

1. Identification

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| Product identifier | POTASSIUM PERMANGANATE, SOLUTION, 0.1 N | | |
| Other means of identification | | | |
| Product code | 1186 | | |
| Recommended use | professional, scientific and technical activities: other professional, scientific and technical activities | | |
| Recommended restrictions | None known. | | |
| Manufacturer/Importer/Supplier/Distributor information | | | |
| Manufacturer | | | |
| Company name | GFS Chemicals, Inc. | | |
| Address | 800 Kaderly Drive Columbus, OH 43228 United States | | |
| Telephone | Phone | 740-881-5501 | |
| | Toll Free | 800-858-9682 | |
| | Fax | 740-881-5989 | |
| Website | www.gfschemicals.com | | |
| E-mail | service@gfschemicals.com | | |
| Emergency phone number | Emergency Assistance | Chemtrec 800-424-9300 | |

2. Hazard(s) identification

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|--|--|------------|--|
| Physical hazards | Not classified. | | |
| Health hazards | Not classified. | | |
| Environmental hazards | Hazardous to the aquatic environment, acute hazard | Category 3 | |
| | Hazardous to the aquatic environment, long-term hazard | Category 3 | |
| OSHA defined hazards | Not classified. | | |
| Label elements | | | |
| Hazard symbol | None. | | |
| Signal word | None. | | |
| Hazard statement | Harmful to aquatic life with long lasting effects. | | |
| Precautionary statement | | | |
| Prevention | Wash thoroughly after handling. Avoid release to the environment. | | |
| Response | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. | | |
| Storage | Store away from incompatible materials. Keep container tightly closed. | | |
| Disposal | Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. | | |
| Hazard(s) not otherwise classified (HNOC) | None known. | | |
| Supplemental information | None. | | |

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|------------------------|--------------------------|------------|-------|
| WATER | | 7732-18-5 | 99.68 |
| POTASSIUM PERMANGANATE | | 7722-64-7 | 0.32 |

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

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| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Get medical attention if irritation develops or persists. |

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| Eye contact | Get medical attention if irritation develops or persists. |
| Ingestion | Rinse mouth. Give water. |
| Most important symptoms/effects, acute and delayed | Direct contact with eyes may cause temporary irritation. |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

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| Suitable extinguishing media | This product is not flammable. Use extinguishing agent suitable for type of surrounding fire. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | None known. |
| Special protective equipment and precautions for firefighters | Wear SCBA. |
| Fire fighting equipment/instructions | Move containers from fire area if you can do so without risk. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | No unusual fire or explosion hazards noted. Can be oxidizing in fire conditions, increasing the flammability of combustible materials with which it comes in contact. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
| Methods and materials for containment and cleaning up | This product is miscible in water. Prevent product from entering drains. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. |
| Environmental precautions | Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. |

7. Handling and storage

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| Precautions for safe handling | Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. |
| Conditions for safe storage, including any incompatibilities | Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). |

8. Exposure controls/personal protection

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| Occupational exposure limits | This mixture has no ingredients that have PEL, TLV, or other recommended exposure limit. |
| 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. |
| Individual protection measures, such as personal protective equipment | |
| Eye/face protection | Wear safety glasses with side shields (or goggles). |
| Skin protection | |
| Hand protection | Wear appropriate chemical resistant gloves. |

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| Other | Wear suitable protective clothing. |
| Respiratory protection | In case of insufficient ventilation, wear suitable respiratory equipment. |
| Thermal hazards | Wear appropriate thermal protective clothing, when necessary. |
| 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 contaminants. |

9. Physical and chemical properties

Appearance

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| Physical state | Liquid. |
| Form | Liquid. |
| Color | Deep purple. |
| Odor | Odorless. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | 32 °F (0 °C) estimated |
| Initial boiling point and boiling range | 212 °F (100 °C) estimated |
| Flash point | Not available. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | completely miscible |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Density | 1.00 g/cm ³ estimated |
| Explosive properties | Not explosive. |
| Molecular formula | KMnO ₄ |
| Molecular weight | 158.04 |
| Oxidizing properties | Not oxidizing. |
| Percent volatile | > 99 % |
| Specific gravity | 1.00 estimated |

10. Stability and reactivity

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| Reactivity | The product is stable and non-reactive 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 | Contact with incompatible materials. |
| Incompatible materials | Reducing agents. Flammable materials. Many organic materials. |

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation No adverse effects due to inhalation are expected.
Skin contact No adverse effects due to skin contact are expected.
Eye contact Direct contact with eyes may cause temporary irritation.
Ingestion Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

| Components | Species | Test Results |
|--|------------|--------------|
| POTASSIUM PERMANGANATE (CAS 7722-64-7) | | |
| Acute | | |
| Oral | | |
| LD50 | Guinea pig | 810 mg/kg |
| | Mouse | 750 mg/kg |
| | Rat | 750 mg/kg |
| Other | | |
| LD100 | Mouse | 500 mg/kg |

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May be irritating to the skin.

Germ cell mutagenicity Mutagenic effects.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Reproductive effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Further information This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

| Product | Species | Test Results |
|---|--------------|-----------------------------------|
| POTASSIUM PERMANGANATE, SOLUTION, 0.1 N | | |
| Aquatic | | |
| Crustacea | EC50 Daphnia | 268.75 mg/l, 48 hours estimated |
| Fish | LC50 Fish | 466.0488 mg/l, 96 hours estimated |

| Components | Species | | Test Results |
|--|---------|--|------------------------------|
| POTASSIUM PERMANGANATE (CAS 7722-64-7) | | | |
| Aquatic | | | |
| Crustacea | EC50 | Amphipod (<i>Crangonyx pseudogracilis</i>) | 0.86 - 1.12 mg/l, 48 hours |
| Fish | LC50 | Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>) | 0.275 - 0.339 mg/l, 96 hours |

* Estimates for product may be based on additional component data not shown.

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| Persistence and degradability | None known. |
| Bioaccumulative potential | No data available. |
| Mobility in soil | No data 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

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| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. This material can be converted to a less hazardous material by weak reducing agents followed by neutralization. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Waste from residues / unused products | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. Transport information

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|---|-----------------------------------|
| DOT | Not regulated as dangerous goods. |
| IATA | Not regulated as dangerous goods. |
| IMDG | Not regulated as dangerous goods. |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not established. |

15. Regulatory information

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|---|--|---------|
| US federal regulations | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. | |
| TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) | Not regulated. | |
| CERCLA Hazardous Substance List (40 CFR 302.4) | POTASSIUM PERMANGANATE (CAS 7722-64-7) | Listed. |
| SARA 304 Emergency release notification | Not regulated. | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) | Not regulated. | |
| Superfund Amendments and Reauthorization Act of 1986 (SARA) | | |
| Hazard categories | Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No | |
| SARA 302 Extremely hazardous substance | Not listed. | |

SARA 311/312 No
Hazardous chemical
SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

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

Not regulated.

Safe Drinking Water Act (SDWA) 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 (CAS 7722-64-7) 6579

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

POTASSIUM PERMANGANATE (CAS 7722-64-7) 15 %WT

DEA Exempt Chemical Mixtures Code Number

POTASSIUM PERMANGANATE (CAS 7722-64-7) 6579

US state regulations 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(s) 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 in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| Taiwan | Taiwan Toxic Chemical Substances (TCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

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

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(s).

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

Issue date November-21-2013

Revision date December-14-2017

Version # 02

Disclaimer The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. GFS Chemicals, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information This document has undergone significant changes and should be reviewed in its entirety.