MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name	:JP-T75
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)	:Category 4
Acute toxicity - inhalation (dust, mist)	:Not available
Skin corrosion/irritation	:Not available
Eye damage/irritation	: Category 2
Sensitization - respiratory	: Not identified
Sensitization - skin	: Not identified
Germ cell mutagenicity	: Category 1
Carcinogenicity	: Category 2
Toxic to reproduction	: Category 1
Effects on or via lactation	: Not identified
Specific target organ systemic toxicity	: (Single exposure) Category 1 Central nervous system Category 2 Liver Category 3 airway irritation :(Repeated exposure) Category 1 Liver Category 1 Systemic toxicity Category 1 Central nervous system Category 1 Organum auditus Category 2 Nervous system
Aspiration toxicity	: Category 2
Hazardous to the aquatic environment	
-Acute hazard	: Not available
-Chronic hazard	: Not available

GHS label elements

Hazard symbols:

Signal word: Danger

Hazard statement and precautionary statement:

- Highly flammable liquid and vapour
- May be harmful if swallowed
- Harmful if inhaled
- Causes skin irritation
- Causes damage to central nervous system-single exposure
- May cause damage to liver-single exposure
- May cause damage to airway irritant
- Causes damage to liver, systemic toxicity, central nervous system and organum auditus 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, CO_2, water splay (fog) or form 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.

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
Methyl propyl ketone	40-50	107-87-9
Ethanol	20-30	64-17-5
4-Methyl-2-pentanone	<5	108-10-1
n-Propyl Acetate	<5	109-60-4
2-Propanol	<5	67-63-0
1-butanol	<5	71-36-3

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 neatest 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, CO_2, 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 (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)

Methyl propyl ketone	:200
Ethanol	:1000
4-Methyl-2-pentanone	:50
n-Propyl Acetate	:200
2-Propanol	:200
1-butanol	:20(skin)

ACGIH STEL(ppm)

Methyl propyl ketone	:250
Ethanol	:No data
4-Methyl-2-pentanone	:75
n-Propyl Acetate	:250
2-Propanol	:400
1-butanol	:None known

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Dark
Odor	:Solvent odor
Boiling point	:77℃
Flash point	:13.0℃ (closed cup)
Upper/lower flammability or explosive limits	:Lower 2.02 vol%、Upper 10.7 vol% (2-butanone)
Vapor pressure	:≦5.3kPa (20℃)
Vapor density (Air＝1)	:None known
Relative density	:0.86(20℃)
Solubility (Water)	:None known

Partition coefficient: n-octanol/water :None known
Auto-ignition temperature :362℃
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;
Methyl propyl ketone
oral LD 50 Rat: 1,600 mg/kg
inhalation LC Lo Rat: 2000 ppm, 4 h
dermal LD 50 Rabbit: 6,500 mg/kg
Ethanol
TDLo(orl,man): 700mg/kg(NTOTDY 8,77,1986)
LD50(orl,rat): 9000mg/kg(VCVGK* -, 93, 1984)
LC50(ihl,rat): 20000ppm/10H(NPIRI* 1,44,1974
TCLo(ihl,human): 2500mg/m3/20M(VCVGK* -, 93,1984)
4-Methyl-2-pentanone
LD50(orl,rat): 2080mg/kg(UCDC** 4/25/1958)
LD50(orl,rat): 4600mg/kg(VCVGK* -, 426, 1994)
LC50(ihl,rat): 100gm/m3(NTIS** OTS0535383)
LD50(orl,mouse): 2850mg/kg(VCVGK* -, 426, 1994)
TCLo(ihl,human): 12mg/m3(GISAAA 5, 8, 1994)
LD50(orl,rat): 2919mg/kg(Calcul
n-Propyl Acetate
DERMAL LD50: >20 mL/kg (rabbit)
ORAL LD50: 9370 mg/kg (rat)
INHALATION LC50: 8000 ppm (rat, 4 hrs.)
2-Propanol
LD50(orl,rat): 5000mg/kg(VCVGK* -, 97, 1984)
LC50(ihl,rat): 72600mg/m3(VCVGK* -, 97, 1984)
LC50(ihl,mouse): 53000mg/m3(VCVGK* -, 97, 1984)
TDLo(orl,human): 286mg/kg(VCVGK* -, 97, 1984)
1-butanol
TCLo(ihl,human): 25ppm(JIHTAB 25,282,1943)
LD50(orl,rat): 790mg/kg(SAMJAF 43,795,1969)
LC50(ihl,rat): 8000ppm/4H(NPIRI* 1,10,1974)
LD50(skin,rabbit): 3400mg/kg(NPIRI* 1,10,1974)
LD50(orl,rat): 1227mg/kg(Calculate)
LD50(skin,rabbit): 3636mg/kg(Calculate)
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Skin corrosion/irritation;
Methyl propyl ketone
None known
Ethanol

Skin; rabbit; 20mg/24H; Moderate(85JCAE -, 189, 1986)
4-Methyl-2-pentanone
Skin; rabbit; 500mg/24H; Mild(85JCAE -, 284, 1986)
n-Propyl Acetate
Prolonged or repeated contact may cause drying, cracking, or irritation.
2-Propanol
Skin; rabbit; 500mg; Mild(NTIS** AD-A106-944)
1-butanol
Skin; rabbit; 20mg/24H; Moderate(85JCAE -,193,1986)

Serious eye damage/irritation;
Methyl propyl ketone
None known
Ethanol
rabbit; 100mg/4S; Moderate(FCTOD7 20,573,1982)
4-Methyl-2-pentanone
Eye; rabbit; 40mg; Severe(UCDC** 4/25/1958)
Eye; human; 200ppm/15H(JIHTAB 28, 262, 1946)
rabbit; No irritation(ECETOC TR48,1992: CERI Hazard data sheet, 2000: PATTY 4th, 1994)
n-Propyl Acetate
May cause moderate burning, tearing, redness and swelling.
2-Propanol
Eye; rabbit; 100mg/24H; Moderate(85JCAE -,191,1986)
1-butanol
Eye; rabbit; 2mg/24H; Severe(85JCAE -,193,1986)

Respiratory or skin sensitization;
Methyl propyl ketone

Ethanol
Not available
4-Methyl-2-pentanone
Not available
n-Propyl Acetate
None known
2-Propanol
Not available
1-butanol
Not available

Germ cell mutagenicity;
Methyl propyl ketone
None known
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)
4-Methyl-2-pentanone
Not available
n-Propyl Acetate
None known
2-Propanol

TDLo(orl,rat): 8gm/kg(female 6-15 D preg)(RTOPDW 23,183,1996)
TCLo(ihl,rat): 3500ppm/7H(female 1-19 D preg)(FCTOD7 26,247,1988)
1-butanol
Sex chromosome loss and nondisjunction; hamster; lung; 100mmol/L(MUREAV 182,135,1987)

Carcinogenicity;
Methyl propyl ketone
None known
Ethanol
TDLo(orl,mouse): 320mg/kg/50W-I(CALEDQ 13,345,1981)
4-Methyl-2-pentanone
Not available
n-Propyl Acetate
IARC: Not listed by IARC
NTP: Not listed by NTP.
OSHA: Not listed by OSHA
2-Propanol
Not available
1-butanol
Not available

Reproductive toxicity;
Methyl propyl ketone
None known
Ethanol
TDLo(orl,woman): 250mg/kg(37 W preg); Effects on Embryo or Fetus - other effects to embryo(AJOGAH 145,251,1983)
TDLo(orl,rat): 22.5gm/kg(female 11-20 D preg); Specific Dveropmental Abnormalities - Central Nervous Systems(NETEEC 24, 719, 2002)
4-Methyl-2-pentanone
TCLo(ihl,rat): 300ppm/6H(female 6-15 D preg)(FAATDF 8, 310, 1987)
n-Propyl Acetate
None known
2-Propanol
TDLo(orl,rat): 8gm/kg(female 6-15 D preg)(RTOPDW 23,183,1996)
TCLo(ihl,rat): 3500ppm/7H(female 1-19 D preg)(FCTOD7 26,247,1988)
1-butanol
TDLo(orl,rat): 35295mg/kg(1-15 D preg)(ONGZAC 22(1),71,1991)
TCLo(ihl,rat): 6000ppm/7H(1-19 D preg)(FAATDF 12,469,1989)

STOST-single exposure;
Methyl propyl ketone
None known
Ethanol
Human ihl, 5000ppm(9,4mg/L), respiratory tract irritation and confusion(ACGIH 2001)
4-Methyl-2-pentanone
Human; ihl, The central nervous system symptom is admitted because of anesthetic actions such as the respiratory tract irritation, the mucosa irritations, and the headache, the dizziness, and the vomiturition. (CERI hazard data sheets, 2000: EHC 117,1990: ACGIH 7th, 2001: DFGOT vol.13, 1999: PATTY 4th, 1994: IRIS, 2003)
Animal; anesthetic action(IRIS, 2003: EHC 117,1990: DFGOT vol.13, 1999: PATTY 4th, 1994)
n-Propyl Acetate

None known
2-Propanol
Not available
1-butanol
Human; ihl, Mild in throat(DFGOT vol 19, 2003
Animal; anesthesia, bridle of central nervous system(SIDS, 2004, EHC 65, 1987, ACGIH, 2002, DFGOT vol 19, 2003, PATTY 4th, 1994)

STOST-repeated exposure;
Methyl propyl ketone
None known
Ethanol
Not available
4-Methyl-2-pentanone
Human; repeated exposure, Various symptoms were admitted for which target organs such as the feelings of weakness, the headache, the burning sensation in eye, the stomachache, nausea and vomitings, and the sore throat were not able to be specified. (E
n-Propyl Acetate
None known
2-Propanol
Not available
1-butanol
Human; exposure, giddiness and headache(EHC 65, 1987, ACGIH, 2002, DFGOT vol 19, 2003, PATTY 4th, 1994)
Human; exposure, audiometric hearing loss(EHC 65, 1987, ACGIH, 2002, DFGOT vol 19, 2003, PATTY 4th, 1994)

Aspiration hazard.
Methyl propyl ketone
None known
Ethanol
Not available
4-Methyl-2-pentanone
Not available
n-Propyl Acetate
None known
2-Propanol
Not available
1-butanol
Not available

12 Ecological information

Toxicity:
Methyl propyl ketone
oral LD 50 Rat: 1,600 mg/kg
inhalation LC Lo Rat: 2000 ppm, 4 h
dermal LD 50 Rabbit: 6,500 mg/kg
Ethanol
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TCLo(ihl,human): 2500mg/m3/20M(VCVGK* -, 93,1984)

4-Methyl-2-pentanone
LD50(orl,rat): 2080mg/kg(UCDC 4/25/1958)**
LD50(orl,rat): 4600mg/kg(VCVGK* -, 426, 1994)
LC50(ihl,rat): 100gm/m3(NTIS OTS0535383)**
LD50(orl,mouse): 2850mg/kg(VCVGK* -, 426, 1994)
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n-Propyl Acetate
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ORAL LD50: 9370 mg/kg (rat)
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LC50(ihl,mouse): 53000mg/m3(VCVGK* -, 97, 1984)
TDLo(orl,human): 286mg/kg(VCVGK* -, 97, 1984)

1-butanol
TCLo(ihl,human): 25ppm(JIHTAB 25,282,1943)
LD50(orl,rat): 790mg/kg(SAMJAF 43,795,1969)
LC50(ihl,rat): 8000ppm/4H(NPIRI* 1,10,1974)
LD50(skin,rabbit): 3400mg/kg(NPIRI* 1,10,1974)
LD50(orl,rat): 1227mg/kg(Calculate)
LD50(skin,rabbit): 3636mg/kg(Calculate)
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Persistence and degradability:

Methyl propyl ketone
None known

Ethanol
This material is biodegradable.

4-Methyl-2-pentanone
This material is biodegradable.

n-Propyl Acetate
None known

2-Propanol
This material is biodegradable.

1-butanol
This material is biodegradable.

Bioaccumulative potential:

Methyl propyl ketone
None known

Ethanol
Not available

4-Methyl-2-pentanone
Not available

n-Propyl Acetate

None known
2-Propanol
Not available
1-butanol
Not available

Mobility in soil:
Methyl propyl ketone
None known
Ethanol
Not available
4-Methyl-2-pentanone
Not available
n-Propyl Acetate
None known
2-Propanol
Not available
1-butanol
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	: **II**
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