

1. Identification

| | |
|---------------------------------|---|
| Product identifier | Permanganate Reagent |
| Product code | R-0730 |
| Recommended use | Use as directed by manufacturer for purposes directly related to water testing. |
| Recommended restrictions | None known |

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

| | | |
|-------------------------------|--|------------------------------------|
| Company name | Taylor Technologies, Inc. | |
| Address | 31 Loveton Circle Sparks, MD 21152 United States | |
| Telephone | (410) 472-4340 | Monday—Friday, 8:00 a.m.—4:30 p.m. |
| Website | www.taylortechnologies.com | |
| E-mail | Not available | |
| Emergency phone number | (800) 837-8548 | |

2. Hazard(s) identification

| | | |
|------------------------------|--|-------------|
| Physical hazards | Oxidizing liquids | Category 2 |
| Health hazards | Eye damage/irritation | Category 2A |
| | Reproductive toxicity | Category 2 |
| | Skin corrosion/irritation | Category 2 |
| Environmental hazards | Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS. | |

Label elements



| | |
|--------------------------------|---|
| Signal word | Danger |
| Hazard statement | May intensify fire; oxidizer. Causes serious eye irritation. Suspected of damaging fertility or the unborn child. Causes skin irritation. |
| Precautionary statement | |
| Prevention | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. Keep/store away from clothing, ammonium nitrate, metals, organic compounds, strong acids, and combustible material. Take any precautions to avoid mixing with combustibles, ammonium nitrate, metals, organic compounds, and strong acids. Wear protective gloves/eye protection/face protection. Wash skin thoroughly after handling. |
| Response | IF EXPOSED OR CONCERNED: Get medical advice/attention. IF ON SKIN (OR HAIR): Take off contaminated clothing and wash it before reuse. Wash with plenty of water. IF SKIN IRRITATION OCCURS: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. IF EYE IRRITATION PERSISTS: Get medical advice/attention. IN CASE OF FIRE: Use water spray or water fog to extinguish. |
| Storage | Store locked up. |

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|------------------------|---------------------------------|------------|-------|
| Deionized water | Dihydrogen oxide | 7732-18-5 | 90–95 |
| Potassium permanganate | Permanganic acid potassium salt | 7722-64-7 | 5–10 |

4. First-aid measures

| | |
|---|---|
| Inhalation | Move to fresh air. Give oxygen or artificial respiration if needed. Get medical attention if you feel unwell. |
| Skin contact | Immediately flush skin with running water for at least 20 minutes. Immediately take off all contaminated clothing. Get medical attention if you feel unwell. Wash contaminated clothing before reuse. |
| Eye contact | Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. |
| Ingestion | Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. |
| Most important symptoms/effects, acute and delayed | <p>Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness and itching.</p> <p>Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.</p> <p>Inhalation of mists can cause respiratory irritation. Symptoms may include coughing and breathing difficulties.</p> <p>Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.</p> <p>Possible birth defect hazard. Contains material that may cause birth defects, based on animal data.</p> |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Immediate medical attention is required. |
| General information | Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves. |

5. Firefighting measures

| | |
|--|---|
| Suitable extinguishing media | Dry chemical powder. Foam. Water fog. Water spray. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. Do not use carbon dioxides or other smother agents, as they may be ineffective in fires involving oxidizers. |
| Specific hazards arising from the chemical | During fire, gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Firefighting equipment/instructions | Firefighters should wear full protective gear. Evacuate the area promptly. Fight fire from upwind to avoid exposure to combustion products. Cool containers/tanks with water spray. Do not get water inside container. Move containers from fire area if it can be done without risk. Prevent fire-extinguishing water from contaminating surface water or the ground water system. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | May intensify fire; oxidizer |
| Hazardous combustion products | Manganese oxides. Oxygen. Potassium oxides. Other irritating fumes and smoke. |

6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Methods and materials for containment and cleaning up

Large Spills: Ventilate the contaminated area. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewer, basements, or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb spillage with noncombustible, absorbent material. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for reuse. For waste disposal, refer to section 13 of the SDS. Contaminated absorbent material may pose the same hazards as the spilled product.

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from sources of ignition and incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks, and open flame. Store in original tightly closed container. Keep only in the original container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (refer to section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|--|---------|---------------------|-------|
| Potassium permanganate (CAS 7722-64-7) | Ceiling | 5 mg/m ³ | as Mn |

U.S. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|--|------|-----------------------|-------|
| Potassium permanganate (CAS 7722-64-7) | TWA | 0.2 mg/m ³ | as Mn |

U.S. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|--|------|---------------------|------------------------------------|
| Potassium permanganate (CAS 7722-64-7) | STEL | 3 mg/m ³ | Manganese compounds and fume as Mn |
| | TWA | 1 mg/m ³ | Manganese compounds and fume as Mn |

Biological limit values

No biological exposure limits noted for the ingredient(s)

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eyewash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield. Provide an emergency eyewash fountain and quick-drench shower in the immediate work area.

Skin protection

Hand protection

Wear appropriate chemical-resistant gloves. Advice should be sought from glove suppliers.

Other

Wear appropriate chemical-resistant clothing.

| | |
|---------------------------------------|--|
| Respiratory protection | In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers. |
| Thermal hazards | When necessary, wear appropriate thermal protective clothing. |
| General hygiene considerations | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contamination. Avoid breathing mist or vapor. |

9. Physical and chemical properties

Appearance

| | |
|---|--------------------------------|
| Physical state | Liquid |
| Form | Liquid |
| Color | Dark purple |
| Odor | Odorless |
| Odor threshold | Not available |
| pH | 8.7 |
| Melting point/freezing point | Not available |
| Initial boiling point and boiling range | 212°F (100°C) |
| Flash point | Not applicable (does not burn) |
| Evaporation rate | Not available |
| Flammability (solid, gas) | Not applicable |
| Upper/lower flammability or explosive limits | |
| Flammability limit, lower (%) | Not applicable |
| Flammability limit, upper (%) | Not applicable |
| Explosive limit, lower (%) | Not applicable |
| Explosive limit, upper (%) | Not applicable |
| Vapor pressure | 17 mm Hg |
| Vapor density | 0.6 |
| Relative density | 1.00 g/cm ³ |
| Solubility(ies) | |
| Solubility (water) | Soluble in all proportions |
| Partition coefficient (n-octanol/water) | Not available |
| Auto-ignition temperature | Not applicable |
| Decomposition temperature | Not available |
| Viscosity | Not available |
| Other information | |
| Explosive properties | Not applicable |
| Oxidizing properties | Not applicable |
| Percent volatile | 95% |
| Specific gravity | 1.00 |

10. Stability and reactivity

| | |
|---|--|
| Reactivity | This product is stable and nonreactive under normal conditions of use, storage, and transport. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use |

| | |
|---|--|
| Conditions to avoid | Avoid excess heat. Contact with incompatible materials. Do not use in areas without adequate ventilation. Avoid high temperatures. Keep away from direct sunlight. |
| Incompatible materials | Combustible material. Organics. |
| Hazardous decomposition products | None known. For hazardous combustion products, refer to section 5 of the SDS. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|--|
| Inhalation | May cause irritation to the respiratory system |
| Skin contact | May cause slight or mild transient irritation |
| Eye contact | May cause severe irritation |
| Ingestion | May cause irritation, nausea, vomiting, and diarrhea |

Most important symptoms/effects, acute and delayed

Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness and itching.

Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Inhalation of mists can cause respiratory irritation. Symptoms may include coughing and breathing difficulties.

Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

Possible birth defect hazard. Contains material that may cause birth defects, based on animal data.

Acute toxicity

This product is not classified as an acute toxicity hazard. See below for individual ingredient acute toxicity data.

| Components | Species | Test Results |
|---|--|---------------------|
| Potassium permanganate (CAS 7722-64-7) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD ₅₀ | Rabbit | Not available |
| <i>Inhalation</i> | | |
| LC ₅₀ | Rat | Not available |
| <i>Oral</i> | | |
| LD ₅₀ | Rat | 750 mg/kg |
| Deionized water (CAS 7732-18-5) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD ₅₀ | Rabbit | Not available |
| <i>Inhalation</i> | | |
| LC ₅₀ | Rat | Not available |
| <i>Oral</i> | | |
| LD ₅₀ | Rat | >89840 mg/kg |
| Skin corrosion/irritation | Causes severe skin irritation | |
| Serious eye damage/eye irritation | Causes serious eye irritation | |
| Respiratory sensitization | Not expected to be a respiratory sensitizer | |
| Skin sensitization | Not expected to be a skin sensitizer | |
| Germ cell mutagenicity | Not expected to be mutagenic | |
| Carcinogenicity | This product is not considered to be a carcinogen by IARC, NTP, OSHA, or U.S. ACGIH. | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096) | | |
| Not regulated | | |
| Reproductive toxicity | Suspected of damaging fertility or the unborn child | |
| Specific target organ toxicity, single exposure | May cause respiratory irritation | |

| | |
|--|--|
| Specific target organ toxicity, repeated exposure | Not classified as a specific target organ toxicity – repeated exposure |
| Aspiration toxicity | Not expected to be an aspiration hazard |
| Chronic effects | Frequent or prolonged overexposure may affect the liver and kidneys. |

12. Ecological information

Ecotoxicity This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Components | Species | Test Results |
|---|--|---------------------|
| Potassium permanganate (CAS 7722-64-7) – Aquatic | | |
| Acute | | |
| <i>Algae</i> | | |
| EC ₅₀ | Green algae (<i>Scenedesmus subspicatus</i>) | 0.8 mg/L, 72 hours |
| <i>Crustacea</i> | | |
| EC ₅₀ | Water flea (<i>Daphnia magna</i>) | 0.06 mg/L, 48 hours |
| <i>Fish</i> | | |
| LC ₅₀ | Guppy (<i>Poecilia reticulata</i>) | 0.47 mg/L, 96 hours |
| Chronic | | |
| <i>Algae</i> | | |
| NOEC | Green algae (<i>Scenedesmus subspicatus</i>) | 0.22 mg/L, 72 hours |
| Persistence and degradability | Not available | |
| Bioaccumulative potential | Not available | |
| Mobility in soil | Not available | |
| Other adverse effects | No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. | |

13. Disposal considerations

| | |
|--|--|
| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | The waste code should be assigned in discussion with the user, the producer, and the waste disposal company. |
| Waste from residues/unused products | Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (refer to Disposal instructions). |
| Contaminated packaging | Empty containers should be taken to an approved waste-handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

14. Transportation information

DOT

| | |
|-------------------------------------|--|
| UN number | UN1490 |
| UN proper shipping name | Potassium permanganate solution |
| Transport hazard class(es) | |
| Class | 5.1 |
| Subsidiary risk | Not listed |
| Label(s) | 5.1 |
| Packing group | II |
| Special precautions for user | Read safety instructions, SDS, and emergency procedures before handling. |
| Special provisions | IB8, IP2, IP4, T3, TP33 |
| Packaging exceptions | 152 |
| Packaging, non-bulk | 212 |
| Packaging, bulk | 240 |

IATA

| | |
|--------------------------------|---------------------------------|
| UN number | UN1490 |
| UN proper shipping name | Potassium permanganate solution |

Transport hazard class(es)
Class 5.1
Subsidiary risk Not listed
Packing group II
Environmental hazards Yes
ERG code 5L
Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.
Other information
Passenger and cargo aircraft Allowed
Cargo aircraft only Allowed

IMDG

UN number UN1490
UN proper shipping name Potassium permanganate solution
Transport hazard class(es)
Class 5.1
Subsidiary risk Not listed
Packing group II
Environmental hazards
Marine pollutant Yes
EmS F-H, S-Q
Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
DOT This substance/mixture is not intended to be transported in bulk.



IATA; IMDG



Marine pollutant



15. Regulatory information

U.S. federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory list.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated

CERCLA Hazardous Substance (40 CFR 302.4)

Potassium permanganate (CAS 7722-64-7)

SARA 304 Emergency Release Notification

Not regulated

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Immediate hazard – yes
 Delayed hazard – yes
 Fire hazard – yes
 Pressure hazard – no
 Reactivity hazard – no

SARA 302 Extremely Hazardous Substance

Not regulated

SARA 311/312 Hazardous Chemical

Not regulated

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by weight |
|---------------|------------|-------------|
|---------------|------------|-------------|

| | | |
|------------------------|-----------|------|
| Potassium permanganate | 7722-64-7 | 5–10 |
|------------------------|-----------|------|

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAP)**

Potassium permanganate (CAS 7722-64-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

| | |
|------------------------|------|
| Potassium permanganate | 6579 |
| (CAS 7722-64-7) | |

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

| | |
|------------------------|---------|
| Potassium permanganate | 15% W/V |
| (CAS 7722-64-7) | |

DEA Exempt Chemical Mixtures Code Number

| | |
|------------------------|------|
| Potassium permanganate | 6579 |
| (CAS 7722-64-7) | |

Safe Drinking Water Act (SDWA)

Not regulated

U.S. state regulations**California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not regulated

Massachusetts Right-to-Know Act

Potassium permanganate (CAS 7722-64-7)

New Jersey Worker and Community Right-to-Know Act

Potassium permanganate (CAS 7722-64-7)

Pennsylvania Worker and Community Right-to-Know Act

Potassium permanganate (CAS 7722-64-7)

Rhode Island Right-to-Know Act

Potassium permanganate (CAS 7722-64-7)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International inventories

| Country(ies) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|---|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | yes |
| Canada | Domestic Substances List (DSL) | yes |
| Canada | Non-Domestic Substances List (NDSL) | no |
| China | Inventory of Existing Chemical Substances Produced or Imported in China (IECSC) | yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | no |
| Japan | Existing and New Chemical Substances (ENCS) | yes |
| Korea | Existing Chemicals List (ECL) | yes |
| New Zealand | New Zealand Inventory of Chemical (NZIoC) | yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) | yes |

*A "yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(ies).

A "no" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(ies).

16. Other information, including date of preparation or last revision

List of abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
CAA: Clean Air Act
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DEA: Drug Enforcement Agency
DOT: Department of Transportation
DSL: Domestic Substances List
EC: effective concentration
ECL: Existing Chemicals List
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency
HAP: hazardous air pollutants
HMIS: Hazardous Materials Identification System
HNOC: hazards not otherwise classified
HPA: Hazardous Products Act
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
ICAO: International Civil Aviation Organization
IECSC: Inventory of Existing Chemical Substances Produced or Imported in China
IMDG: International Maritime Dangerous Goods
IUCLID: International Uniform Chemical Information Database
LC: lethal concentration
LD: lethal dose
MARPOL: marine pollution
MSHA: Mine Safety and Health Administration
NDSL: Non-Domestic Substances List
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NOEC: no observable effect concentration
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemicals
OECD: Organisation for Economic Co-operation and Development
OEL: occupational exposure limits
OSHA: Occupational Safety and Health Administration
PEL: permissible exposure limits

PICCS: Philippine Inventory of Chemicals and Chemical Substances
PPE: personal protective equipment
RCRA: Resource Conservation and Recovery
Act RQ: reportable quantity
RTECS: Registry of Toxic Effects of Chemical Substances
RTK: right to know
SARA: Superfund Amendments and Reauthorization Act
SDS: Safety Data Sheet
SDWA: Safe Drinking Water Act
STEL: short-term exposure limit
TLV: threshold limit values
TSCA: Toxic Substances Control Act
TWA: time-weighted average
VOC: volatile organic compounds
WEL: workplace exposure limit

Disclaimer

The information in the Safety Data Sheet is offered for your consideration and guidance for safe handling, use, storage, transportation, disposal, and release of this product and is not considered a warranty or quality specification. Taylor Technologies, Inc., disclaims all expressed or implied warranties and assumes no responsibility for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

License granted to make unlimited paper copies for internal use only. This Safety Data Sheet may not be changed, or altered, in any way without the expressed knowledge and permission of Taylor Technologies, Inc. The information contained in this sheet is based on lab experience and the most current data available.

Issue date

May 2015

Last revision

May 2015