Safety Data Sheet

Reference No. 1570

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1. Chemical product and company identification

Product name DPR Reagent: Chloride Model DPR-Cl

Company name KYORITSU CHEMICAL-CHECK Lab., Corp.
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Recommended uses and restrictions Reagent for water quality measurement

2. Hazards identification

[GHS Classification**]**

Physical hazards: Classification not possible (no data for GHS classification available)

Health hazards:
- Skin corrosion/irritation: Category 2 (applicable R-2 reagent)
- Serious eye damage/eye irritation: Category 2A (applicable R-2 reagent)
- Specific target organ toxicity (repeated exposure): Category 2 (respiratory organ) (applicable R-2 reagent)

For those health hazards not listed above are not classified or classification not possible (no data for GHS classification available)

Environmental hazards:
- Hazardous to the aquatic environment - Acute: Category 1 (applicable R-2 reagent)
- Hazardous to the aquatic environment - Chronic: Category 1 (applicable R-2 reagent)
- Harmful effects on the ozone layer: Not classified (no data for GHS classification available)

[GHS labeling elements**]**

[Signal word**]**
Warning

[Hazard statements**]** (Statements are applicable R-2 reagent)
Causes skin irritation.
Causes serious eye irritation.
May cause damage to respiratory organ through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

[Precautionary statements**]**

Keep out of reach of children and store in the cool, dry, and dark place.
Carefully read instructions before use and do not use for other purposes.
Wear personal protective equipment if necessary.
Do not inhale reagents.
Wash contaminated clothing.
Wash hands well before and after handling.
Avoid release to the environment.

3. Composition/ information on ingredients

Discrimination of single substance or mixture: Mixture

Reagent name	R-1 reagent		R-2 reagent	
Chemical name	Other	Water	Silver nitrate	Water
Content	< 15%	> 85%	< 3%	> 97%
Chemical formula	―	H_2O	$AgNO_3$	H_2O
METI No. (reference number under CSCL in Japan)	―	―	(1)-8	―
CAS No.	―	7732-18-5	7761-88-8	7732-18-5

4. First-aid measures

If reagents or test solutions;

Enter in eyes: Immediately rinse eyes thoroughly.
Contact with skin: Immediately wash out contaminated site with plenty of water.
Enter into mouth: Immediately rinse mouth with plenty of water.

If ingested or in case any symptoms appear after above measures, immediately get medical advice or treatment.

5. Fire-fighting measures

Extinguishing methods: Cut off ignition sources and extinct by a suitable media.
Suitable extinguishing media: Water (mist), powder, carbon dioxide, dry sand.

6. Accidental release measures

In case of outdoor use: avoid spill of reagents and waste solutions.
In case of indoor use: if spilled on a table or floor, wipe off immediately spilled reagents and dispose of them. Do not contact with eyes or skin.
Concentrated waste solutions should not be released into sewer or rivers.

7. Handling and storage

Handling: Care should be made so that reagents will not contact with eyes or skin and to avoid ingestion. Especially for outdoor use, ensure to bring back reagents, waste solutions after the measurement and used containers.
Storage: Avoid direct sunlight and store in a well-ventilated, cool, dry and dark place.

8. Exposure controls and personal protection

Administrative control level

Working environment standard: Not established

Occupational exposure limits

Japan Society for Occupational health: 0.01 mg (Ag)/m^3
ACGIH (TLVs): TWA 0.01 mg (Ag)/m^3
OSHA (PEL): TWA 0.01 mg (Ag)/m^3 (only for Silver nitrate)

Protective equipment: Recommended to wear protective glasses and gloves

9. Physical and chemical properties

Physical state:	R-1: Liquid reagent	6.2 mL x 1 poly-bottle in a poly bag
	R-2: Liquid reagent	4 mL x 1 poly-bottle in a poly bag
Color:	R-1: colorless (liquid), R-2: colorless (liquid)	
Odor:	No odor	
pH:	6	

Melting point, boiling point, flash point, ignition point, lower explosion limit, vapor pressure, density, specific gravity, solubility, Pow, kinetic viscosity: not available as a mixture

10. Stability and reactivity

Avoid leaving in a place where high temperature, humid or under direct sunlight. Stable under normal use conditions and no dangerous reactions under specific conditions are expected. No information on hazardous decomposition product is available.

11. Toxicological information

No data on mixture is available. Data on R-1 and R-2 reagents are shown below.

R-1 reagent
- Water:
  - Acute toxicity: Oral-rat LD_{50} > 90mL/kg
  - Other data: Not available

R-2 reagent
- Silver nitrate (No data on solution is available):
  - Acute toxicity:
    - Classified as Category 4.
    - Oral-rat LD_{50} = 1,170 mg/kg (IUCLID (2000)).
  - Skin corrosion/ irritation:
    - Classified as Category 1.
    - Silver nitrate causes skin irritation (CICAD 44 (2003)). Skin burn caused by contact with silver nitrate is reported (ATSDR (1990)).
  - Serious eye damage/ eye irritation:
    - Classified as Category 1.
    - Silver nitrate causes severe eye irritation (CICAD 44 (2003)). Ocular burn caused by contact with silver nitrate is reported (ATSDR (1990)). Moreover, silver nitrate is classified as skin corrosion/ irritation (Category 1).
  - Specific target organ toxicity (single exposure):
    - Classified as Category 3 (Respiratory irritation).
    - Silver nitrate causes respiratory irritation (ATSDR (1990), PATTY (6th, 2012)).
  - Specific target organ toxicity (repeated exposure):
    - Classified as Category 1 (respiratory organ).
    - In a manufacturing facility involved in the production of silver nitrate and silver oxide, 25 of the 30 workers (Duration of employment ranged from less than one, to greater than ten years.) who were exposed to silver dust complained of upper respiratory irritation (sneezing, stuffiness, and running nose or sore throat). (ATSDR (1990), ACGIH (7th, 2001))
  - Other data: Not available
- Water:
  - Same as R-1 reagent.

GHS classification results of R-1and R-2 reagents as mixtures are shown below.
- [Acute toxicity (oral)]
  - R-1 and R-2 reagents: Not classified based on application of additivity formula in all reagents.
- [Skin corrosion/ irritation]
  - R-2 reagent: Classified as Category 2 (Warning, Causes skin irritation.) because R-2 reagent contains more than or equal to 1% of silver nitrate.
  - R-1 reagent: Classification is not possible because of data lack.
- [Serious eye damage/ eye irritation]
  - R-2 reagent: Classified as Category 2A (Warning, Causes serious eye irritation.) because R-2 reagent contains more than or equal to 1% of silver nitrate.
  - R-1 reagent: Classification is not possible because of data lack.

[Specific target organ toxicity (single exposure)]
R-2 reagent: Not classified because concentration of silver nitrate in R-2 reagent is less than 20%.
R-1 reagent: Classification is not possible because of data lack.
[Specific target organ toxicity (repeated exposure)]
R-2 reagent: Classified as Category 2 (Warning, May cause damage to respiratory organ through prolonged or repeated exposure.) because R-2 reagent contains 1 to 10% of silver nitrate.
R-1 reagent: Classification is not possible because of data lack.

[Respiratory or skin sensitization], [Germ cell mutagenicity], [Carcinogenicity], [Reproductive toxicity], [Aspiration hazard]
Classifications are not possible because of data lack.

12. Ecological information

No data on mixture is available. Data on R-1and R-2 reagents are shown below.

R-2 reagent
Silver nitrate:
Hazardous to aquatic environment Acute:
Classified as Category 1.
Crustacea (*Daphnia magna*): 48-h EC_{50} = 0.0014 mg/L (0.0009 mg Ag/L) (CICADs 44, 2002).
Hazardous to the aquatic environment Chronic:
Classified as Category 1.
Fish (*Oncorhynchus mykiss*): 60-d LOEC = 0.00016 mg/L (CICADs 44, 2002).
Crustacea (*Daphnia magna*): 48-h EC_{50} = 0.0014 mg/L (0.0009 mg Ag/L) (CICADs 44, 2002).
Other data: Not available

GHS classification results of R-1and R-2 reagents as mixtures are shown below.
[Hazardous to the aquatic environment acute]
R-2 reagent: Classified as Category 1 (Warning, Very toxic to aquatic life.) based on application of the additivity formula.
R-1 reagent: Classification is not possible because of data lack.
[Hazardous to the aquatic environment chronic]
R-2 reagent: Classified as Category 1 (Warning, Very toxic to aquatic life with long lasting effects.) based on application of the additivity formula.
R-1 reagent: Classifications are not possible because of data lack.
[Harmful effects on the ozone layer]:
R-1 and R-2 reagents: Classification is not possible because each of the substances is not described in Annex to Montreal Protocol.

13. Disposal considerations

Liquid waste contains ca. 0.1 mg of Nitrate-nitrogen per measurement.
Always dispose of in accordance with local regulations.

14. Transport information

In addition to precautionary measures regarding handling and storage, avoid rough handling so as not to break containers. It is recommended to ship by air because under high temperature for long period may lead to deterioration.

UN number: Not applicable
UN classification: Not applicable
Civil Aeronautics Act: Not applicable
Poisonous and Deleterious Substances Control Act:
Not applicable (This product is a preparation and is not applicable as a deleterious substance under the Act.)
Fire Service Act: Not applicable
Total weight of the product: ca.70 g/kit

15. Regulatory information

PRTR Act: Silver nitrate is applicable as “Class I Designated Chemical Substances No. 82 Silver and its water-soluble compounds”.

Industrial Safety and Health Act: Applicable
This product contains more than 1% of silver nitrate.
: “Cabinet order, article 18, shall be notified the Name of the substances, #2”
: “Cabinet order, article 18-2, shall be indicated the Name of the substances, #2”

Water Pollution Control Act: Applicable
R-2 reagent contains nitrate compound.
: “Cabinet Order set forth in Item (26) of Article 2”.

Sewerage Act: Applicable.
R-2 reagent contains nitrate compound.
: “Cabinet Order set forth in Item (1) of Article 9-5”.

16. Other information

Reference literature

15,911 no Kagaku Shouhin, The Chemical Diary Co., Ltd. (2011)
NITE, GHS Classification, ID:H26-B-111/R-052 Silver nitrate (I)
Safety Data Sheet No. W01W0104-1670, Wako Pure Chemical Industries, Ltd. (2015.1.8)
Koukuu Kikenbutsu Yusou Houreisyu, Ed. MLIT, HOUBUN SHORIN CO., LTD. (2015)
JIS Z 7252:2014 Classification of chemicals based on “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)” (Japanese Industrial Standards Committee)
JIS Z 7253:2012 Hazard communication of chemicals based on GHS-Labelling and Safety Data Sheet (SDS) (Japanese Industrial Standards Committee)
UN GHS (tentative translation, forth revised version), GHS Kankei Syocho Renraku Kaigi (2011)
Ministry of Economy, Trade and Industry, GHS Classification Guidance for Enterprises 2013 Revised Edition (2013)

NOTE) This information is not always exhaustive and use with care.
This data sheet only provides information but any description cannot be warranted.
Descriptions may possibly be changed because of new findings or modification of the current knowledge.
Precautions only cover normal handling.
This English SDS is prepared in the cooperation with the Chemicals Evaluation and Research Institute (CERI), Japan.