

Safety Data Sheet

Reference No. 3251

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1. Chemical product and company identification

Product name	Water Analysis Reagent Set: Oil Water Analysis Refill Reagent Set: Oil Water Analysis Set: Oil	Type	WA-OIL WA-OIL-R WA-OIL-S2
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Company name	KYORITSU CHEMICAL-CHECK Lab., Corp.
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Person in charge	Rika SATOH

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 1	(applicable only R-1 reagent)
Serious eye damage/ eye irritation:	Category 1	(applicable only R-1 reagent)
	Category 2B	(applicable only R-3 reagent)

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

Environmental hazards: Not classified or classification not possible (no data for GHS classification available)

[GHS labeling elements]



[Signal word]

Danger

[Hazard statements]

Causes severe skin burns and eye damage.	(applicable only R-1 reagent)
Causes serious eye damage.	(applicable only R-1 reagent)
Causes eye irritation	(applicable only R-3 reagent)

[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	Hydrochloric acid	Other ingredient	Water	Poly (N-isopropyl acrylamide)	Silver nitrate	Water
Content	< 0.2%	< 0.1%	> 99.7%	< 2%	< 0.1%	> 97.9%
Chemical formula	HCl	-	H ₂ O	[CH ₂ CH{CONHCH(CH ₃) ₂ }] _n	AgNO ₃	H ₂ O
METI No. (reference number under CSCL in Japan)	(1)-215	-	-	(6)-2134	(1)-8	-
CAS No.	7647-01-0	-	7732-18-5	25189-55-3	7761-88-8	7732-18-5

Reagent name	R-3 reagent		R-4 reagent
Chemical name	Sodium chloride	Other ingredient	Water
Content	> 99%	< 1%	100%
Chemical formula	NaCl	-	H ₂ O
METI No. (reference number under CSCL in Japan)	(1)-236	-	-
CAS No.	7647-14-5	-	7732-18-5

4. First-aid measures

If reagents or test solutions;

Enter in eyes: Immediately rinse with water for more than 15 minutes followed by the treatment by an ophthalmologist.

Contact with skin: Immediately wash out contaminated site with plenty of water.

Enter into mouth: Immediately rinse mouth with plenty of water.

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

Especially in case ingested reagents or test solutions, immediately drink plenty of water or milk and 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 and skin.

Concentrated waste solution should not be released into sewer or rivers.

7. Handling and storage

Handling: Avoid contact of the reagents with eyes and skin. Do not ingest or inhale the reagents. It needs special attention because pH of R-1 reagent is lower than or equal to 2.
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: 5 ppm (7.5 mg/m³) (only for Hydrochloric acid)
0.01 mg(Ag)/m³ (only for Silver nitrate)
ACGIH (TLVs): Cl 2 ppm (only for Hydrochloric acid)
TWA 0.01 mg(Ag)/m³ (only for Silver nitrate)
OSHA (PEL): air Cl 5 ppm (only for Hydrochloric acid)
TWA 0.01 mg(Ag)/m³ (only for Silver nitrate)

Protective equipment: Recommended to wear protective glasses and gloves

9. Physical and chemical properties

Physical state: R-1: liquid reagent 60 mL x 1 poly-bottle in a poly bag
R-2: liquid reagent 40 mL x 1 poly-bottle in a poly bag
R-3: powder reagent 38 g x 1 poly-bottle in a poly bag
R-4: liquid reagent 100 mL x 1 poly-bottle in a poly bag
Color: R-1, R-2, R-4: colorless(liquid), R-3: white(powder)
Odor: R-1~ R-4: no odor
pH: R-1: ≤ 2 , Sample solutions after addition of R-1 reagent: 2-3, R-2 and R-4: 7

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 each ingredient in R-1, R-2, R-3 and R-4 reagents is shown below.

R-1 reagent

Hydrochloric acid (no data on $\leq 0.2\%$ solution is available):

Acute toxicity:

Oral-rat: LD₅₀ = 238 ~ 277, 700 mg/kg (SIDS (2002)).

Dermal-rabbit: LD₅₀ > 5,010 mg/kg (SIDS (2002)).

Inhalation (gas)-rat: 1,411 mg/L/4h was obtained from statistical calculation of converted value of rats:
LC₅₀ = 4.2, 4.7, 238 mg/L/60 min (SIDS (2002)).

Inhalation (dust, mist)-rat: LC₅₀(aerosol)=1.68 mg/L/1hr (SIDS (2002)) which is equivalent to 0.42 mg/L/4hr.

Skin corrosion/ irritation:

Rabbit: Corrosive to the skin by 1-4 hour exposure depending on concentrations (SIDS (2002)). Mouse, rat: Skin irritation and inflammation associated with changes of color by 5-30 minutes exposure (SIDS (2002)). Human: Mild to severe irritation, ulcer and skin burns (SIDS (2002)).

Serious eye damage/ eye irritation:

Causes serious eye irritation, damage and corrosion in multiple animal tests including rabbits (SIDS (2002)). It also reported that may cause persistent eye damage and blindness in humans (SIDS (2002)).

Respiratory or skin sensitization

Respiratory sensitization:

Japanese Society of Occupational and Environmental Allergy lists as an occupational sensitizer. It is reported that caused bronchial spasm after the exposure of cleaning product containing hydrochloric acid furthermore caused asthma by a limited irritation after one year of the incident. (ACGIH (2003)).

Skin sensitization:

Negatives in a guinea pig maximization test and a mouse ear swelling tests (SIDS (2002)) and no positive case was found among 15 people applied after 10-14 days of induction (SIDS (2002)).

Carcinogenicity:

IARC Group 3 (1992), ACGIH A4 (2003). No evidence which indicates carcinogenicity, was reported in rats and mice studies (SIDS (2002)). Epidemiological studies are of negative regarding relationships between carcinogenicity and exposure of hydrochloric acid (IARC 54 (1992), PATTY 5th (2001)).

Specific target organ toxicity (single exposure):

Following effects in humans are reported by inhalation exposure; breathing difficulty, inflammation of pharynx, bronchitis, bronchoconstriction, pneumonia, effects on upper airways such as edema, inflammation and necrosis and lung edema (DFGOT vol.6 (1994), PATTY 5th (2001), IARC 54 (1992), ACGIH (2003)).

In animal test also reported that toxicological and morphological effects in lungs and bronchial tubes were observed e.g. bronchitis associated with necrosis of mucous membranes, lung edema, bleeding and thrombus (ACGIH (2003), SIDS (2002)).

Specific target organ toxicity (repeated exposure):

Damages of teeth by diabrasion in multiple cases are reported in human repeated exposure (SIDS (2002), EHC 21 (1982), DFGOT vol.6 (1994), PATTY 5th (2001),). It is also reported that increased incidence of chronic bronchitis (DFGOT vol.6 (1994)).

Other data: Not available

Water: Acute toxicity: Oral-rat: LD₅₀ >90mL/kg

Other data: Not available

R-2 reagent

Poly(N-isopropyl acrylamide) type cross-linked co-polymer (Data on Poly(N-isopropyl acrylamide) is not available.):

Acute toxicity: Oral-rat: LD₅₀ > 2,000 mg/kg

Germ cell mutagenicity: Negative (Ames test)

Other data: Not available.

Silver nitrate:

Acute toxicity: Oral-rat: LD₅₀ = 1,173 mg/kg (CERI hazard data collection 2001-57 (2002)).

Skin corrosion/ irritation:

"Corrosive" in a guinea pig skin irritation test (CERI hazard data collection 2001-57 (2002)).

Serious eye damage/ eye irritation:

The substance causes severe irritation and therefore is corrosive to skin because it is reported that "moderate to severe irritation" in a rabbit eye irritation test (CERI hazard data collection 2001-57 (2002)).

Reproductive toxicity: Effects on testis (necrosis of seminiferous tubule) were observed (IUCLID, 2000).

Specific target organ toxicity (single exposure):

Causes acute respiratory irritation in humans (PATTY (4th, 2000)). Methemoglobinemia in an animal test (ICSC (J) (1998)). Cyanosis, diarrhea, increased self-movement and cramp in an animal test (CERI hazard data collection 2001-57 (2002)).

Taking into account the above findings, it is considered that blood system is a target organ and causes respiratory irritation.

Specific target organ toxicity (repeated exposure):

Effects on lungs and kidneys, hardening of the arteries in humans were reported (CERI hazard data collection 2001-57 (2002)), therefore respiratory organ, kidneys and cardiovascular system are considered as target organs.

Other data: Not available.

Water: Same as above.

R-3 reagent:

Sodium chloride:

Acute toxicity: Oral-rat: LD₅₀ = 3,000 mg/kg (RTECS),

Intraperitoneal-mouse: LD₅₀ = 2,602 mg/kg (RTECS).

Intravenous-mouse: LD₅₀ = 645 mg/kg (RTECS)

Skin corrosion/ irritation: Rabbit 50 mg/24Hr mild irritation
Serious eye damage/ eye irritation:
Rabbit moderate by 10mg of administration, moderate eye irritation by 100 mg/24Hr
Other data: Not available

R-4 reagent

Water: Same as above.

GHS classifications as a mixture of each R-1, R-2, R-3 and R-4 reagent are shown below.

[Acute toxicity (oral)]

All reagents are not classified based on application of additivity formula.

[Acute toxicity (inhalation: dust, mist)]

R-1 reagent: Not classified based on application of additivity formula.

Other reagent: Classification is not possible because of data lack.

[Skin corrosion/ irritation]

R-1 reagent: $\text{pH} \leq 2$; Classified as Category 1 (Danger, Causes severe skin burns and eye damage.).

R-3 reagent: Concentration of sodium chloride is more than 10%; Classified as Category 2 (Warning, Causes eye irritation)

Other reagent: Classification is not possible because of data lack.

[Serious eye damage/ eye irritation]

R-1 reagent: $\text{pH} \leq 2$; Classified as Category 1 (Danger, Causes serious eye damage.).

R-2 reagent: Concentration of sodium chloride is over than 10%; Classified as Category 2B (Warning, Causes eye irritation.)

Other reagent: Classification is not possible because of data lack.

[Respiratory or skin sensitization]

R-1 reagent: Concentration of hydrochloric acid is less than 1%; Not classified.

Other reagent: Classification is not possible because of data lack.

[Reproductive toxicity]

R-2 reagent: Concentration of silver nitrate is less than 3%; Not classified.

Other reagent: Classification is not possible because of data lack.

[Specific target organ toxicity (single exposure)], [Specific target organ toxicity (repeated exposure)]

R-1 and R-2 reagent: Concentrations of hydrochloric acid and silver nitrate are both lower than 1%; Not classified.

Other reagent: Classification is not possible because of data lack.

[Germ cell mutagenicity], [Carcinogenicity], [Aspiration hazard]: Classification is not possible because of data lack.

12. Ecological information

No data on mixture is available. Data on each ingredient in R-1, R-2, R-3 and R-4 reagents is shown below.

R-1 reagent

Hydrochloric acid:

Hazardous to aquatic environment Acute: Crustacea (*Daphnia magna*): 48-h EC_{50} = 0.492 mg/L (SIDS, 2005)

Hazardous to the aquatic environment Chronic:

It is considered that toxicity is manifested by acidity of solution, however it should be lowered in the environment because of buffering effects.

R-2 reagent

Silver nitrate (no data on solution is available):

Hazardous to aquatic environment Acute:

Crustacea (*Daphnia magna*): 48-h EC_{50} = 0.0013 mg/L (CERI hazard data collection, 2002)

Hazardous to the aquatic environment Chronic:

Metal compound and unknown behavior in water, having bio-accumulative potential: $\text{BCF} = 600$ (Data on existing chemical substances).

Poly (N-isopropyl acrylamide) type cross-linked co-polymer (Data on Poly (N-isopropyl acrylamide) is not available.):

Hazardous to aquatic environment Acute: Fish (medaka): 96-h LC_{50} = 5,000 mg/L

Other data: Not available

R-3 reagent

Sodium chloride: No eco-toxicological information available.

GHS classifications as a mixture of each R-1, R-2, R-3 and R-4 reagent are shown below.

[Hazardous to the aquatic environment acute]

R-1 reagent: Not classified based on application of additivity formula.

Classification is not possible for other reagents because of data lack.

[Hazardous to the aquatic environment chronic]

Classification is not possible for other reagents because of data lack.

[Harmful effects on the ozone layer]

Every reagent: Classification is not possible because each of the substances is not described in Annex to Montreal Protocol.

13. Disposal considerations

pH of remaining R-1 reagent and test solutions after addition of R-1 reagent are lower than 2 and 2-3, respectively. 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	3264
Proper shipping name:	Corrosive liquid, Acidic Inorganic, N.O.S. (applicable only R-1 reagent) (This product contains less than 1% of silver nitrate)
UN classification:	Class 8 (corrosive substances)
Packing group:	III
Civil Aeronautics Act:	Same as above. Applicable as Limited Quantities of Dangerous Goods.
Fire Service Act:	Not applicable
Total weight of the product:	ca. 2 kg/kit (WA-OIL) ca. 410 g/kit (WA-OIL-R) ca. 2.5 kg/kit (WA-OIL-S2)

15. Regulatory information

Poisonous and Deleterious Substances Control Act: Not applicable (The product contains less than 10% of hydrochloric acid and not applicable as a deleterious substance)

PRTR Act: Not applicable

Industrial Safety and Health Act: Applicable

R-1 reagent contains more than 0.1% and less than 0.2% of hydrochloric acid.

: "Cabinet order, article 18-2, shall be indicated the Name of the substances, #2"

Water Pollution Control Act:

This product is contains silver nitrate and is applicable as "ammonia, ammonium compounds, nitrite compounds and nitrate compounds" by item 26 of article 2 under the Act.

Sewage Act:

This product is contains silver nitrate and is applicable as "ammonia-nitrogen, nitrite-nitrogen and nitrate-nitrogen" by item 1 of article 9-5 under the Act.

Waste Disposal and Cleaning Act: Applicable

pH of remaining solution of R-1 is less than or equal to 2 and is applicable as Special Controlled Industrial Waste under the Act.

16. Other information

Reference literature

15,911 no Kagaku Shouhin, The Chemical Diary Co., Ltd. (2011)

NITE, GHS Classification, ID567 Hydrochloric acid (2006.04.20, 2006.03.31)

NITE, GHS Classification, ID259 Silver nitrate (I) (2006.05.24, 2006.03.31)

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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)
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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.