SAFETY DATA SHEET

1 Identification

Product name	:	4146K
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	:	Industrial ink jet printers

2 Hazards Identification

GHS classification

Flammable liquid	:	Category 2
Acute toxicity - oral	:	Classification not possible
Acute toxicity - dermal	:	Classification not possible
Acute toxicity - inhalation (vapour)	:	Category 4
Acute toxicity - inhalation (dust, mist)	:	Classification not possible
Skin corrosion/irritation	:	Category 2
Eye damage/irritation	:	Category 2A
Sensitization - respiratory	:	Classification not possible
Sensitization - skin	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible
Carcinogenicity	:	Classification not possible
Toxic to reproduction	:	Category 2
Specific target organ/systemic toxicity (Single exposure)	:	Category 3 Respiratory tract irritation
	:	Category 3 Anesthetic action
Specific target organ/systemic toxicity (Repeated exposure)	:	Classification not possible
Aspiration toxicity	:	Classification not possible
Hazardous to the aquatic environment (Acute hazard)	:	Category 2
Hazardous to the aquatic environment (Chronic hazard)	:	Category 3

GHS label elements

Hazard Symbols:

Signal word: Danger

• Hazard statements and precautionary statement:

- Highly flammable liquid and vapour
- Causes skin irritation
- Causes serious eye irritation
- Harmful if inhaled
- May cause respiratory irritation

- May cause drowsiness or dizziness
- Suspected of damaging fertility or the unborn child
- Toxic to aquatic life
- Harmful to aquatic life with long lasting effects

Precautionary statements:

(Safety measures)

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting etc. equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.

(Emergency measures)

- IF ON SKIN: Wash with plenty of water.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or concerned: Get medical advice/attention.
- Call a POISON CENTER/doctor if you feel unwell.
- Special treatment is required.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- In case of fire: Use CO2, foam or dry chemical fire extinguisher.

(Storage)

- Store in a well-ventilated place. Keep container tightly closed.
- Store in a well-ventilated place. Keep cool.
- Store locked up.

(Disposal)

- Dispose of contents/container should be handled by special waste disposal contractor who has the permission from the prefectural governor.

3 Composition/information on ingredients

Substance or mixture Mixture

Composition

Chemical name	Concentration (%)	CAS No.	Reference No. in Gazetted List (Japan)
3-Methyl-2-Butanone	80-90	563-80-4	(2)-542(化)
Chrome (III) Complex Dye	1-10	Registered	Registered

*(化): Reference No. in Gazetted List (Chemical Substances Control Law(Japan))

4 First-aid measures

Inhalation:
In case of inhalation of large quantities of vapor or gas, remove the victim from the contamination immediately to fresh air. Keep the victim warm and quiet.
Use a mechanical ventilator if breathing is irregular or stops.
Try to prevent victim from swallowing their vomit. Call a doctor/physician immediately.

Skin contact:
Quickly wipe off substance with a cloth. Wash the affected area thoroughly with plenty of water and soap or detergent for the skin. Do not use solvents or thinners.
If there is any change in appearance or pain, arrange for examination and treatment by a doctor/physician.

Eye contact:
Gently rinse the affected eyes with plenty of clean running water for at least 15 minutes.
Wash completely, including the backs of the eyelids.
Get medical assistance as soon as possible.

Ingestion:
If accidentally swallowed, keep the victim quiet and seek immediate medical attention.
Try to prevent victim from swallowing their vomit.

Protective equipment for those performing first aid:
Emergency medical personnel should wear protective gear.

Special precautions for doctors/physicians:
Seek immediate examination by a doctor/physician and show them the precautions listed on the label of this bottle or the SDS.

5 Fire-fighting measures

Suitable extinguishing media: Use CO_2 gas, foam, powder, dry sand

Fire fighting procedures:
Fire in the surrounding area: Use water spray to cool containers and packaging if they cannot be moved.
In case of ignition: Shut off "fuel" to fire and apply appropriate extinguishing agent upwind of the fire to extinguish.

Special protective equipment and precautions for fire fighters:
Wear appropriate protective gear (heat-resistant clothing, and respiratory protection (supplied-air respirator, etc.)).

6 Accidental release measures

Work according to relevant laws and regulations.

Personal Precautions:
Wear appropriate protective gear (gloves, protective mask, apron and goggles), when you work.

Environmental Precautions:
Prevent spillage into public waterways such as rivers and canals.

Removal:
Collect spillage in containers that can be sealed, and store them in a safe area such as an outdoor space. Keep an appropriate fire extinguisher on hand in case of fire.
Follow disposal considerations for collected spillage when disposing.

Measures to prevent secondary damage:
Remove ignition sources and high temperature element or combustible materials in the vicinity as quickly as possible. Do not use fire. Only allow authorized personnel in the vicinity of spills.
In the event that spillage is released into public waterways, alert the representatives of local governments.

Containment and Cleanup:
Absorb using dry sand, dirt or non-combustible materials.

Enclose large outflow in embankments to prevent spills.
Recover using plastic tools to prevent sparks.

7 Handling and storage

Work according to relevant laws and regulations.

Handling:

Keep the container sealed at all times, opening only when necessary. Be cautious when opening the container. Do not eat or drink during use. Avoid contact with eyes. Remove all contaminated clothing immediately.

Technical measures:

Use only in well-ventilated areas.
Prohibit the use of fire, spark or high temperature materials in the vicinity.
Ground the storage cabinet to prevent the buildup of static electricity, and use explosion-proof (increased safety type) cleaning equipment.
Use spark-proof tools.
Soak rags in water until they are ready to be disposed of.
Wear appropriate protective gear (gloves, protective mask, apron and goggles), when you work.
Install enough local exhaust ventilations and wear appropriate protective gear, when working in enclosed spaces. It is best to avoid wearing contact lenses while working.

Precautions:

Do not carelessly generate vapor unnecessarily.
Install local exhaust ventilation and wear appropriate protective gear, when working in enclosed spaces.

Storage:

Avoid direct sunlight. Store in a well ventilated area. Store well away from open flames or heat sources. Keep it in a dark cool place.

8 Exposure controls/personal protections

Exposure guidelines:

Use local exhaust ventilation that complies with explosion-proof regulations.
Install exhaust equipment and do not allow vapors to pool.
Make sure to ground all equipment for transporting, pumping or stirring liquids.
When working indoors, use equipment that does not directly expose workers, or employ a local exhaust arrangement that helps to avoid workers from exposure to vapors.
When working in enclosed places such as inside tanks, install equipment that is capable of ventilating to the bottom of the space.
Do not place heat sources or ignition source near the work area.

Control Concentration (ppm):

3-Methyl-2-Butanone	:	No data
Chrome (III) Complex Dye	:	No data

Allowable Concentration (ppm):

ACGIH TLV-TWA (ppm)

3-Methyl-2-Butanone	:	20 (70mg/m3)
Chrome (III) Complex Dye	:	No data

ACGIH STEL(ppm)

3-Methyl-2-Butanone	:	No data
Chrome (III) Complex Dye	:	No data

*TLV-TWA: Time-weighted average exposure limit values
*STEL: Short time exposure limit

Protective equipment:

Respiratory protection equipment: Wear a respirator mask for organic gas
Wear a supplied-air respirator in enclosed areas.
Hand protection: Wear gloves that are not penetrated by organic solvents or chemical agents.
Eye protection: Wear safety glasses.
Wear skin and body protection.
Long-sleeved protective clothing and safety footwear with anti-static performance are recommended.

9 Physical and chemical properties

Appearance		
Physical state	:	Liquid
Color	:	Black
Odor	:	Solvent odor
Melting point	:	-92 deg C (as 3-Methyl-2-Butanone)
Boiling point	:	94 deg C (as 3-Methyl-2-Butanone)
Flash point	:	-1.1 deg C
Flammability or explosive limits	:	Min 1.2vol%, Max 8.0vol% (as 3-Methyl-2-Butanone)
Vapour pressure	:	5.5kPa (20 deg C) (as 3-Methyl-2-Butanone)
Relative vapour density (Air＝1)	:	3.0 (as 3-Methyl-2-Butanone)
Relative density	:	0.86(20 deg C)
Solubility (Water)	:	Water: 6g/L (as 3-Methyl-2-Butanone)
Partition coefficient: n-octanol/water	:	0.84 (as 3-Methyl-2-Butanone)
Auto-ignition temperature	:	475 deg C (as 3-Methyl-2-Butanone)
Decomposition temperature	:	No data

10 Stability and reactivity

Stability: Flammable

Reactivity: Does not react dangerously under normal conditions

Conditions and materials to avoid: There is a risk of explosion due to impacts, friction, flame and other source of ignition.

Incompatible materials: No data

Dangerous hazardous decomposition substances: No data

11 Toxicological information

Toxicological information for each substance.

Chemical name	Acute toxicity			
	Oral	Dermal	Inhalation (vapour)	Inhalation (dust, mist)
3-Methyl-2-Butanone	Not classified	Not classified	Category 4	Classification not possible
Chrome (III) Complex Dye	Not classified	Not classified	Classification not possible	Classification not possible

Chemical name	Skin corrosion/ irritation	Eye damage/ irritation	Sensitization - respiratory	Sensitization - skin
3-Methyl-2-Butanone	Category 2	Category 2B	Classification not possible	Classification not possible
Chrome (III) Complex Dye	Not classified	Not classified	Classification not possible	Not classified

Chemical name	Germ cell mutagenicity	Carcinogenicity	Toxic to reproduction
3-Methyl-2-Butanone	Classification not possible	Classification not possible	Category 2
Chrome (III) Complex Dye	Not classified	Classification not possible	Classification not possible

Chemical name	Specific target organ/systemic toxicity (Single exposure)	Specific target organ/systemic toxicity (Repeated exposure)
3-Methyl-2-Butanone	Category 3 (Respiratory tract irritation, Anesthetic action)	Classification not possible
Chrome (III) Complex Dye	Classification not possible	Classification not possible

Chemical name	Aspiration toxicity
3-Methyl-2-Butanone	Classification not possible
Chrome (III) Complex Dye	Classification not possible

12 Ecological information

Ecological information for each substance.

Chemical name	Hazardous to the aquatic environment (Acute Hazard)	Hazardous to the aquatic environment (Chronic hazard)
3-Methyl-2-Butanone	Not classified	Not classified
Chrome (III) Complex Dye	Category 2	Category 2

13 Disposal considerations

Because waste materials such as liquid waste, paper towels used to wipe it up, or empty containers are flammable combustible materials, the section on "specially controlled industrial waste (Flammable waste oil)” from the Waste Management and Public Cleaning Law (Waste Management Law) is applicable.
Either appropriately process in accordance with Waste Management and Public Cleaning Law, or commission a contractor licensed for transport or disposal of industrial waste requiring special management.
Do not let wastewater, etc. used for cleaning machinery or containers flow directly onto the ground or in to the culverts.
For waste materials generated by wastewater treatment, incineration, etc. either carry out processing in accordance with the Waste Management and Public Cleaning Law and related laws and regulations, or commission a licensed vendor to do so.
When incinerating of waste materials, etc., do not use an incinerator without cleaning equipment, as harmful gas will be generated.
Clarify the contents of waste materials and entrust disposal to a waste disposal company.

14 Transport information

UN Number	:	1210
UN Proper Shipping Name	:	Printing ink, or printing ink related material
Transport hazard class	:	Class 3
Packing Group	:	II
Marine pollutant	:	Not applicable
Land Transport	:	Complies with parts that fall under the Fire Defense Law, and Industrial Safety and Health Law.

Sea Transport	:	Complies with parts that fall under the Ship Safety Law.
Air Transport	:	Complies with parts that fall under the Aviation Law.

15 Regulatory information

Follow all regulations in your country.

Industrial Safety and Health Law (Japan) related:

- Article 57 (hazardous materials for which name, etc. should be displayed.) ,
  Article 57 paragraph 2 (document delivery, etc.)
  3-Methyl-2-Butanone
  Chrome (III) Complex Dye
- Article 57, paragraph 3 (Substances which require investigation, etc. to be
  paragraph 2 (hazardous materials for which name, etc. should be notified), Appendix 9,
  3-Methyl-2-Butanone
  Chrome (III) Complex Dye
- Ordinance on the Prevention of Organic Solvent Poisoning Paragraph 1 Article 1 part 4
  (Second-class organic solvents, etc.), Enforcement Ordinance 2 of Appendix 6
  Not applicable

Fire Defense Law (Japan):

- Article 2 Paragraph 7 Appendix 1 Hazardous materials (flammable liquids)
  Group 4 Class 1 Petroleum(non water-soluble)(flash point: less than 21deg C)

Ship Safety Law (Japan) related:

- Notification regulating standards etc. for carriage of dangerous goods by ships

Article 2 Paragraph 3 Appendix 1		3 Flammable liquids
UN Number	:	1210
UN Proper Shipping Name	:	Printing ink, or printing ink related material

Aviation Law (Japan) related:

- Notification regulating standards etc. for transport of explosives, etc. by aircraft

Article 2 Appendix 1	:	3 Flammable liquids
UN Number	:	1210
UN Proper Shipping Name	:	Printing ink, or printing ink related material

Foreign Exchange and Foreign Trade Act (Japan) related:

- Ordinance for Enforcement of Narcotics and Psychotropics Control Law
  Article 45 Paragraph 8 Appendix 3 Raw materials for narcotic psychotropic drugs
  Not applicable (Inks for printing, writing or drawing, and other inks)

PRTR Law (Japan):

- Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof Articles 1, 2, Appendixes 1, 2, and Article 4
  Not applicable (products containing less than 1% chromium,less than 0.1% Trimellitic anhydraide and less than 0.1% Terichloromethane)

Waste Management and Public Cleaning Law (Japan)

- Enforcement Ordinance Article 2 Paragraph 4 1:
  Industrial waste requiring special management (Flammable waste oil)

Poisonous and Deleterious Substances Control Law (Japan): Not applicable

RoHS Specified Substance Concentration: Cd<100ppm Pb, Hg, Cr(VI), PBB, PBDE<1000ppm

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.(Japan) related：

・Article 2 Paragraph 5 chemical substances requiring prior assessment
Trimellitic anhydraide<0.1 %
Terichloromethane<0.1%

16 Other Information

Cited Literature:

1) International Chemical Safety Cards
2) Results of Eco-toxicity tests of chemicals conducted by Ministry of the Environment in Japan
3) National Institute of Technology and Evaluation (NITE), Japan
4) Site for Safe Workplace by Ministry of Health, Labour and Welfare, Japan

Additional Information About This Product:

To the best of our knowledge, the information contained herein is accurate.
However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user.
All materials may present unknown hazards and should be used with caution.
Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.