Issue 2022.03.03

Revision 2022.11.09

# Safety Data Sheet (SDS)

## Section 1 – CHEMICALS AND COMPANY IDENTIFICATION

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|---|---|
| Chemical Identifier | Ink-1145T |
| Product Code | 1145T |
| Reference Number | 62 |
| Name of Supplier | Hitachi Industrial Equipment Systems Co.,Ltd. |
| Address | 1-1 Higashitaga-cho 1-chome,Hitachi-shi, Ibaraki-ken, 316-8502 Japan |
| Company Contact | IJP ink Group, Marking Systems and Hoist Systems Division |
| Phone Number | +81-294-36-8682 |
| Fax Number | +81-294-36-8975 |
| Mail Address | ogino-masahiko@hitachi-ies.co.jp |
| Emergency Phone Number | +81-294-36-8682 |
| Recommended Use | Industrial ink jet printers |

## Section 2 – HAZARDS IDENTIFICATION

GHS Classification of the Chemical

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|---|---|
| Physicochemical | Flammable liquids Category 2 |
| Health Hazards | Acute toxicity (oral) Category 4 |
| | Acute toxicity (Inhalation: vapour) Category 4 |
| | Skin corrosion/irritation Category 2 |
| | Serious eye damage/eye irritation Category 1 |
| | Germ cell mutagenicity Category 2 |
| | Carcinogenicity Category 2 |
| | Reproductive toxicity Category 1B |
| | Specific target organ toxicity (single exposure) Category 1(visual organ systemic toxicity central nervous system) |
| | Specific target organ toxicity (single exposure) Category 2(kidney) |
| | Specific target organ toxicity (single exposure) Category 3(narcotic effect respiratory tract irritation) |
| | Specific target organ toxicity (repeated exposure) Category 1(visual organ nervous system central nervous system) |
| Environmental Hazards | Hazardous to the aquatic environment, short-term (acute) Category 3 |
| | Other hazards than mentioned above are Not classified or Classification not possible. |

GHS Label Elements

Pictograms

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| Signal Word | Danger |
| Hazard Statements | H225 Highly flammable liquid and vapour |
| | H302+H332 Harmful if swallowed or if inhaled |
| | H315 Causes skin irritation |
| | H318 Causes serious eye damage |
| | H335 May cause respiratory irritation |
| | H336 May cause drowsiness or dizziness |
| | H341 Suspected of causing genetic defects |
| | H351 Suspected of causing cancer |
| | H360 May damage fertility or the unborn child |

H370 Causes damage to visual organ、systemic toxicity、central nervous system

H371 May cause damage to kidney

H372 Causes damage to visual organ、nervous system、central nervous system through prolonged or repeated exposure

H402 Harmful to aquatic life

Precautionary Statements

Prevention

Obtain special instructions before use.(P201)

Do not handle until all safety precautions have been read and understood.(P202)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.(P210)

Keep container tightly closed.(P233)

Ground and bond container and receiving equipment.(P240)

Use explosion-proof electrical, ventilating and lighting equipment.(P241)

Use non-sparking tools.(P242)

Take action to prevent static discharges.(P243)

Do not breathe dust/fume/gas/mist/vapours/spray.(P260)

Avoid breathing dust/fume/gas/mist/vapours/spray.(P261)

Wash hand thoroughly after handling.(P264)

Do not eat, drink or smoke when using this product.(P270)

Use only outdoors or in a well-ventilated area.(P271)

Avoid release to the environment.(P273)

Wear protective gloves/protective clothing/eye protection/face protection.(P280)

Response

IF SWALLOWED: Call a doctor if you feel unwell.(P301+P312)

IF ON SKIN: Wash with plenty of soap and water.(P302+P352)

IF ON SKIN or hair: Take off immediately all contaminated clothing. Rinse skin with water or shower.(P303+P361+P353)

IF INHALED: Remove person to fresh air and keep comfortable for breathing.(P304+P340)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.(P305+P351+P338)

IF exposed or concerned: Call a doctor.(P308+P311)

IF exposed or concerned: Get medical advice/attention.(P308+P313)

Immediately call a doctor.(P310)

Call a doctor if you feel unwell.(P312)

Get medical advice and attention if you feel unwell.(P314)

Specific treatment.(P321)

Rinse mouth.(P330)

If skin irritation occurs: Get medical advice/attention.(P332+P313)

Take off contaminated clothing and wash it before reuse.(P362+P364)

In case of fire: Use appropriate media to extinguish.(P370+P378)

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| Storage | Store in a well-ventilated place. Keep container tightly closed.(P403+P233)<br>Store in a well-ventilated place. Keep cool.(P403+P235)<br>Store locked up.(P405) |
| Disposal | Dispose of contents and container in accordance with local, regional and national regulations (to be specified).(P501) |

Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Distinction of Substance or Mixture: Mixture

| Chemical Name or Generic Name | Concentration or Its Ranges (%) | Formula | ENCS No./ISHL No. | | CAS RN |
|---|---|---|---|---|---|
| | | | ENCS No. | ISHL No. | |
| Methyl ethyl ketone | 50-60 | CH3CH2COCH3 | (2)-542 | Registered | 78-93-3 |
| Iodides | 1-3 | - | Trade secret | Trade secret | Trade secret |
| Methanol | 10-20 | CH3OH | (2)-201 | Registered | 67-56-1 |
| 2,4-Pentanedione | 5-10 | CH3COCH2COCH3 | (2)-562 | Registered | 123-54-6 |

Section 4 – FIRST AID MEASURES

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| Inhalation | IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.<br>IF exposed or concerned: Call a doctor. |
| Skin Contact | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.<br>IF ON SKIN: Wash with plenty of soap and water.<br>If skin irritation occurs: Get medical advice and attention.<br>Specific treatment.<br>IF exposed or concerned: Call a doctor. |
| Eye Contact | Immediately call a doctor.<br>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>IF exposed or concerned: Call a doctor. |
| Ingestion | IF SWALLOWED: Immediately call a doctor.<br>Rinse mouth.<br>IF exposed or concerned: Call a doctor. |

Section 5 – FIRE FIGHTING MEASURES

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| Suitable Extinguishing Media | Use extinguishing agent suitable for type of surrounding fire.<br>When dust occurs, use dry sand. |
| Unsuitable Extinguishing Media | Cylindric water. |
| Specific Hazards in Case of Fire | Risk of producing harmful gases such as carbon monoxide. Avoid inhalation of smoke or gases. |
| Specific Fire Fighting | Fight fire from upwind position if possible<br>Keep away from sources of ignition and use appropriate extinguishing media.<br>Prohibit unauthorized staff from entering the area around the fire.<br>Keep unnecessary people away. |
| Special Protective Equipment and Precautions for Fire Fighters | Use goggles in combination with dust mask, and another protections as appropriate to situation. |

Section 6 – ACCIDENTAL RELEASE MEASURES

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| Personal Precautions, Protective Equipment and Emergency Procedures | | Use goggles in combination with dust mask, and another protections as appropriate to situation.<br><br>Large spills :Evacuate area.<br>Ensure adequate ventilation. |
| Environmental Precautions | | Do not discharge into the drains, surface waters or ground water directly. |
| Methods and Equipment for Containment and Cleaning Up | | No information available |
| Prevention Measures for Secondary Accidents | | Keep away from sources of ignition and prepare extinguishing media. |

Section 7 – HANDLING AND STORAGE

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| Handling | Technical Measures | Provide ventilation system and use necessary personal protective equipment as described in "Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION".<br><br>Ground/bond container and receiving equipment.<br>Use only non-sparking tools.<br>Use explosion-proof electrical/ventilating/lighting.<br><br>Take precautionary measures against static discharge.<br><br>Use local exhaust ventilation in case of production of fume or mist.<br>Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. |
| | Precautions for Safe Handling | Keep cool.<br><br>Do not breathe dust/fume/gas/mist/vapours/spray.<br><br>Do not eat, drink or smoke when using this product.<br><br>Wash hands thoroughly after handling.<br><br>Use only outdoors or in a well-ventilated area.<br>Wear protective gloves/protective clothing/eye protection/face protection. |
| | Prevents Handling of Incompatible Substances or Mixtures | Refer to "Section 10 – STABILITY AND REACTIVITY". |
| Storage | Conditions for Safe Storage | Refer to "Section 10 – STABILITY AND REACTIVITY".<br><br>Store locked up.<br>Store container tightly closed in well-ventilated place. |

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

| | Japan Administration Level | Exposure Limits (Japan Society for Occupational Health) | Exposure Limits (ACGIH) |
|---|---|---|---|
| Methanol | 200ppm | 200ppm(260mg/m3)(skin) | TWA 200 ppm, STEL 250 ppm (Skin) |
| Methyl ethyl ketone | 200ppm | 200ppm(590mg/m3) | TWA 200 ppm, STEL 300 ppm |
| 2,4-Pentanedione | – | – | TWA 25 ppm, STEL – (Skin) |
| Iodides | – | – | – |

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| Engineering Controls | Use local exhaust ventilation in case of production of fume or mist.<br>Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.<br><br>Use explosion-proof electrical equipment and prevent from static electrocity. |

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| Personal Protective Equipment | Respiratory Protection | If necessary, wear respiratory protection. |
| | Hand Protection | Wear protective gloves. |
| | Eye/Face Protection | Wear eye protection/face protection. |
| | Skin and Body Protection | Wear protective clothing. |

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|---|
| Physical State | | Liquid |
| Form | | Liquid |
| Colour | | Black |
| Odour | | Solvent odor |
| Melting Point/Freezing Point | | -86.4℃ (as 2-Butanone) |
| Boiling Point or Initial Boiling Point and Boiling Ranges | | 79.6 ℃ (as 2-Butanone) |
| Flammability | | Flammability |
| Lower and Upper Explosion Limit / Flammability Limit | Lower Limit | 1.8vol% (as 2-Butanone) |
| | Upper Limit | 11.5vol% (as 2-Butanone) |
| Flash Point | | -4.1℃ (Tag Closed Cup) |
| Auto-Ignition Temperature | | 505℃ (as 2-Butanone) |
| Decomposition Temperature | | No data available |
| pH | | No data available |
| Kinematic Viscosity | | 3.7mm2/s |
| Solubility | | water: 29g/100mL (20℃) (as 2-Butanone) |
| Partition Coefficient : n-Octanol/Water | | 0.29(as 2-Butanone) |
| Vapour Pressure | | 10.5kPa (20℃) (as 2-Butanone) |
| Density and/or Relative Density | | 0.909 |
| Relative Gas Density | | 2.41 (Air＝1、as 2-Butanone) |
| Particle Characteristics | | No data available |
| as Methanol | | |
| Melting Point/Freezing Point | | -93.9℃ |
| Boiling Point or Initial Boiling Point and Boiling Ranges | | 64.1℃, 59.4℃(610mmHg), 39.9℃(260mmHg), 15℃ (73mmHg) |
| Density and/or Relative Density | | 0.866(-59℃/4℃), 0.81(0℃/4℃), 0.8006(10℃/4℃), 0.7910(20℃), 0.7964(15℃/15℃) |
| as Methyl ethyl ketone | | |
| Melting Point/Freezing Point | | -86.4℃ |
| Boiling Point or Initial Boiling Point and Boiling Ranges | | 79.6℃ |
| Density and/or Relative Density | | 0.8061 |
| as 2,4-Pentanedione | | |
| Melting Point/Freezing Point | | -23℃ |
| Boiling Point or Initial Boiling Point and Boiling Ranges | | 139℃(746mmHg) |
| Density and/or Relative Density | | 0.9721(25℃, 4℃) |

## Section 10 – STABILITY AND REACTIVITY

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| Reactivity | Does not react dangerously under nomal conditions. |
| Chemical Stability | Stable under normal conditions of use. |
| Possibility of Hazardous Reaction | Flammable |
| Conditions to Avoid | There is a risk of explosion due to impacts, friction, flame and other source of ignition. |
| Incompatible Substances or Mixtures | No data available |
| Hazardous Decomposition Products | No data available |
| Other Data | No data available |

## Section 11 – TOXICOLOGICAL INFORMATION

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|---|---|---|
| Acute Toxicity | Oral | Classified as Category 4 since ATE is 300 to 2000(mg/kg). |
| | Dermal | Classification not possible since lots of the concentrations of unknown ingredients. |
| | Inhalation | (gas)<br>Does not fall under gas based on GHS definitions.<br>(vapour)<br>Classified as Category 4 since ATE is 2500 to 20000(ppmV).<br>(dust and mist)<br>Classification not possible since lots of the concentrations of unknown ingredients. |
| Skin Corrosion/Irritation | | Classified as Category 2 since the sum of Category 2 ingredients is more than 10%. |
| Serious Eye Damage/Eye Irritation | | Classified as Category 1 since the sum of Eye Category 1 ingredients is more than 3%. |
| Respiratory Sensitization | | Classification not possible since lots of the concentrations of unknown ingredients. |
| Skin Sensitization | | Classification not possible since lots of the concentrations of unknown ingredients. |
| Germ Cell Mutagenicity | | Classified as Category 2 since one of the Category 2 ingredients is more than 1.0%. |
| Carcinogenicity | | Classified as Category 2 since one of the Category 2 ingredients is more than 1.0%. |
| Reproductive Toxicity | | (Reproductive toxicity)<br>Classified as Category 1B since one of the Category 1B ingredients is more than 0.3%.<br>(Reproductive toxicity, effects on or via lactation)<br>Classification not possible since lots of the concentrations of unknown ingredients. |
| Specific Target Organ Toxicity (Single Exposure) | | Classified as Category 2(kidney) since one of the Category 2(kidney) ingredients is more than 10%.<br>Classified as Category 1(visual organ) since one of the Category 1(visual organ) ingredients is more than 10%.<br>Classified as Category 1(systemic toxicity) since one of the Category 1(systemic toxicity) ingredients is more than 10%.<br>Classified as Category 1(central nervous system) since one of the Category 1(central nervous system) ingredients is more than 10%.<br>Classified as Category 3(narcotic effect) since the sum of Category 3(narcotic effect) ingredients is more than 20%. |

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| | Classified as Category 3(respiratory tract irritation) since the sum of Category 3(respiratory tract irritation) ingredients is more than 20%. |
| Specific Target Organ Toxicity (Repeated Exposure) | Classified as Category 1(nervous system) since one of the Category 1(nervous system) ingredients is more than 10%. |
| | Classified as Category 1(visual organ) since one of the Category 1(visual organ) ingredients is more than 10%. |
| | Classified as Category 1(central nervous system) since one of the Category 1(central nervous system) ingredients is more than 10%. |
| Aspiration Hazard | Classification not possible since lots of the concentrations of unknown ingredients. |

Section 12 – ECOLOGICAL INFORMATION

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| Hazardous to the Aquatic Environment, Short-Term (Acute) | Classified as Category 3 since the sum of (M × 100 × Category 1) + (10 × Category 2) + Category 3 ingredients is more than 25%. |
| Hazardous to the Aquatic Environment, Long-Term (Chronic) | Classification not possible since lots of the concentrations of unknown ingredients. |
| Ecotoxicity | No data available |
| Persistence | No data available |
| Bioaccumulative Potential | No data available |
| Mobility in Soil | No data available |
| Hazardous to the Ozone Layer | Unable to classify due to insufficient data. |

Section 13 – DISPOSAL CONSIDERATIONS

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|---|---|---|
| | Residual waste | 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 groundor in to the culverts. |
| | | For waste materials generated by wastewater treatment, incineration, etc. either carry out processingin 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. |
| | Contaminated containe | Empty containers should be treated as industrial wastes and not allowed to contain waste. |

Section 14 – TRANSPORT INFORMATION

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|---|---|---|
| International Regulations | Regulatory Information by Sea | Conform to the provisions of IMO. |
| | UN No. | 1210 |
| | Proper Shipping Name | PRINTING INK RELATED MATERIAL |

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As far as we know, the information that is listed here is accurate. However, the above-mentioned suppliers or their subsidiaries shall not be liable for the accuracy or completeness of the information described above.

| | | |
|---|---|---|
| | Class | 3 |
| | Packing Group | Ⅱ |
| | Marine Pollutant | Not applicable |
| | Liquid Substance Transported in Bulk According to MARPOL 73/78, Annex Ⅱ, the IBC Code | Not applicable |
| | Regulatory Information by Air | Conform to the provisions of ICAO/IATA. |
| | UN No. | 1210 |
| | Proper Shipping Name | PRINTING INK RELATED MATERIAL |
| | Class | 3 |
| | Packing Group | Ⅱ |
| Regulations in Japan | Regulatory Information by Road | Complies with the Fire Service Act. |
| | Regulatory Information by Sea | Conform to the provisions of the Ship Safety Law. |
| | UN No. | 1210 |
| | Proper Shipping Name | PRINTING INK RELATED MATERIAL |
| | Class | 3 |
| | Packing Group | Ⅱ |
| | Marine Pollutant | Not applicable |
| | Liquid Substance Transported in Bulk According to MARPOL 73/78, Annex Ⅱ, the IBC Code | Not applicable |
| | Regulatory Information by Air | Conform to the provisions of the Civil Aeronautics Law. |
| | UN No. | 1210 |
| | Proper Shipping Name | PRINTING INK RELATED MATERIAL |
| | Class | 3 |
| | Packing Group | Ⅱ |
| Emergency Response Guide Number | | 130 |

Section 15 - REGULATORY INFORMATION

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| Industrial Safety and Health Act | Ordinance on the Prevention of Organic Solvent Poisoning<br>Paragraph 1 Article 1 part 4 (Second-class organic solvents, etc.), Enforcement Ordinance 2 of Appendix 6<br>the standards for work environment monitoring Article 65 part 2-1<br><br>Dangerous or Harmful Substances Subject to Be Indicated their Names, etc.<br>(Article 57 part 1 ,Order Article 18 part 1 and 2, Attached Table9)<br><br>Dangerous Substances -Flammable substances(Order Article Appended Table 1 part 4)<br>Hazardous Substances to be notified in terms of Whose Names,etc .(Article 57 part 2 ,Order Article 18 part 2-1and part 2, Attached Table9)<br>2,4-Pentanedione(Number:11の4)(1%-10%)<br>Methanol(Number:560)(10%-20%)<br>Methyl ethyl ketone(Number:570)(50%-60%)<br>Iodides(Number:606)(less than 5%)<br>Materials for special medical examinations and current handling workers(Industrial Safety and Health Act66 2 and Order for Enforcement of Industrial Safety and Health Act Article 22 (i)) |
| Poisonous and Deleterious Substances Control Act | Not applicable |

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|---|---|
| Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof(after 2023/4/1) | Class 1 Designated Chemical Substances (Article 2, Paragraph 2 of the Law, Article 1, Appendix 1 of the Enforcement Ordinance) |
| Act on the Regulation of Manufacture and Evaluation of Chemical Substances | 2,4-Pentanedione(control number:568)(5.3%)<br>Mmonitoring chemical substances (Article 2, Paragraph 4 of the Act) |
| Fire Service Act | Priority Assessment Chemical Substances(Article 2 part 5)<br>Hazardous Materials Category IV inflammable liquids Class I petroleums non water-soluble Packing Group Ⅱ |
| Water Pollution Prevention Act | Specified substances (article 2, paragraph 4 of the Act, article 3 of the Enforcement Ordinance) |
| Narcotics and Psychotropics Control Act | raw materials for Narcotics or Psychotropics(Appended Table IV part 9, Order Article 4) |
| Foreign Exchange and Foreign Trade Act | Import Trade Control Order Appended Table I part 16<br>Import Trade Control Order Appended Table Ⅱ (Import Approval ) |
| Ship Safety Law | Flammable liquids(Order Article 3,Appended Table I) |
| Aviation Law | Flammable liquids(Order Article 194,Appended Table I) |

Section 16 - OTHER INFORMATION

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| Industrial Safety and Health Act | Second-class organic solvents, etc.contain more than 5% of Second-class organic solvents.<br>In the "15. Applicable laws" column, the materials for which label and SDS will be mandated are also listed. (Substance without a decree number.) Reiwa based on 0111 No. 1 from the Kiankahatsu, on January 11, 2022. )<br>2-butanone and methyl ethyl ketone, MEK and ethyl methyl ketone are the same substances. |
| Act on the Regulation of Manufacture and Evaluation of Chemical Substances | We have a Priority Assessment Chemical Substance posting threshold of 0.1% or more.<br>The posting of a Priority Assessment Chemical Substance in SDS is as of November 2019 as an effort. |
| Foreign Exchange and Foreign Trade Act | In law, printing inks are not approved for export |
| Fire Service Act | The flash point of Class I petroleums is less than 21 ° c. |
| Poisonous and Deleterious Substances Control Act | The deleterious substances is only applicable to the material, and the mixture is non-applicable. |
| RoHS Specified Substance Concentration | Substances treated as equipment are exempt from this law.<br>Cd<100ppm Pb, Hg, Cr(Ⅵ), PBB, PBDE, DEHP, DBP, BBP, DIBP <1000ppm |
| Allowable concentration | TLV-TWA:Threshold Limit Values-Time Weighted Average STEL (Short Term Exposure Limit |
| Standards | JIS Z7253:2019 |
| Cited Literature | 1) International Chemical Safety Cards<br>2) National Institute of Technology and Evaluation (NITE), Japan<br>3) Site for Safe Workplace by Ministry of Health, Labour and Welfare, Japan<br>4) EZSDS(JCDB) |

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|---|---|
| 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. |

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