MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name	:JP-K69
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

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	: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 Liver,Blood :Category 1 Sensory system, Kidney :Category 1 Systemic toxicity, Central nervous system :Category 3 Respiratory system
(Repeated exposure)	:Category 1 Liver, Sensory system :Category 1 Central nervous system, Lung :Category 1 Peripheral nervous system :Category 2 Blood, Nervous system
Aspiration toxicity	:Category 2
Hazardous to the aquatic environment	
-Acute hazard	:Not available
-Chronic hazard	:Not available

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
- Causes skin irritation
- Causes eye irritation
- May cause genetic defects
- Suspected of causing cancer
- May damage fertility or the unborn child
- Causes damage to liver, blood, sensory system, kidney, systematic toxity and central nervous system-single exposure
- May cause respiratory irritation-single exposure
- Causes damage to liver, sensory system, central nervous system, lung and peripheral nervous system through prolonged or repeated exposure
- May cause damage to organs blood and 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_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
2-butanone	50-60	78-93-3
Ethanol	10-20	64-17-5
n-Propanol	1-5	71-23-8
Methanol	1-3	67-56-1
Carbon black	1-5	1333-86-4
2-Butoxyethanol	0-2	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 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)	
2-butanone	:200
Ethanol	:1000
n-Propanol	:200(skin)
Methanol	:200(skin)
Carbon black	:3.5mg/cm3
2-Butoxyethanol	:20
ACGIH STEL(ppm)	
2-butanone	:300
Ethanol	:No data
n-Propanol	:250(skin)
Methanol	:250(skin)
Carbon black	:Not identified
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	:-4.0℃ (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	:0.89(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

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))
Ethanol
Not available:Oral 6.2～17.8 (Rat LD50 (g/kg))
Not identified:Dermal No data
Not available:Inhalation 31600 (Vaper) (Rat LC50(ppm/4h))
n-Propanol
LD50(orl,rat): 1870mg/kg(AMIHBC 10,16,1954)
LD50(skin,rabbit): 5040mg/kg(AMIHBC 10,16,1954)
LCLo(ihl,rat): 4000ppm/4H(AMIHBC 10,16,1954)
Methanol
Category 5:Oral 6200(Rat LD50(mg/kg))
Not available:Dermal 15800(RabbitLD50(mg/kg))
Not available:Inhalation >22500(Rat LC50(ppm/8H))
Carbon black
Not identified
Not identified
Not identified
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.
Ethanol
Not identified
n-Propanol
Skin; rabbit; 500mg; Mild(UCDS** 6/28/1972)
Methanol

Not identified
Carbon black
Not identified
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.
Ethanol
Category 2A
n-Propanol
Eye; rabbit; 20mg/24H; Moderate(85JCAE -,191,1986)
Methanol
Category 2A
Carbon black
Not identified
2-Butoxyethanol
:Category 2

Respiratory or skin sensitization;
2-butanone
Not identified
Ethanol
Not identified
n-Propanol
Not available
Methanol
Not identified
Carbon black
Not identified
2-Butoxyethanol
:Not available

Germ cell mutagenicity;
2-butanone
Not available
Ethanol
Category 1B
n-Propanol
Sex chromosome loss and nondisjunction; A.nidulans; 18000ppm(MUREAV 215,187,1989)
Mutation in microorganisms; E.coli; 4pph(ABMGAJ??23,843,1969)
Methanol
Not available
Carbon black
Not identified
2-Butoxyethanol
Mutation in microorganisms; S.typhimurium; 19µmol/plate

Carcinogenicity;
2-butanone
Not available
Ethanol
Not available Oral 6.2〜17.8 (Rat LD50 (g/kg))

n-Propanol
TDLo(orl,rat): 50gm/kg/81W-I(ARGEAR 45,19,1975)
Methanol
Not identified
Carbon black
Not identified
2-Butoxyethanol
:Not available

Reproductive toxicity;

2-butanone
Not available
Ethanol
Category 1A
n-Propanol
TCLo(ihl,rat): 7000 ppm/7H(female 1-19 D Preg)(FCTOD7 26,247,1988)
Methanol
Not identified
Carbon black
Not identified
2-Butoxyethanol
TDLo(orl,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)
Ethanol
Category 3(Respiratory)
n-Propanol
Rat, mouse, rabbit, ihl or orl, anesthesia(ACGIH 2004: EHC 102, 1990: PETTY 4th 1994)
Mouse, ihl, the respiratory tract irritation (EHC 102,1990)
Methanol
Category 1(Central nervous system,Sensory system,systemic toxicity)
Carbon black
Not identified
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 decreaseds such as haemoglobin, erythrocytopenias, and haemoglobinurias(SIDS (1997))

STOST-repeated exposure;

2-butanone
Category 1(Central nervous system,Peripheral nervous system)
Ethanol
Category 1(Liver) 2(Nervous system)
n-Propanol
Not available
Methanol
Category 1(Central nervous system,sensory system)
Carbon black
Not identified
2-Butoxyethanol
Human: Change in the blood parameter after the repeated exposure (CaPSAR,1999),(HSDB,2004)

Aspiration hazard.
2-butanone
Category 1 Vapor concentrations above exposure
Ethanol
Not identified
n-Propanol
Not available
Methanol
Not identified
Carbon black
Not identified
2-Butoxyethanol
:Not available

12 Ecological information

Toxicity:
2-butanone
killifish 96h-LC50(mg/L):>100
killifish 14d-LC50 (mg/L):100
killifish 14d-NOEC (mg/L):100
Ethanol
trout 24h-LC50 (g/L) :11.2
Carp 96h-LC50 (g/L):18～13.4
Creek Chub 24h-C50(g/L):7
Guppy 7d-LC50(g/L):11
n-Propanol
EC50(fathead minnows):4.63 g/l/96hr
LC50(daphnids):3025mg/L/48hr
Methanol
brine shrimp 24h-LC50 (mg/L):900.73
Carbon black
Not identified
Persistence and degradability:
2-butanone
None known
Ethanol
None known
n-Propanol
Not available
Methanol
None known
Carbon black
None known
2-Butoxyethanol
This material is biodegradable.
Bioaccumulative potential:
2-butanone
None known
Ethanol

None known
n-Propanol
Not available
Methanol
None known
Carbon black
None known
2-Butoxyethanol
:Not available

Mobility in soil:

2-butanone
None known
Ethanol
None known
n-Propanol
Not available
Methanol
None known
Carbon black
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	: **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