

## Materials Safety Data Sheet

Reference No. 1040

Issue: 25<sup>th</sup> June 1999  
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### 1. Chemical product and company identification

Product name PACKTEST COD (High Range) [Standard Type] Mode WAK-COD(H)

Company name KYORITSU CHEMICAL-CHECK Lab., Corp.  
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Person in charge Manabu KAITA

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

Serious eye damage/eye irritation: Category 1

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: Not classified

Hazardous to the aquatic environment Chronic: Not classified

#### [GHS labeling elements]



#### [Signal word]

Danger

#### [Hazard statements]

Causes severe skin burns and eye damage.

Causes serious eye damage.

#### [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	K-1 reagent			
Chemical name	Potassium permanganate	Buffering agent	Extender	Polyethylene
Content	< 0.1%	< 1%	< 20%	> 78.9%
Chemical formula	KMnO <sub>4</sub>	-	-	(C <sub>2</sub> H <sub>4</sub> ) <sub>n</sub>
METI No. (reference number under CSCL in Japan)	(1)-446	-	-	(6)-1
CAS No.	7722-64-7	-	-	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 from 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 (water spray), 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 waste solution should not be released into sewer or rivers.

### 7. Handling and storage

Handling: Do not inhale or ingest the reagent. Avoid contacting the reagent with eyes and skin.

Since the pH level of test solution will be alkaline of 13 or higher, avoid contact with eyes and skin, and do not ingest the solution.

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: 0.2 mg(Mn)/m<sup>3</sup> (only Potassium permanganate)

Occupational exposure limits

Japan Society for Occupational health: 0.3 mg(Mn)/m<sup>3</sup> (only Potassium permanganate)ACGIH (TLVs): TWA, 0.2 mg(Mn)/m<sup>3</sup> CL 5 mg(Mn)/m<sup>3</sup> (only Potassium permanganate)OSHA (PEL): Ceiling, 5 mg(Mn)/m<sup>3</sup> (only Potassium permanganate)

Engineering measures: In case indoor use it is recommended to be sealed exposure source or install local exhaust ventilation.  
Install hand and eye washer near handling place and it is recommended to indicate the location.

Protective equipment: Recommended to wear protective glasses and gloves

## 9. Physical and chemical properties

Physical state: Tube containing powder reagent  
1.2 g x 50 tubes/kit, aluminum laminated packaging each of 5 tubes

Color: Red-purple color (powder), semi-transparent (polyethylene tube)

Odor: No odor

pH: 13 (at the measurement)

Melting point, boiling point, flash point, ignition point, lower explosion limit, vapor pressure, density, specific gravity, solubility, Log Pow, kinematic 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 substance are shown.

### Potassium permanganate:

Acute toxicity: Oral-human:  $LD_{50}$ : 143 mg/kg, breathing difficulty and abnormality of digestive organs  
Oral-rat:  $LD_{50}$ : 1,090 mg/kg, sc-mouse:  $LD_{50}$ : 500 mg/kg  
Oral-rat:  $LD_{50}$ : 750 mg/kg (EHC, 17 (1981)) (NITE)

### Skin corrosion/ irritation:

In a human case "Corrosion of mouth cavity, esophagus and stomach were seen in a child accidental ingestion case of 174 mg." (CICAD 12(1999)) "Redness, skin burns, pain" (ICSC (2003)).

It is considered to be corrosive to skin (NITE).

### Serious eye damage/irritation:

Based on the above data, it is considered to be seriously corrosive to eyes.

Germ cell mutagenicity: DNA damage test: *E. coli* 200  $\mu$ mol/L

Reproductive toxicity: Although no information regarding maternal toxicity is reported, effects on spermatogenesis and unborn child were observed (EHC 17 (1981)) (NITE).

### Specific target organ toxicity (single exposure)

It is reported "Acute exposure of manganese (  $MnO_2$  and  $Mn_3O_4$  ) dust caused lung inflammation which resulted in dysfunction of lungs along with time passage. In addition, incidence of bronchitis and manganese pneumonia was increased (CICAD 12 (1999))." (NITE)

### Specific target organ toxicity (repeated exposure)

In human cases "increased incidence of pneumonia", "no emotional face, decreased blinking, micrographia, unstable arm movement, potomania of right arm, rigidity of right body", "mental trouble and autonomic nerve imbalance" (EHC 17 (1981)), "Co-movement of eyes and hands, abnormal reaction of sense of sight" (CICAD 12 (1999))", "Increased incidence of blood pressure reduction at heart dilation stage", "dysfunction of sight response time, Co-movement of eyes and hands, and stability of hands" (ATSDR (2000)). In animal studies "sudden movement, paralysis, nervous over sensitivity, severe potomania, bending and stretching of forearms, lack of bending and cyanosis, atrophy of cerebral cortex", "consolidation and inflammation of respiratory organs and blood vessels" (EHC 17 (1981)). (NITE)

Other data: Not 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.

[Skin corrosion/ irritation]  
pH of mixture  $\geq$  11.5: Category 1 (Danger, Causes severe skin burns and eye damage.)  
[Serious eye damage/ eye irritation]  
pH of mixture  $\geq$  11.5: Category 1 (Danger, Causes serious eye damage.)

[Acute toxicity (oral)], [Germ cell mutagenicity], [Reproductive toxicity], [Specific target organ toxicity (single exposure)], [Specific target organ toxicity (repeated exposure)]  
Not classified based on the data of ingredients.

[Acute toxicity (dermal)], [Acute toxicity (inhalation)], [Respiratory or skin sensitization], [Carcinogenicity], [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.

Potassium permanganate:

Hazardous to the aquatic environment Acute: Classified as category 1  
Crustacea (*Daphnia magna*): 48-h  $EC_{50}$  = 0.084 mg/L (CERI, Collection of hazard data, 2002) (0.242 mg/L:  
converted value as to Potassium permanganate)  
Hazardous to the aquatic environment Chronic: Classified as category 1  
BCF < 81 (Data on examination of existing chemicals), A metal compound and unknown behavior in water.  
Other data: Not available

Polyethylene:

No eco-toxicological information available.

GHS classifications as a mixture are shown below.

[Hazardous to the aquatic environment acute], [Hazardous to the aquatic environment chronic]  
Not classified based on the data of ingredients

## 13. Disposal considerations

The pH level of waste solution will be alkaline of 13 or higher. 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 classification and number: Not applicable  
(Content of Potassium permanganate in this product is lower than 1%)  
Civil Aeronautics Act: Not applicable  
Poisonous and Deleterious Substances Control Act: Not applicable  
Fire Service Act: Not applicable  
Total weight of the product: 140 g/kit

## 15. Regulatory information

PRTR Act: Not applicable  
(The product contains less than 1% of Potassium permanganate and not applicable as a "Class 1 Designated Chemical Substance".)  
Industrial Safety and Health Act: Not applicable  
(The product contains less than 1% of Potassium permanganate and not applicable as a "Group-2 specified chemical substances".)  
Waste Disposal and Cleaning Act: Applicable  
Since the pH of waste solution after measurement is more than 12.5, applicable as a "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, 6<sup>th</sup>\_060731\_2, ID497 Potassium permanganate  
Material Safety Data Sheet No. JW160888, Wako Pure Chemical Industries, Ltd. (2009.01.13)  
Material Safety Data Sheet No. 051110033, TOSOH CORPORATION (2004.07.09)  
Koukuu Kikenbutsu Yusou Houreisyu, Ed. MLIT, HOUBUN SHORIN CO., LTD. (2009)  
JIS Z 7250:2005 Safety data sheet for chemical products - Part 1: Content and order of sections (Japan Industrial Standards Committee)  
JIS Z 7251:2006 Labeling of chemicals based on GHS (Japan Industrial Standards Committee)  
JIS Z 7252:2009 Classification of chemicals based on "Globally Harmonized System of Classification and Labeling of Chemicals (GHS)" (Japan Industrial Standards Committee)  
UN GHS (tentative translation, second revised version), GHS Kankei Syocho Renraku Kaigi (2007)  
Training text of GHS classification of mixture (chemical substance) (revised version) Japan Industrial Safety & Health Association (2006)  
Hiroshi JONAI, GHS No Chosen, International Standard of hazardous information on chemicals, The Chemical Diary Co., Ltd. (2006)

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.