MATERIAL SAFETY DATA SHEET

1 IDENTIFICATION

Product name	:CL-09
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 3
Acute toxicity - oral	:Not available
Acute toxicity - dermal	:Not available
Acute toxicity - inhalation (air)	:Not available
Acute toxicity - inhalation (vapors)	:Not identified
Acute toxicity - inhalation (dust, mist)	:Not identified
Skin corrosion/irritation	:Category 3
Eye damage/irritation	:Category 2
Sensitization - respiratory	:Not available
Sensitization - skin	:Not available
Germ cell mutagenicity	:Category 1
Carcinogenicity	:Not identified
Toxic to reproduction	:Category 1
Effects on or via lactation	:Not identified
Specific target organ systemic toxicity	
(Single exposure)	:Category 1
(Repeated exposure)	:Category 1
Aspiration toxicity	:Not identified
Hazardous to the aquatic environment	
-Acute hazard	:Not identified
-Chronic hazard	:Not identified

GHS label elements

Hazard symbols:Flame,Exclamation mark,Health hazard

Signal word: Danger

Hazard statement and precautionary statement:

- Flammable liquid and vapour
- Causes mild skin irritation
- Causes eye irritation
- May cause genetic defects
- May damage fertility or the unborn child
- Causes damage to organs-single exposure
- Causes damage to organs 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
Ethanol	80-90	64-17-5
Ethyleneglycol monoethyl ether	10-20	110-80-5
2-butanone	<5	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 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)	
Ethanol	:1000
Ethyleneglycol monoethyl ether	:5
2-butanone	:200
ACGIH STEL(ppm)	
Ethanol	:No data
Ethyleneglycol monoethyl ether	:5
2-butanone	:300

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Clear
Odor	:Solvent odor
Boiling point	:≧78.3℃
Flash point	:19.0℃ (closed cup)
Upper/lower flammability or explosive limits	:Lower 1.7 vol%、Upper 19 vol%
Vapor pressure	:≦5.9kPa (20℃) (ethanol)
Relative density (Air＝1)	:None known
Relative density	:0.82(20℃)
Solubility (Water)	:None known
Partition coefficient: n-octanol/water	:None known
Auto-ignition temperature	:235℃
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;
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))
Ethyleneglycol monoethyl ether
LD50(Rat):2460 mg/kg
LD50(Rat):3900 mg/kg
LC50(Rat):>4000ppm/4h
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))

Skin corrosion/irritation;
Ethanol
Not identified
Ethyleneglycol monoethyl ether
Skin; rabbit; 500mg/24h Mild
2-butanone
Category 2:Frequent/prolonged contact may irritate and cause dermatitis. Low order of toxicity.

Serious eye damage/irritation;
Ethanol
Category 2A
Ethyleneglycol monoethyl ether
Category 2
2-butanone
Category 2B:Eye contact:severely irritating. If not removed promptly, will injure eye tissue, which may result in permanent damage.

Respiratory or skin sensitization;
Ethanol
Not identified
Ethyleneglycol monoethyl ether
Not identified
2-butanone
Not identified

Germ cell mutagenicity;
Ethanol
Category 1B
Ethyleneglycol monoethyl ether
Not identified
2-butanone
Not available

Carcinogenicity;
Ethanol
Not available Oral 6.2～17.8 (Rat LD50 (g/kg))
Ethyleneglycol monoethyl ether
Not identified
2-butanone
Not available

Reproductive toxicity;
Ethanol

Category 1A
Ethyleneglycol monoethyl ether
Category 2
2-butanone
Not available
STOST-single exposure;
Ethanol
Category 3(Respiratory)
Ethyleneglycol monoethyl ether
Category 3
2-butanone
Category 1(Central nervous system),Category 2(Kidney)Category 3(Respiratory)
STOST-repeated exposure;
Ethanol
Category 1(Liver) 2(Nervous system)
Ethyleneglycol monoethyl ether
Category 2
2-butanone
Category 1(Central nervous system,Peripheral nervous system)
Aspiration hazard.
Ethanol
Not identified
Ethyleneglycol monoethyl ether
Category 2
2-butanone
Category 1 Vapor concentrations above exposure

12 Ecological information

Toxicity:
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
Ethyleneglycol monoethyl ether
Not identified
2-butanone
killifish 96h-LC50(mg/L):>100
killifish 14d-LC50 (mg/L):100
killifish 14d-NOEC (mg/L):100
Persistence and degradability:
Ethanol
None known
Ethyleneglycol monoethyl ether
None known
2-butanone
None known
Bioaccumulative potential:
Ethanol
None known

Ethyleneglycol monoethyl ether
None known
2-butanone
None known

Mobility in soil:

Ethanol
None known
Ethyleneglycol monoethyl ether
None known
2-butanone
None known

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