

# MATERIAL SAFETY DATA SHEET

## 1 IDENTIFICATION

Product name :JP-K84  
 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 :Category 5  
 Acute toxicity - inhalation (air) :Not identified  
 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 identified  
 Germ cell mutagenicity :Not identified  
 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 system  
     :(Repeated exposure)  
     Category 1 Sensory system  
     Category 1 Lungs  
     Category 1 Peripheral nervous system  
     Category 1 Central 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
- May be harmful in contact with skin
- May be harmful if inhaled
- Causes skin irritation
- Causes eye irritation
- Suspected of causing cancer
- 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, lungs, 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, CO<sub>2</sub>, 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	80-90	78-93-3
Carbon black	1-5	1333-86-4
Methanol	1-3	67-56-1
2-Butoxyethanol	1-3	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, CO<sub>2</sub>, 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;**

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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)

2-butanone	:200
Carbon black	:3.5mg/cm <sup>3</sup>
Methanol	:200(skin)
2-Butoxyethanol	:20 (skin)

ACGIH STEL(ppm)

2-butanone	:300
Carbon black	:None known
Methanol	:250(skin)
2-Butoxyethanol	:None known

## 9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Black
Odor	:Solvent odor
Boiling point	:80 (2-butanone)
Flash point	:-6.6 (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)
Vapor density (Air = 1)	:2.41 (2-butanone)
Relative density	:0.86(20 )
Solubility (Water)	:29g/100mL (20 ) (2-butanone)
Partition coefficient: n-octanol/water	:0.29 (2-butanone)

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Auto-ignition temperature :505 (2-butanone)  
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/m<sup>3</sup>/8H(AIHAAP 20, 364, 1959)  
LD50(skin,rabbit): 6480mg/kg(SHELL\* MSDS-5390-4)  
TCLo(ihl,human): 1000mg/m<sup>3</sup>(VCVGK\* -, 417, 1994)  
LDLo(oral,human): 714.3mg/kg(VCVGK\* -, 417, 1994)

#### Carbon black

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): 9450?L/kg(AJEMEN 16,538,1998)  
TCLo(ihl,human): 300ppm(NPIRI\* 1,74,1974)

#### 2-Butoxyethanol

TDLo(oral,woman): 600mg/kg(HUTODJ 7,187,1988)  
TCLo(ihl,human): 100ppm(NPIRI 1,50,1974)  
LD50(oral,rat): 470mg/kg(DOWCC\* MSD-46)  
LC50(ihl,rat): 450ppm/4H(TXAPA9 68,405,1983)  
LD50(oral,rat): 1746mg/kg(SIDS,1997)  
LD50(skin,rabbit): 610, 99, 435mg/kg(SIDS,1997)  
LD50(skin,rabbit): 135mg/kg(Calculated)  
LC50(ihl,rat): 2.4mg/L/4H(SIDS,1997)  
LC50(ihl,rat): 2.2mg/L/4H(SIDS,1997)

### Skin corrosion/irritation;

#### 2-butanone

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

#### Carbon black

None known

#### Methanol

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

#### 2-Butoxyethanol

Skin; rabbit; 500mg; Mild(UCDS)  
rabbit; ;irritating(SIDS,1997)

### Serious eye damage/irritation;

#### 2-butanone

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

#### Carbon black

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None known  
Methanol  
Eye; rabbit; 100mg/24H; Moderate(85JCAE -,187,1986)  
2-Butoxyethanol  
Eye; rabbit; 100mg/24H; Moderate (85JCAE -,629,1986)  
rabbit; ; Severe(SIDS,1997; ECETOCTR,1998)

**Respiratory or skin sensitization;**

2-butanone

Carbon black  
None known  
Methanol  
Allergic dermatitis; human, skin(PATTY 4th,1994)  
No skin sensitization ;Magnusson-Kligman maximization test, guinea pig(EHC 196,1997: DFGOT vol. 16,2001)  
2-Butoxyethanol  
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)  
Carbon black  
None known  
Methanol  
Mutation in microorganisms; mouse; lymphocyte; 7900mg/L(ENMUDM 7(Suppl 3),10,1985)  
2-Butoxyethanol  
Mutation in microorganisms; *S.typhimurium*; 19?mol/plate(MUREAV 341,281,1995)  
Specific locus test; rat; ihl; 0.5ppb(EMMUEG 39,69,2002)

**Carcinogenicity;**

2-butanone  
Not available  
Carbon black  
None known  
Methanol  
Not available  
2-Butoxyethanol  
Not available

**Reproductive toxicity;**

2-butanone  
TCLo(ihl,rat): 2900mg/m3(female 6-10 D preg); Specific Developmental Abnormalities - craniofacial(VCVGK\* -, 418, 1994)  
Carbon black  
None known  
Methanol  
TCLo(ihl,rat): 10000ppm/7H(7-15 D preg)(FAATDF 5,727,1985)  
TDLo(ori,rat): 5200?L/kg(10 D preg)(REPTED 11,503,1997)  
2-Butoxyethanol  
TDLo(ori,mouse): 9440mg/kg(7-14D preg): Fertility - post-implantation mortality(EVHPAZ

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57,141,84)

TDLo(ori, rat): 6279mg/kg(13 W male)(NTPTR\* NIH-93-3349)

### 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)

Carbon black

None known

Methanol

The restraint of central nervous system and damage of the visual organ, human, oral or i/hl(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)

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

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)

Carbon black

None known

Methanol

The restraint of central nervous system and damage of the visual organ, human, oral or i/hl(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)

2-Butoxyethanol

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

### Aspiration hazard.

2-butanone

Not available

Carbon black

None known

Methanol

Not available

2-Butoxyethanol

Not available

## 12 Ecological information

### Toxicity:

2-butanone

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**Carbon black**

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 LD50(skin,rabbit): 135mg/kg(Calculated)  
 LC50(ihl,rat): 2.4mg/L/4H(SIDS,1997)  
 LC50(ihl,rat): 2.2mg/L/4H(SIDS,1997)

**Persistence and degradability:**

**2-butanone**

Not available

**Carbon black**

None known

**Methanol**

This material is biodegradable.

**2-Butoxyethanol**

This material is biodegradable.

**Bioaccumulative potential:**

**2-butanone**

Not available

**Carbon black**

None known

**Methanol**

Not available

**2-Butoxyethanol**

Not available

**Mobility in soil:**

**2-butanone**

Not available

**Carbon black**

None known

**Methanol**

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Not available  
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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