SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name ***Potassium permanganate***

Stock number: A12170, L09292
CAS Number: 7722-64-7
EC number: 231-760-3
Index number: 025-002-00-9

1.2 Relevant identified uses of the substance or mixture and uses advised against.
No further relevant information available.
Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:
Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008


GHS03 flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidiser.


GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.


GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC


Xn; Harmful

R22: Harmful if swallowed.


O; Oxidising

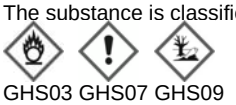
R8: Contact with combustible material may cause fire.


N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment: Not applicable
Other hazards that do not result in classification No information known.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.
Hazard pictograms


GHS03 GHS07 GHS09

Signal word Danger
Hazard statements
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements
P221 Take any precaution to avoid mixing with combustibles.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P220 Keep/Store away from clothing/combustible materials.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P330 Rinse mouth.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances
CAS# Designation: 7722-64-7 Potassium permanganate
Identification number(s):
EC number: 231-760-3
Index number: 025-002-00-9

SECTION 4: First aid measures

4.1 Description of first aid measures
After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.
After skin contact Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

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Trade name *Potassium permanganate*

(Contd. of page 1)

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing Seek medical treatment.
4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents CO_2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
For safety reasons unsuitable extinguishing agents Halocarbon extinguisher
5.2 Special hazards arising from the substance or mixture This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.
If this product is involved in a fire, the following can be released:
Potassium oxide
Manganese oxides
5.3 Advice for firefighters
Protective equipment: Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
6.2 Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach sewage system or water bodies.
Do not allow to enter the ground/soil.
6.3 Methods and material for containment and cleaning up: Dispose of contaminated material as waste according to item 13.
Prevention of secondary hazards: Acts as an oxidizing agent on organic materials such as wood, paper and fats
Keep away from combustible material.
6.4 Reference to other sections See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires: Substance/product can reduce the ignition temperature of flammable substances.
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.
Information about storage in one common storage facility: Store away from flammable substances.
Store away from reducing agents.
Store in the dark.
Do not store with organic materials.
Store away from metal powders.
Further information about storage conditions: Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from the effects of light.
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

7722-64-7 Potassium permanganate (100,0%)

AGW (Germany)	Long-term value: 0,5E mg/m³ DFG,Y,10
PEL (USA)	Ceiling limit: 5 mg/m³ as Mn
REL (USA)	Short-term value: 3 mg/m³ Long-term value: 1 mg/m³ as Mn
TLV (USA)	Long-term value: 0,02* 0,1* mg/m³ as Mn; *respirable **inhalable fraction

Ingredients with biological limit values:

7722-64-7 Potassium permanganate (100,0%)

BGW (Germany)	20 µg/l Untersuchungsmaterial: Vollblut Probennahmezeitpunkt: bei Langzeitexposition: Nach mehreren vorangegangenen Schichten, Expositionsende bzw. Schichtende Parameter: Mangan

Additional information: No data

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use breathing protection with high concentrations.
Protection of hands: Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Material of gloves Impervious gloves

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Trade name *Potassium permanganate*

(Contd. of page 2)

Penetration time of glove material Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Crystalline
Colour: Dark
Smell: Not determined
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: 240 °C (dec)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Inflammability (solid, gaseous) Contact with combustible material may cause fire.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Danger of explosion: Not determined.
Critical values for explosion:
Lower: Not determined
Upper: Not determined
Steam pressure at 20 °C: 0 hPa
Density at 20 °C 2,7 g/cm³
Relative density Not determined.
Vapour density Not applicable.
Evaporation rate Not applicable.
Solubility in / Miscibility with
Water at 20 °C: 64,3 g/l
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity May intensify fire; oxidiser.
10.2 Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions Reacts with reducing agents
Reacts with flammable substances
10.5 Incompatible materials: Reducing agents
Flammable substances
Organic materials
Metal powders
Light
10.6 Hazardous decomposition products: Potassium oxide
Manganese oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity: Harmful if swallowed.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

Oral	LD50	750 mg/kg (rat)

Skin irritation or corrosion: May cause irritation
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Ecotoxical effects:
Remark: Very toxic for fish
Additional ecological information:
General notes: Do not allow material to be released to the environment without proper governmental permits.
Water danger class 3 (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.

(Contd. on page 4)

Trade name *Potassium permanganate*

(Contd. of page 3)

vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA UN1490

14.2 UN proper shipping name
ADR 1490 POTASSIUM PERMANGANATE
IMDG, IATA POTASSIUM PERMANGANATE

14.3 Transport hazard class(es)

ADR

Class 5.1 (O2) Oxidising substances.
Label 5.1

IMDG, IATA

Class 5.1 Oxidising substances.
Label 5.1

Packing group
ADR, IMDG, IATA II

14.5 Environmental hazards: Environmentally hazardous substance, solid

14.6 Special precautions for user Warning: Oxidising substances.
Kemler Number: 50
EMS Number: F-H,S-Q
Segregation groups Permanganates

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ): E2
Limited quantities (LQ) LQ11
Transport category 2
Tunnel restriction code E

UN "Model Regulation": UN1490, POTASSIUM PERMANGANATE, 5.1, II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances Substance is listed.
Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.
National regulations
Information about limitation of use: Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.
Classification according to VbF: Not applicable
Technical instructions (air):

Class	Share in %
III	100,0

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.
Other regulations, limitations and prohibitive regulations
ELINCS (European List of Notified Chemical Substances) Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
REACH - Pre-registered substances Substance is listed.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Health, Safety and Environmental Department.
Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer

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Trade name *Potassium permanganate*

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EPA: Environmental Protection Agency (USA)
Ox. Sol. 2: Oxidising Solids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1