Safety Data Sheet

Reference No. 1401

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1. Chemical product and company identification

Product name PACKTEST Lead Model SPK-Pb

Company name KYORITSU CHEMICAL-CHECK Lab., Corp.
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Person in charge Hiroko HONDA

Recommended uses and restrictions Reagent for water quality measurement

2. Hazards identification

[GHS Classification**]**
Physical hazards: Not classified or classification not possible (no data for GHS classification available)
Health hazards:
Acute toxicity (inhalation: mist): Category 2 (applicable only K-1 reagent)
Category 4 (applicable only K-2 and K-3 reagents)
Skin corrosion/irritation: Category 1A (applicable K-1, K-2 and K-3 reagents)
Serious eye damage/eye irritation: Category 1 (applicable K-1, K-2 and K-3 reagents)
Specific target organ toxicity (single exposure):
Category 1 (respiratory organs) (applicable only K-1 reagent)
Category 2 (respiratory organs) (applicable only K-2 and K-3 reagents)
Specific target organ toxicity (repeated exposure):
Category 1 (teeth, respiratory organs) (applicable only K-1 reagent)
Category 2 (teeth, respiratory organs) (applicable only K-2 and K-3 reagents)
Aspiration hazard: Category 1 (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: Classification not possible (no data for GHS classification available)

[GHS labeling elements**]**

[Signal word**]**
Danger

[Hazard statements**]**
Fatal if inhaled. (applicable only K-1 reagent)
Harmful if inhaled. (applicable only K-2 and K-3 reagents)
Causes severe skin burns and eye damage. (applicable K-1, K-2 and K-3 reagents)
Causes serious eye damage. (applicable K-1, K-2 and K-3 reagents)
Causes damage to respiratory organs. (applicable only K-1 reagent)
May cause damage to respiratory organs. (applicable only K-2 and K-3 reagents)
Causes damage to teeth and respiratory organs through prolonged or repeated exposure. (applicable only K-1 reagent)
May cause damage to teeth and respiratory organs through prolonged or repeated exposure. (applicable only K-2 and K-3 reagents)
May be fatal if swallowed and enters airways. (applicable only K-1 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 thoroughly 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, K-3 reagent		K-4 reagent	
Chemical name	Nitric acid	Water	Nitric acid	Water	Inorganic Substance	Water
Content	<10%	>90%	<1%	>99%	<30%	>70%
Chemical formula	HNO_3	H_2O	HNO_3	H_2O	—	H_2O
METI No. (reference number under CSCL in Japan)	(1)-394	—	(1)-394	—	—	—
CAS No.	7697-37-2	7732-18-5	7697-37-2	7732-18-5	—	7732-18-5

Reagent name	K-5 reagent			
Chemical name	4-(2-Pyridylazo)resorcinol	Buffering agent	Other Ingredient	Polyethylene
Content	<0.1%	<1%	<10%	＞88.9%
Chemical formula	$C_{11}H_9N_3O_2$	—	—	$(C_2H_4)n$
METI No. (reference number under CSCL in Japan)	—	—	—	(6)-1
CAS No.	1141-59-9	—	—	9002-88-4

4. First-aid measures

If reagents or sample with the reagents;

Enter in eyes: Immediately rinse eyes 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 and 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 solutions should not be released into sewer or rivers.

7. Handling and storage

Handling: Avoid eyes contact, skin contact, ingestion and inhalation of reagents. K-1, K-2, K-3 and a sample with K-1 reagent are lower than pH2. Similar attention is necessary.
Especially for outdoor use, ensure to bring back reagents, liquid waste 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: 2 ppm, 5.2 mg/m^3
ACGIH (TLVs): TWA 2 ppm STEL 4 ppm
OSHA (PEL): air TWA 2 ppm (only for Nitric acid)

Protective equipment: Recommend to wear protective glasses, gloves and mask.

9. Physical and chemical properties

Physical state: K-1: liquid reagent 20 mL x 1 plastic bottle in a plastic bag
K-2: liquid reagent 40 mL x 1 plastic bottle in a plastic bag
K-3: liquid reagent 20 mL x 1 plastic bottle in a plastic bag
K-4: liquid reagent 40 mL x 1 plastic bottle in a plastic bag
K-5: Tube containing powder reagent
1.1 g x 20 tubes/kit (5 tubes per one aluminum laminated packaging)

Color: K-1, K-2, K-3 and K-4: colorless (liquid), K-5: orange color (powder)
Odor: K-1, K-2, K-3, K-4 and K-5: No odor
pH: K-1: < pH0, K-2, K-3: pH0.8, K-4: neutral, developed sample: pH9

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.
Nitric acid(65-70%) is classified as Oxidizing liquids Category 3 (Warning, May intensify fire) by NITE. However, it is considered to be “not classified” of this product because maximum content is less than 10%, and 10% nitric acid manufactured by WAKO Pure Chemical Industries Ltd. (MSDS No. JW140684) and 1N (6.3%) nitric acid manufactured by SHOWA CHEMICAL LTD. (MSDS No. 1417-6950) are not classified.

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 substance are shown.

K-1, K-2 and K-3 reagents
Nitric acid (65-70%)
Acute toxicity:
Oral: Classification not possible because; it is reported that fatal case in human at 430 mg/kg (IUCLID (2000)) however no other data available.
Inhalation, dust, mist: Classified as Category 2 because; Nitric acid does not exist as a vapor or gas in air and it is considered that all LC50 data have been obtained as of mist. All five data are within 0.05 – 0.5 mg/L which are the guidance value of category 2.
Skin corrosion/ irritation: Classified as Category 1A because; It is reported that corrosive to humans (ICSC (1994)) and (HSDB (2005)) and the UN Classification is class 8, packing group 1.
Serious eye damage/eye irritation: Classified as Category 1 because; It is reported that causes severe eye

burns if exposed to human eyes (ACGIH (2001)) and Skin corrosion/ irritation is classified as category 1A.
Specific target organ toxicity (single exposure): Classified as Category 1 (respiratory organs) because; If inhaled vapor it causes irritation of upper respiratory system, cough, breathing difficulty, chest pain and lung edema in humans depending on the exposed concentration (ACGIH (2001)), (DFGOTvol.3 (1991)), (ICSC (J) (1994)), (HSDB (2005)).
Specific target organ toxicity (repeated exposure): Classified as Category 1 (teeth, respiratory organs) because; caused chronic bronchitis and erosion of teeth in occupational settings due to inhalation exposure of mist or vapor of nitric acid (ACGIH (2001)), (DFGOTvol.3 (1991)).
Aspiration hazard: Classified as Category 1 because it is reported that chemical lobar pneumonia was occurred by aspiration (ACGIH (2001)).
Other data: Not available

Water:
Acute toxicity:
Oral: Human infant TDLo = 333 g/kg, Cramps, attacks, fever
Human-male TDLo = 42.86 g/kg, Trembling, muscle pain
Rat LD_{50} > 90 mL/kg
Intravenous: Mouse LD_{50} = 25 g/kg
intraperitoneal: Mouse LD_{50} = 190 g/kg
Other data: Not available

K-4 reagent
Water: same as K-1, K-2 and K-3 reagents.

K-5 reagent
4-(2-Pyridylazo)resorcinol: No toxicological information is available.

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 classifications as a mixture are shown below.
[Acute toxicity (oral)]
K-4 and K-5 reagents: Not classified based on application of the additive equation.
[Acute toxicity (inhalation: mist)]
K-1 reagent: Classified as Category 2 (Danger, fatal if inhaled) based on application of the additive equation.
K-2 and K-3 reagents: Classified as Category 4 (Warning, harmful if inhaled) based on application of the additive equation.
[Skin corrosion/ irritation]
Classified as Category 1A (Danger, causes severe skin burns and eye damage.). pHs of K-1, K-2 and K-3 reagents are less than 2.
[Serious eye damage/ eye irritation]
Classified as Category 1 (Danger, causes serious eye damage.). pHs of K-1, K-2 and K-3 reagents are less than 2.
[Specific target organ toxicity (single exposure)]
K-1 reagent: Classified as Category 1 (Danger, Causes damage to respiratory organs.). Contains more than 10% of category 1.
K-2 and K-3 reagents: Classified as Category 2 (Warning, may cause damage to respiratory organs.). Contains 1 to 10% of category 1.
[Specific target organ toxicity (repeated exposure)]
K-1 reagent: Classified as Category 1 (Danger, causes damage to teeth and respiratory organs through prolonged or repeated exposure.). Contains more than 10% of category 1.
K-2 and K-3 reagents: Classified as Category 2 (Warning, May cause damage to teeth and respiratory organs through prolonged or repeated exposure.). Contains 1 to 10% of category 1.
[Aspiration hazard]
K-1 reagent: Classified as Category 1 (Danger, May be fatal if swallowed and enters airways.). Contains more than 10% of category 1.

K-1, K-2 and K-3 reagents; [Acute toxicity (oral)], [Respiratory or skin sensitization], [Germ cell mutagenicity], [Carcinogenicity], [Reproductive toxicity]; classification is not possible because of data lack.

K-4 and K-5 reagents; [Skin corrosion/ irritation], [Serious eye damage/ eye irritation], [Respiratory or skin sensitization], [Germ cell mutagenicity], [Carcinogenicity], [Reproductive toxicity], [Specific target organ toxicity], [Aspiration hazard]; classification is not possible because of data lack.

12. Ecological information

No data on mixture is available. Data on each substance are shown.
Nitric acid, 4-(2-Pyridylazo)resorcinol, Polyethylene: No eco-toxicological information is available.

GHS classifications as a mixture are shown below.

[Hazardous to the aquatic environment acute]:	Classification is not possible because of data lack.
[Hazardous to the aquatic environment chronic]:	Classification is not possible because of data lack.
[Harmful effects on the ozone layer]:	Classification is not possible because each of the substances is not described in Annex to Montreal Protocol.

13. Disposal considerations

Remaining K-1, K-2, K-3 reagents and column eluent are less than pH2. Liquid waste contains ca. 30 mg of Nitrate-nitrogen per measurement.
Always dispose according to 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	2031
Proper shipping name:	Nitric acid, other than red fuming, with 20 % or less nitric acid (applicable only K-1, K-2 and K-3 reagents)
UN classification:	Class 8 (Corrosives)
Packing group:	II
Civil Aeronautics Act:	Same as above. Applicable for Limited Quantities of Dangerous Goods.
Poisonous and Deleterious Substances Control Act:	Not applicable (The product contains less than 10% of Nitric acid and not applicable as a deleterious substance)
Fire Service Act:	Not applicable
Total weight of the product:	ca. 450g/kit

15. Regulatory information

PRTR Act Not applicable
Industrial Safety and Health Act: Applicable
K-1 reagent contains nitric acid contains more than 1% of nitric 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”
Water Pollution Control Act: Applicable
This product and waste solution after measurement contain nitric acid.
: “Cabinet Order set forth in Item (26) of Article 2”.
Sewerage Act: Applicable.
This product and waste solution after measurement contain nitric acid.
: “Cabinet Order set forth in Item (1) of Article 9-5”.
Waste Disposal and Cleaning Act: Applicable
Applicable to the Special Controlled Industrial Waste of the Act because pHs of remaining K-1, K-2 and K-3 reagents, and column Eluent are less than 2.

16. Other information

Reference literature

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Material Safety Data Sheet No.051110033, TOSOH CORPORATION (2004.07.09)
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 MSDS is prepared in the cooperation with the Chemicals Evaluation and Research Institute (CERI), Japan.