

Safety Data Sheet

SECTION1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifier

Trade Name : Dryure Ag-JB 0420D

1.2 Details of the supplier of the safety data sheet

Manufacturer : C-INK Co., Ltd.

Address : 550, Akahama, Soja-shi, Okayama, 719-1121, Japan

TEL : +81-866-92-5111

FAX : +81-866-92-5111

Identified uses: Conductive Silver nanoInk use in electric circuit, electrodes, color material,

SECTION2. Hazards identification

2.1 GHS classification

Emergency Overview: Silver, odorless, paste. May cause moderate irritation to eyes, skin, and digestive tract.
Eye Contact: May cause moderate irritation to the eyes.
Skin Contact: May cause moderate irritation to the skin.
Inhalation Acute: Mists may cause irritation to upper respiratory track.
Ingestion Acute: May cause irritation to mouth, esophagus, and stomach.
Chronic Hazards: No known chronic hazards. Not listed on NTP, IARC or OSHA as carcinogen.

2.2 HMIS Rating

Health	1
Flammability	0
Reactivity	0
Personal Protection	C

2.3 Label elements

Pictogram:



Signal word:

Danger

Hazard statement:

H316 Causes mild skin irritation.
 H320 Causes eye irritation.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapors/spray
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P273 Avoid release to the environment.
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several.
 P305+P351+minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Safety Data Sheet

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION3. Composition/information on ingredients

3.1 Product description: This product is a mixture.

components:		
Chemical Name/ Generic Name	% By Weight	CAS No.
Silver	19-21	7440-22-4
Water	48-53	7732-18-5
Diethylene glycol	25-30	111-46-6
1,3-Butanediol	0.5-2	107-88-0
2-Ethylhexanol	0.05-0.3	104-76-7
Surfactant A	0.05-0.3	Trade secret
Surfactant B	0.01-0.05	Trade secret
Polyester resin	0.1-2.0	Trade secret

SECTION4. FIRST AID MEASURES

4.1 Description of first aid measures

General information:

Immediately remove any clothing contaminated by the product.

After eyes contact:

Immediately raise eyelids and flush with plenty of water at least for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, seek medical care.

After skin contact:

Instantly wash with water and soap and rinse thoroughly.

Consult doctor in case of symptoms.

After inhalation:

Supply fresh air; consult doctor in case of symptoms.

After swallowing:

Rinse out mouth and then drink plenty of water. Seek immediate medical advice.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

water fog, foam, dry chemical or CO₂

Unsuitable extinguishing media:

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Safety Data Sheet

None

5.2 Advice for firefighters

No special fire fighting procedures are required other than breathing apparatus.

No special explosion hazards are known.

• Additional information:

Cool endangered containers with water spray jet.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

If without risk possible, move drums with material away from dangerous area.

SECTION6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

Use breathing protection against the effects of fumes/dust/aerosol..

Avoid contact with skin and eyes.

6.2 Environmental precautions

Do not allow product to reach sewage system or water bodies.

Do not allow to enter the ground/soil.

Inform respective authorities in case product reaches water or sewage system.

If material reaches soil inform authorities responsible for such cases.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Send for recovery or disposal in suitable containers.

Dispose of the material collected according to regulations.

6.4 Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

SECTION7. Handling and storage

7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Do not inhale aerosols.

Avoid contact with skin and eyes.

Make sure that all applicable workplace limits are observed.

Information about protection against explosions and fires: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities

Storage:Requirements to be met by storerooms and containers:

Observe all local and national regulations for storage of water polluting products.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Keep container tightly sealed.Store locked up.

7.3 Specific end use(s): No further relevant information available.

Safety Data Sheet

SECTION8. Exposure controls/personal protection

8.1 Exposure controls

Personal protective equipment

General protective and hygienic measures:

Keep away from foodstuffs, beverages and food.

Do not eat, drink or smoke while working. Instantly remove any contaminated garments.

Do not inhale gases / fumes / aerosols. Avoid contact with the eyes and skin.

Be sure to clean skin thoroughly after work and before breaks.

Breathing equipment:

Use breathing protection when aerosol or mist is formed.

In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.

Protection of hands:

Protective gloves

To avoid skin problems reduce the wearing of gloves to the required minimum.

Sensibilization by the components in the glove materials is possible.

Check the permeability prior to each renewed use of the glove.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Eye protection:

Tightly sealed safety glasses.

Body protection:

Protective work clothing

Body protection must be chosen depending on activity and possible exposure.

Limitation and supervision of exposure into the environment:

Do not allow to enter drainage system, surface or ground water.

SECTION9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form:	Liquid.
Colour:	Dark brown.
Smell:	Characteristic.
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Not determined.
Flash point:	Not determined.
Ignition temperature:	Not determined.
Critical values for explosion:	Not determined.
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not determined
Density:	1.10 - 1.20 g/cm ³ (25°C)
Solubility in / Miscibility with Water:	miscible

Safety Data Sheet

Partition coefficient (n-octanol/water):	Not determined.
Viscosity: (mPa·s)	3 – 5
Other information	No further relevant information available.

SECTION10. Stability and reactivity

10.1 Reactivity

No further relevant information available.

10.2 Chemical stability

Thermal decomposition / conditions to be avoided

No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions

No dangerous reactions known.

10.4 Conditions to avoid

Sunlight.

10.5 Incompatible materials

No data available.

10.6 Hazardous decomposition products

No data available.

SECTION11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

No data available.

LD50 Oral - Rat - male - > 5.000 mg/kg Primary irritant effect:

on the skin:

No data available.

on the eye:

No data available.

Subacute to chronic toxicity:

No data available.

Additional toxicological information:

Quantitative data on the toxicity of this stuff/product are not available.

Due to lack of data further risks cannot be excluded.

Sensitisation:

No data available.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

No data available.

SECTION12. Ecological information

12.1 Ecotoxicity

No data available.

12.2 Persistence and degradability

No data available.

Safety Data Sheet

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.4 Other adverse effects

No data available.

12.5 Additional ecological information

Aquatic toxicity:

CAS# 7440-22-4, Silver

- LC50/96 h (static) 0.0062 mg/l (Lepomis macrochirus (Bluegill))

- LC50/96 h (static) 0.00155-0.00293 mg/l (Pimephales promelas)

SECTION13. Disposal considerations

13.1 Waste treatment methods

Recommendation:

Disposal must be made according to official regulations.

Waste disposal key number: According to local/national regulations.

Recommendation:

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

SECTION14. Transport information

14.1 UN-Number

3082

14.2 UN proper shipping name

Environmentally hazardous substances, liquid, n.o.s.

14.3 Transport hazard class(es)

9

14.4 Packing group

III

14.5 Environmental hazards

Marine pollutant: Silver

• General notes:

Check whether the package is completed or sealed before transporting; make sure there are no damage and no falling down of packages during transporting; the transport vehicle should be equipped with fire-fighting equipments and emergency facilities for handling with release; do protect this product from sunlight.

SECTION15. General protective and hygienic measures:

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA-Title 3, Section 313 Emissions Reporting Information (40 CFR 372):

This product contains a chemical which is listed in Section 313 at or above de minimus concentrations.

CAS Number	Description	%
7440-22-4	Silver	19-21

Safety Data Sheet

Other National regulations:

Follow all of the laws and regulations in your country.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION16. Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International

Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent