Safety Data Sheet

Reference No. 1036

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1. Chemical product and company identification

Product name PACKTEST Gold Model WAK-Au

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 1 (applicable only K-1 reagent)
Serious eye damage/eye irritation: Category 1 (applicable only K-1 reagent)
Respiratory or skin sensitization: Category 1 (respiratory sensitization) (applicable only K-1 reagent)
Specific target organ toxicity (single exposure):
Category 2 (respiratory organs) (applicable only K-1 reagent)
Specific target organ toxicity (repeated exposure):
Category 2 (teeth, respiratory organs) (applicable only K-1 reagent)

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

Environmental hazards:

Hazards to the aquatic environment, short-term (acute): Category 2 (applicable only K-1 reagent)
For those environmental health hazards not listed above 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 K-1 reagent)
Causes serious eye damage. (applicable only K-1 reagent)
May cause allergy or asthma symptoms or breathing difficulties if inhaled. (applicable only K-1 reagent)
May cause damage to respiratory organs. (applicable only K-1 reagent)
May cause damage to teeth and respiratory organs through prolonged or repeated exposure.
(applicable only K-1 reagent)
Toxic to aquatic life. (applicable only K-1 reagent)

[Precautionary statements**]**

Keep out of reach of children and store in the dry and dark place at room temperature.
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	K-1 reagent			K-2 reagent	
Chemical name	Hydrochloric acid	Other (not regulated)	Water	Other (not regulated)	Polyethylene
Content	5 – 9.9 %	5 – 9.9 %	80 – 89 %	5 – 9.9 %	90 - 99 %
Chemical formula	HCl	-	H_2O	-	$(C_2H_4)_n$
METI No. (reference number under CSCL in Japan)	(1)-215	-	-	-	(6)-1
CAS No.	7647-01-0	-	7732-18-5	-	9002-88-4

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, drink plenty of milk or water 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 or 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. pHs of K-1 reagent and a sample solution after addition of K-1 reagent are lower than or equal to 2, acidic. Care should be made so as to avoid contact with eyes or skin.
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, dry and dark place at room temperature.

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/m^3)
ACGIH (TLVs): Cl 5 ppm (only Hydrochloric acid)
(OSHA(PEL)): air Cl 5 ppm (only Hydrochloric acid)

Protective equipment: Recommended to wear protective glasses and gloves

9. Physical and chemical properties

Physical state:	K-1: Liquid reagent	5 mL x 1 poly-bottle in a poly bag
	K-2: Tube containing powder reagent	1.1 g x 40 tubes/kit (5 tubes per one aluminum laminate packaging)
Color:	K-1: colorless, K-2: purple (powder), semi-transparent (polyethylene tube)	
Odor:	K-1: irritating odor, K-2: no odor	
pH:	$\leq$ 2 (K-1 reagent, final measurement solution)	

Melting point, boiling point, flash point, ignition point, lower explosion limit, vapor pressure, density, relative density, 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 K-1and K-2 reagents are shown below.

K-1 reagent
Hydrochloric acid (gas) (no data on solution is available):
Acute toxicity:
Oral: Classified as Category 3 based on data; Rat: LD_{50} = 238 - 277, 700 mg/kg (SIDS (2002)).
Dermal: Not classified based on data; Rabbit $LD_{50} \geq$ 5,010 mg/kg (SIDS (2002)).
Inhalation (gas): Classified as Category 3 based on data; 1,411 ppm was obtained from statistical calculation of converted value of rats: LC_{50} = 4.2 mg/L, 4.7 mg/L, 238 mg/L/60 min (SIDS (2002)). Note that 4.2 mg/L (4-hr ppm = 1,411 ppm) was used because the calculated value was smaller than the lowest data.
Inhalation (dust, mist): Classified as Category 2 based on data; Rat LC50 (aerosol) = 1.68 mg/L/1hr (SIDS (2002)) which is equivalent to 0.42 mg/L/4hr.
Skin corrosion/ irritation: Classified as Category 1A – 1C based on data; 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: Classified as Category 1 based on data; 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: Classified as Category 1 based on data; 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: Not classified based on data; 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 after10 – 14 days of induction (SIDS (2002)).
Germ cell mutagenicity: Classification is not possible because; No *in vivo* test data is found except in a positive result of drosophlia sex-linked recessive lethal test. Some positive results are reported *in vitro* test however it is not sufficient to conclude mutagenic to human germ cell.
Carcinogenicity: Not classified based on data; 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)).
Reproductive toxicity: Classification is not possible because of data luck based on available data; No developmental effect was observed in rats and mice administered during pregnancy period.
Effects on reproduction or fertility are not known if exposed before mating or during early developmental stage.
Specific target organ toxicity (single exposure): Classified as Category 1 (respiratory organs) based on animal and human data; 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): Classified as Category 1 (teeth and respiratory organs) based on data; Damages of teeth by diabrosis 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 LD_{50} >90 mL/kg (used 90g/kg for the calculation of ATEmix below)
Other data: Not available

K-2 reagent

Polyethylene:
Acute toxicity: Oral: Rat LD_{50} > 7,950 mg/kg (used 7,950 mg/kg for the calculation of ATEmix below)
Carcinogenicity: IARC Group 3 (not classifiable as to carcinogenicity to humans).
Other data: Not available .

GHS classification results of K-1and K-2 reagents as mixtures are shown below.
[Skin corrosion/ irritation]
K-1 reagent: Classified as Category 1 (Danger, Causes severe skin burns and eye damage.) because pH is lower than or equal to 2.
K-2 reagent: Classification is not possible because of data lack.
[Serious eye damage/ eye irritation]
K-1 reagent: Classified as Category 1 (Danger, Causes serious eye damage.) because pH is lower than or equal to 2.
K-2 reagent: Classification is not possible because of data lack.
[Respiratory or skin sensitization]
K-1 reagent: Classified as Category 1 (Danger, May cause allergy or asthma symptoms or breathing difficulties if inhaled.)
Other reagents: Classification is not possible because of data lack.
[Specific target organ toxicity (single exposure)]
K-1 reagent: Classified as Category 2 (Warning, Causes damage to respiratory organs.) because it contains 1 to 10 % of category 1.
K-2 reagent: Classification is not possible because of data lack.
[Specific target organ toxicity (repeated exposure)]
K-1 reagent: Classified as Category 2 (Warning, Causes damage to respiratory organs through prolonged or repeated exposure.) because it contains 1 to 10 % of category 1.
K-2 reagent: Classification is not possible because of data lack.

[Acute toxicity (oral)], [Acute toxicity (inhalation: dust, mist)], [Acute toxicity (dermal)], [Germ cell mutagenicity], [Carcinogenicity], [Reproductive toxicity], [Aspiration hazard]:
Not classified or classifications are not possible because of data lack.

12. Ecological information

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

K-1 reagent
Hydrochloric acid:
Hazardous to the aquatic environment, short-term (acute): Classified as Category 1 based on data; Crustacea (*Daphnia magna*): 48-h EC_{50} = 0.492 mg/L (SIDS, 2005).

Hazardous to the aquatic environment , long-term (chronic): Not classified because it is considered that toxicity is manifested by acidity of solution however it should be lowered in the environment because of buffering effects
Other data: Not available.

K-2reagent
Polyethylene: No eco-toxicological information available.

GHS classification results of K-1and K-2 reagents as mixtures are shown below.
K-1 reagent [Hazardous to the aquatic environment, short-term (acute)]:
Classified as Category 2 (harmful to aquatic life.) because EC_{50} = 0.492 mg/L, multiplying factor = 1 and contains less than 10% of category 1 as highest.
1 x 10 x (< 10% as maximum value) = Max. < 100%, > 25%.

K-2 reagent [Hazardous to the aquatic environment, short-term (acute)], and K-1 and K-2 reagents [Hazardous to the aquatic environment, long-term (chronic)]: Classifications are not possible because of data lack.
K-1 and K-2 reagents [Hazardous to the ozone layer]:
Classification is not possible because each of the substances is not described in Annex to Montreal Protocol.

13. Disposal considerations

pHs of remaining solution of K-1 reagent and waste solutions after the measurement are $\leq$ 2.
With respect to other considerations upon disposal, follow 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 classification and number:	3264
Civil Aeronautics Act:	Corrosive liquid, acidic, inorganic, n.o.s. (applicable only K-1 reagent)
UN classification:	Class 8 (corrosive substances)
Packing group:	II
Civil Aeronautics Act:	Same as above. Applicable for Excepted Quantities of Dangerous Goods.
Fire Defense Law:	Not applicable
Total weight of the product:	ca.140 g/kit

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 Law: Not applicable
Industrial Safety and Health Act: Applicable
K-1 reagent contains more than 1% of Hydrochloric acid.
: “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”
: “Designated substances class 3”
Waste Disposal and Public Cleaning Law: Applicable
Applicable as the Special Controlled Industrial Waste under the Act because pHs of remaining solution of K-1 reagent and waste solution after measurement are less than 2.

16. Other information

Reference literature
14,906 no Kagaku Shouhin, The Chemical Diary Co., Ltd. (2011)
NITE, GHS Classification, ID567 Hydrochloric acid (2006.04.20, 2006.03.31)
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Material Safety Data Sheet No.051110033, TOSHO CORPORATION (2004.07.09)
Koukuu Kikenbutsu Yusou Houreisyu, Ed. MLIT, HOUBUN SHORIN CO., LTD. (2019)
JIS Z 7252:2019 Classification of chemicals based on “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)” (Japanese Industrial Standards Committee)
JIS Z 7253:2019 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.