Not available

2-Butoxyethanol

:Not available

LD50 (50% Lethal Dose)、LC50 (50% Lethal Concentration)

12 Ecological information

Toxicity:

2-butanone

killifish 96h-LC50(mg/L):>100

killifish 14d-LC50 (mg/L):100

killifish 14d-NOEC (mg/L):100

Methanol

brine shrimp 24h-LC50 (mg/L):900.73

acetone

LC50(Salmo gairdneri): mg/L/96hr (at 12 C= 54 F):5540

2-Butoxyethanol

LC50(orange-red killifish):>100mg/L/96hr

EC50(daphnids):>1000mg/L/48hr

LC50(grass shrimp):5.4mg/L/96hr

Persistence and degradability:

2-butanone

None known

Methanol

None known

acetone

This material is biodegradable

2-Butoxyethanol

This material is biodegradable.

Bioaccumulative potential:

2-butanone

None known

Methanol

None known

acetone

None known

2-Butoxyethanol

:Not available

Mobility in soil:

2-butanone

None known

Methanol

None known

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acetone
None known
2-Butoxyethanol
;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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