

MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name : TH-86
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 : Not available
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 : Not identified
Sensitization - respiratory : Not identified
Sensitization - skin : Not identified
Germ cell mutagenicity : Not identified
Carcinogenicity : Not identified
Toxic to reproduction : Not identified
Effects on or via lactation : Not identified
Specific target organ systemic toxicity : (Single exposure)
Category 1 Central nervous system
Category 2 Kidney
Category 3 Respiratory system, anesthetizing action
(Repeated exposure)
Category 1 Central nervous system
Category 1 peripheral nervous system
Category 2 Blood
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
- Causes mild skin irritation
- Causes damage to central nervous system-single exposure
- May cause damage to kidney-single exposure
- May cause respiratory irritation and anesthetizing action-single exposure
- Causes damage to central nervous system and peripheral nervous system through prolonged or repeated exposure.
- May cause damage to blood 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
Acetone	90-95	67-64-1
2-butanone	5-10	78-93-3

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 medial 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 son 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 medial attention.

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

Use dry chemical, CO₂, water splay (fog) or form.

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

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

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(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)	
Acetone	:0
2-butanone	:200
ACGIH STEL(ppm)	
Acetone	:750(skin)
2-butanone	:300

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Clear
Odor	:Solvent odor
Boiling point	:56.1 (acetone)
Flash point	:-20.0 (closed cup)
Upper/lower flammability or explosive limits	:Lower 1.2 vol%、Upper 13 vol% (acetone)
Vapor pressure	:24.7kPa (20) (acetone)
Vapor density (Air = 1)	:2.00 (acetone)
Relative density	:0.79(20)
Solubility (Water)	:arbitrarily dissolve(acetone)
Partition coefficient: n-octanol/water	:0.24 (acetone)
Auto-ignition temperature	:538 (acetone)
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

11 Toxicological information

Acute toxicity;

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Acetone

TDLo(ori,man): 2857mg/kg (RTECS)
LD50(ori, rat): 5800mg/kg (RTECS)
TCLo(ihl,man): 10mg/m³/6H (RTECS)
LC50(ihl,mouse): 44gm/m³/4H (RTECS)

2-butanone

LD50(ori, 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(VCGVK* -, 417, 1994)
LDLo(ori, human): 714.3mg/kg(VCGVK* -, 417, 1994)

Skin corrosion/irritation;**Acetone**

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

2-butanone

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

Serious eye damage/irritation;**Acetone**

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

2-butanone

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

Respiratory or skin sensitization;**Acetone****2-butanone**

Not available

Germ cell mutagenicity;**Acetone**

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

2-butanone

Reverse mutation assay in *S.typhimuriun* and *E.coli*; Negative
Sex chromosome loss and nondisjunction; *S.cerevisiae*; 33800ppm(MUREAV 149, 339, 1985)

Carcinogenicity;**Acetone**

Not listed as carcinogen on NTP, IARC, OSHA, ACGIH. Negative results on EHC, SIDS.

2-butanone

Not available

Reproductive toxicity;**Acetone**

TDLo(ori, rat): 273gm/kg(13 W male)(NTIS** PB91-185975)
TCLo(ihl, mammal): 31500µg/m³/24H(1-13D preg); (GTPZAB 26(6),24,1982)

2-butanone

TCLo(ihl, rat): 2900mg/m³(female 6-10 D preg); Specific Developmental Abnormalities - craniofacial(VCGVK* -, 418, 1994)

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STOST-single exposure;

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-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)

STOST-repeated exposure;

Acetone

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

2-butanone

The sensory paralysis of hand and arm, human(EHC 143, 1992; DFGOT vol 12, 1999; IRIS 2003)

The dmade of central nervous system, human(DFGOT vol 12, 1999; IRIS 2003)

Aspiration hazard.

Acetone

Classified into Category 2 due to be the ketone of under C13.

2-butanone

Not available

12 Ecological information**Toxicity:**

Acetone

TDL_o(orl,man): 2857mg/kg (RTECS)

LD₅₀(orl,rat): 5800mg/kg (RTECS)

TCL_o(ihl,man): 10mg/m³/6H (RTECS)

LC₅₀(ihl,mouse): 44gm/m³/4H (RTECS)

2-butanone

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

LCL_o(ihl,rat): 23500mg/m³/8H(AIHAAP 20, 364, 1959)

LD₅₀(skin,rabbit): 6480mg/kg(SHELL* MSDS-5390-4)

TCL_o(ihl,human): 1000mg/m³(VCVGK* -, 417, 1994)

LDL_o(orl,human): 714.3mg/kg(VCVGK* -, 417, 1994)

Persistence and degradability:

Acetone

This material is biodegradable

2-butanone

Not available

Bioaccumulative potential:

Acetone

Not available

2-butanone

Not available

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Mobility in soil:

Acetone
Not available
2-butanone
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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