

SAFETY DATA SHEET

1 IDENTIFICATION

Product name :JP-K61
 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 5
 Acute toxicity - inhalation (dust, mist) : Not available
 Skin corrosion/irritation : Category 2
 Eye damage/irritation : Category 2
 Sensitization - respiratory : Not available
 Sensitization - skin : Category 1
 Germ cell mutagenicity : Not available
 Carcinogenicity : Category 2
 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 tract irritation
 :(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 : Category 3
 -Chronic hazard : Category 3

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GHS label elements

Hazard symbols:

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

- Highly flammable liquid and vapor
- May be harmful if swallowed
- May be harmful if inhaled
- Causes skin irritation
- Causes serious eye irritation
- Suspected of causing cancer
- May damage fertility or the unborn child
- Causes damage to Sensory system, systemic toxicity or central nervous system-single exposure
- May cause damage to kidney-single exposure
- May cause damage to airway irritant-single exposure
- Causes damage to sensory system, central nervous system or peripheral nervous system through prolonged or repeated exposure
- May be harmful if swallowed and enters airways
- Harmful to aquatic life
- Harmful to aquatic life with long lasting effects

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

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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
2-butanone	70-80	78-93-3
Chrome III-Complex Dye	5-10	TSCA Registered
Methanol	1-10	67-56-1
Toluene	<1	108-88-3
2,3-Epoxypropyl Phenyl Ether	<1	122-60-1

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 splay (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.

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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°C) place.
Keep away from combustible materials and sources of ignition.

8 Exposure controls/personal protection

Exposure guidelines:

ACGIH TLV-TWA (ppm)	
2-butanone	:200
Chrome III-Complex Dye	:None known
Methanol	:200(skin)
Toluene	:20(skin)
2,3-Epoxypropyl Phenyl Ether	:0.1(skin)
ACGIH STEL(ppm)	
2-butanone	:300
Chrome III-Complex Dye	:None known
Methanol	:250(skin)
Toluene	:No data
2,3-Epoxypropyl Phenyl Ether	:None known

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Black
Odor	:Solvent odor
Boiling point ²⁾	:65.0°C
Flash point	:-6.2°C (closed cup)
Upper/lower flammability or explosive limits ²⁾	:Lower 1.8 vol%, Upper 37 vol%

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Vapor pressure ²⁾	:12.8kPa(20°C)
Vapor density (Air=1) ²⁾	:2.41 (2-butanone)
Relative density	:0.89(20°C)
Solubility (Water) ²⁾	:29g/100mL (20°C)(2-butanone)
Partition coefficient: n-octanol/water ²⁾	:0.29(2-butanone)
Auto-ignition temperature ²⁾	:385°C
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:

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)

Chrome III-Complex Dye

Oral >5000 (Rat LD50 (mg/kg))

Dermal >2000 (Rat LD50 (mg/kg))

Inhalation None known

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)

Toluene

LD50(oral,rat): 636mg/kg(NRTXDN 2, 567, 1981)

LC50(ihl,rat): 49mg/m³/4h(GTPZAB 32810), 23, 1988)

LD50(skin,rabbit): 14100µL/kg(AIHAAP 30, 470, 1969)

TCLo(ihl,human): 750mg/m³/8h(VCVGH* -, 144, 1990)

LD50(oral,rat): 2.600, 5.500, 5.580, 5.900, 6.400, 7.000, 7.530mg/kg(EU-RAR No.30, 2003)

LD50(oral,rat): 4,800mg/kg(Calculate)

LC50(ihl,rat): 12.5, 28.1, 28.8, 33mg/m³/4h(EU-RAR No.30, 2003)

LC50(ihl,rat): 18mg/m³/4h = 4.800ppm(Calculate)

2,3-Epoxypropyl Phenyl Ether

LD50(oral,mouse): 1400 mg/kg (AMIHAB 14,250,1956)

LD50(oral,rat): 3850mg/kg(AMIHAB 14,250,1956)

Skin corrosion/irritation:

2-butanone

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

Chrome III-Complex Dye

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No (Rabbit test-OECD404 1981)
 Methanol
 Skin; rabbit; 20mg/24h; Moderate(85JCAE -,187,1986)
 Toluene
 Skin; rabbit; 20mg/24h; Moderate(85JCAE -, 29, 1986)
 2,3-Epoxypropyl Phenyl Ether
 Skin; rabbit; 20mg/24h; Moderate(85JCAE -, 776, 1986)

Serious eye damage/irritation:

2-butanone
 Eye; rabbit; 80mg(TXAPA9 19, 276, 1971)
 Chrome III-Complex Dye
 No(Rabbit test-84/449/EEC B.5)
 Methanol
 Eye; rabbit; 100mg/24h; Moderate(85JCAE -,187,1986)
 Toluene
 rabbit; ; Moderate(EU-RAR No.30, 2003)
 2,3-Epoxypropyl Phenyl Ether
 Eye; rabbit; 250µg/24h; Severe(85JCAE -, 776, 1986)

Respiratory or skin sensitization:

2-butanone
 Not available
 Chrome III-Complex Dye
 No(Giunea pig test-84/449/EC B.6)
 Methanol
 Allergic dermatitis; human, skin(PATTY 4th,1994)
 No skin sensitization ;Magnusson-Kligman maximization test, guinea pig(EHC 196,1997: DFGOT vol. 16,2001)
 Toluene
 Not available
 2,3-Epoxypropyl Phenyl Ether
 None known

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)
 Chrome III-Complex Dye
 None known
 Methanol
 Mutation in microorganisms; mouse; lymphocyte; 7900mg/L(ENMUDM 7(Suppl 3),10,1985)
 Toluene
 Micronucleus test; mouse; ipr; 433µg/kg/24h(ARTODN 58, 106, 1985)
 Sister chromatid exchange; human; ihl; 252µg/L/19Y(MUREAV 519, 171, 2002)
 2,3-Epoxypropyl Phenyl Ether
 Mutation test system; E.coli; 300µmol/L(MUREAV 231, 205, 1990)
 Sister chromatid exchange; hamster; lung; 400µmol/L(MUREAV 249, 55, 1991)
 Reverse mutation assay in S.typhimuriun and E.coli; Positive

Carcinogenicity:

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2-butanone
Not available
Chrome III-Complex Dye
None known
Methanol
Not available
Toluene
Not available
2,3-Epoxypropyl Phenyl Ether
TCLo(ihl, rat): 12 ppm/6h/2Y-I(AJPAA4 111,140,1983)

Reproductive toxicity:

2-butanone
TCLo(ihl, rat): 2900mg/m³(female 6-10 D preg); Specific Developmental Abnormalities - craniofacial(VCVGK* -, 418, 1994)
Chrome III-Complex Dye
None known
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)
Toluene
TDLo(ori, rat): 16mL/kg(6-21 D preg); Effects on Newborn - phisycal(REPEBL 47, 362, 2000)
TCLo(ihl, rat): 1800ppm(7-20 D preg); Specific Developmental Abnormalities - Central Nervous System(ARTODN 75, 103, 2002)
Human; "the study suggests an increased risk of late spontaneous abortions associated with exposure to toluene at levels around 88 ppm (range 50-150 ppm). The results of this study are used as a basis for the risk characterisation of developmental toxicity in humans."
"(EU-RAR No.30, 2003), (IRIS 2005, IARC 71, 1999, EHC 52, 1986, ATSDR 2000)
2,3-Epoxypropyl Phenyl Ether
TCLo(ihl, rat): 11 ppm/6h(19D male);(TXAPA9 64,204,1982)

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)
Chrome III-Complex Dye
None known
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)
Toluene
Human; ihl, 50-100ppm, feebleness, sleepiness, dizziness(CERI hazard sheet, 96-4,1997)
Human; ihl, 200-400ppm, paresthesia, vomituration(CERI hazard sheet, 96-4,1997)
Human; ihl, 500-800ppm, drunkenness, derangement, gait abonormality(CERI hazard sheet, 96-4,1997)

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Human: irritation for eye, nose and throat(EU-RAR No.30, 2003)
 2,3-Epoxypropyl Phenyl Ether
 None known

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)
 Chrome III-Complex Dye
 None known
 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)
 Toluene
 Human; ihl, stenosis for range of vision, headache with deafness and eye nystagmus, trembling,
 dynamic ataxia, amnesia, cerebral atrophy, renal dysfunction(CERI hazard sheet, 96-4,1997)
 Human; The increasing of SGOT, hepatotoxicity with the adipose degeneration in liver cell and
 lymphocyte cell wetting(EU-RAR No.30, 2003)
 2,3-Epoxypropyl Phenyl Ether
 None known

Aspiration hazard:

2-butanone
 Not available
 Chrome III-Complex Dye
 None known
 Methanol
 Not available
 Toluene
 Not available
 2,3-Epoxypropyl Phenyl Ether
 None known

12 Ecological information

Ecotoxicity¹⁾:

2-butanone
 mosquito fish(96h-LC50(mg/L)):5600
 daphnids(48h-LC50(g/L)):>1000
 Chrome III-Complex Dye
 None known
 Methanol
 Not available
 Toluene
 orange-red killifish(96h-LC50(mg/L)):25
 daphnids(48h-EC50(mg/L)):4.1
 brown shrimp(96h-EC50(mg/L)):3.5(EU-RAR, 2003)
 2,3-Epoxypropyl Phenyl Ether
 None known

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Persistence and degradability:

2-butanone
Not available
Chrome III-Complex Dye
None known
Methanol
This material is biodegradable.
Toluene
This material is biodegradable.
2,3-Epoxypropyl Phenyl Ether
None known

Bioaccumulative potential:

2-butanone
Not available
Chrome III-Complex Dye
None known
Methanol
Not available
Toluene
Not available
2,3-Epoxypropyl Phenyl Ether
None known

Mobility in soil:

2-butanone
Not available
Chrome III-Complex Dye
None known
Methanol
Not available
Toluene
Not available
2,3-Epoxypropyl Phenyl Ether
None known

13 Disposal considerations

Scrap materials may be disposed by licensed contractor or burned 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

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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) Results of Eco-toxicity tests of chemicals conducted by Ministry of the Environment in Japan
- 2) International Chemical Safety Cards

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