SAFETY DATA SHEET

Revision Date 28-Sep-2026 **Version** 2.6

Section 1: Identification

Product identifier

Product Name Dissolved Oxygen 1 Reagent

Safety data sheet number M00029

Other means of identification

CAS No 7785-87-7

Substance/mixture Substance

Formula $MnSO_4$

Molecular weight 151.01

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory Use Water Analysis

Uses advised against No information available

Manufacturer or supplier details

Supplier Address HACH WATER QUALITY (Singapore) Pte Ltd, 401 commonwealth drive, #04-04, Singapore 149598, +65 6265-9381 ext. 5021

US Supplier Address Hach Company, P.O.Box 389, Loveland, CO 80539, USA, +1(970) 669-3050

For further information, please contact

Emergency telephone number

800 101 2201 (Toll Free) or +65 3158 1349

Section 2: Hazard identification

Classification of the substance or mixture

Classification

Serious eye damage/eye irritation	Category 1 - (H318)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Chronic aquatic toxicity	Category 2 - (H411)

Label elements



Signal word
Danger

Hazard statements
H318 - Causes serious eye damage.
H373 - May cause damage to organs through prolonged or repeated exposure.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P501 - Dispose of contents/ container to an approved waste disposal plant.
P273 - Avoid release to the environment.
P391 - Collect spillage.

Other Hazards Known

Other hazards May be harmful if swallowed.

Section 3: Composition/information on ingredients

Substance

Mixture

The product contains no substances which at their given concentration, are considered to be hazardous to health

Chemical Family Inorganic salt.

Formula $MnSO_4$

Chemical name	CAS No.	Weight-%
Manganese(II) sulfate	7785-87-7	100%

Section 4: First-aid measures

Description of necessary first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue

	rinsing. Keep eye wide open while rinsing. Do not rub affected area.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms/effects, acute and delayed

Symptoms	Burning sensation.
Effects of Exposure	May cause damage to organs through prolonged or repeated exposure.

Indication of immediate medical attention and special treatment needed, if necessary

Note to physicians	Treat symptomatically.

Section 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical	No information available.
Hazardous combustion products	This material will not burn. Sulfur oxides.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protective equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Section 8: Exposure controls/personal protection

Control Parameters

Occupational exposure limits

Chemical name	Singapore	ACGIH TLV
Manganese(II) sulfate 7785-87-7	PEL: 1 mg/m³	TWA: 0.02 mg/m³ Mn respirable particulate matter TWA: 0.1 mg/m³ Mn inhalable particulate matter

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Personal protection

Eye/face protection Tight sealing safety goggles.

Hand protection Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016. Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

Respiratory protection Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

ABEK-P2.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Powder	**Color**	pink
Odor	Odorless	**Odor threshold**	No data available

Property	Values	Remarks • Method
Molecular weight	High molecular weight polymer	
pH	3.7	5% @ 20°C
Melting point / freezing point	> 400 °C / 752 °F	
Initial boiling point and boiling range	850 °C / 1562 °F	
Evaporation rate	Not applicable	
Vapor pressure	Not applicable	
Relative vapor density	No data available	
Relative density	3.25	
Partition coefficient	log K_{ow} ~ 0	
Soil Organic Carbon-Water Partition Coefficient	log K_{oc} ~ 0	
Autoignition temperature	No data available	
Decomposition temperature	850 °C / 1562 °F	
Dynamic viscosity	No data available	
Kinematic viscosity	Not applicable	

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Completely soluble	629000 mg/L	20 °C / 68 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acids	Soluble	> 1000 mg/L	25 °C / 77 °F
Methanol	Slightly soluble	> 0.1 mg/L	25 °C / 77 °F
Ethyl alcohol	Insoluble	< 0.1 mg/L	25 °C / 77 °F
Ether	Insoluble	< 0.1 mg/L	25 °C / 77 °F

Other information

Corrosive to metals

Not classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate Not applicable
Aluminum Corrosion Rate 0.05 mm/yr / 0 in/yr

Volatile Organic Compounds (VOC) Content
This Product is by Weight 100% an Individual Pure Chemical Substance

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Manganese(II) sulfate	7785-87-7	No data available	-

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point Not applicable

Flammability Limit in Air
Upper flammability limit: No data available
Lower flammability limit: No data available

Oxidizing properties No data available.

Bulk density No data available

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid None known based on information supplied.

Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

Hazardous Decomposition Products Sulfur oxides. Manganese oxides.

Section 11: Toxicological information

Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact May cause irritation.

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

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness.

Acute toxicity
Based on available data, the classification criteria are not met
Mixture
If available, see ingredient data below.
Ingredient Acute Toxicity Data
Test data reported below.
Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Rat LD_{50}	2150 mg/kg	None reported	None reported	IUCLID

Numerical measures of toxicity
No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation
Based on available data, the classification criteria are not met.
Mixture
If available, see ingredient data below.
Ingredient Skin Corrosion/Irritation Data
Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Standard Draize Test	Rabbit	500 mg	4 hours	Not corrosive or irritating to skin	ECHA

Serious eye damage/eye irritation
Classification based on data available for ingredients. Causes burns. Causes serious eye damage.
Mixture
If available, see ingredient data below.
Ingredient Eye Damage/Eye Irritation Data
Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Standard Draize Test	Rabbit	80 mg	72 hours	Corrosive to eyes	ECHA

Respiratory or skin sensitization
Based on available data, the classification criteria are not met.
Mixture

If available, see ingredient data below.
Ingredient Sensitization Data
No data available.
STOT - single exposure
Based on available data, the classification criteria are not met.

Mixture
If available, see ingredient data below.
Ingredient Specific Target Organ Toxicity Single Exposure Data
No data available.
STOT - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Mixture
If available, see ingredient data below.
Ingredient Specific Target Organ Toxicity Repeat Exposure Data
No data available.
Carcinogenicity
Based on available data, the classification criteria are not met.
Mixture
If available, see ingredient data below.
Ingredient Carcinogenicity Data
No data available.

Germ cell mutagenicity
Based on available data, the classification criteria are not met.
Mixture *invitro* Data
If available, see ingredient data below.
Substance *invitro* Data
Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Mutation in microorganisms	*Salmonella typhimurium*	1775 nmol/tubes	None reported	Positive test result for mutagenicity	RTECS

Mixture *invivo* Data
If available, see ingredient data below.
Substance *invivo* Data
No data available.
Reproductive toxicity
Based on available data, the classification criteria are not met.
Mixture
No data available.
Ingredient Reproductive Toxicity Data
Test data reported below.
Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Mouse TD_{Lo}	15000 mg/kg	3 weeks	**Effects on Fertility** Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants) **Effects on Newborn** Growth statistics (e.g. % reduced weight gain)	RTECS

Inhalation (Dust/Mist) Exposure Route

Chemical name	Endpoint	Reported	Exposure	Toxicological effects	Key literature references and

	type	dose	time		sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	Rat TC_{Lo}	0.0005 mg/L	None reported	**Effects on Newborn** Metabolic effects	RTECS

Aspiration hazard
Based on available data, the classification criteria are not met.
Other adverse effects No information available.

Section 12: Ecological information

Toxicity

Ecotoxicity Toxic to aquatic life with long lasting effects.

Mixture

Aquatic Acute Toxicity
If available, see ingredient data below.
Aquatic Chronic Toxicity
If available, see ingredient data below.
Substance

Aquatic Acute Toxicity
Test data reported below.
Fish

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	96 hours	*Oncorhynchus mykiss*	LC_{50}	3.17 mg/L	PEEN

Crustacea

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Manganese(II) sulfate (100%) CAS#: 7785-87-7	48 Hours	*Daphnia magna*	EC_{50}	5.7 mg/L	PEEN

Aquatic Chronic Toxicity
No data available.
Persistence and degradability

Mixture
No data available.
Mixture
No data available.
Partition coefficient $\log K_{ow} \sim 0$
Mobility

Soil Organic Carbon-Water Partition Coefficient $\log K_{oc} \sim 0$
Other adverse effects
No information available

Section 13: Disposal considerations

Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.

Section 14: Transport information

Note: No special precautions necessary.

IATA

14.1 UN number or ID number	UN3077
14.2	
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazards	Yes
14.6 Special precautions for user Special Provisions	None

IMDG

14.1 UN number or ID number	UN3077
14.2	
14.3 Transport hazard class(es)	9
14.4 Packing Group	III
14.5 Environmental hazards	Yes
14.6 Special precautions for user Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

Rail transport

14.1 UN number or ID number	Not regulated
14.2	
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Yes
14.6 Special precautions for user Special Provisions	None

Road transport

14.1 UN number or ID number	UN3077
14.2	
14.3 Transport hazard class(es)	9
14.4 Packing Group	III
14.5 Environmental hazards	Yes
14.6 Special precautions for user Special Provisions	None

Section 15: Regulatory information

Regulatory information

Environmental Public Health Act
Dispose of waste product or used containers according to local regulations.
Hazardous Waste (Control of Export, Import and Transit) Act
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel

convention.

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations
Regulated. See section 14 for more information.

Workplace Safety and Health Act
See section 8 for national exposure control parameters. Comply with the health and safety at work laws.

Pre-employment screening and appropriate health surveillance

Chemical name	Pre-employment screening and appropriate health surveillance
Manganese(II) sulfate - 7785-87-7	X

International Regulations

The Rotterdam Convention Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECI	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies
TCSI	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
TCSI - Taiwan Chemical Substance Inventory

15.2. Chemical safety assessment

Chemical Safety Report No information available

Section 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
ATSDR	ATSDR (Agency for Toxic Substances and Disease Registry)
CCRIS	CCRIS (Chemical Carcinogenesis Research Information System)
CDC	CDC (Center for Disease Control)
CEPA	CEPA (Canadian Environmental Protection Agency)
CICAD	CICAD (Concise International Chemical Assessment Documents)
ECHA	ECHA (The European Chemicals Agency)
EEA	EEA (European Environment Agency)
EPA	U.S. Environmental Protection Agency

ERMA	ERMA (New Zealands Environmental Risk Management Authority)
ECOSARS	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
FDA	Food & Drug Administration (FDA)
GESTIS	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
HSDB	HSDB (Hazardous Substances Data Bank)
INERIS	INERIS (The National Industrial Environment and Risks Institute)
IPCS INCHEM	IPCS INCHEM (International Programme on Chemical Safety)
IUCLID	IUCLID (The International Uniform Chemical Information Database)
NITE	Japan National Institute of Technology and Evaluation (NITE)
NIH	NIH (National Institutes of Health)
NIOSH	NIOSH (National Institute for Occupational Safety and Health)
LOLI	LOLI (List of Lists - An International Chemical Regulatory Database)
NDF	no data
NICNAS	Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH IDLH	Immediately Dangerous to Life or Health
OSHA	Occupational Safety and Health Administration of the US Department of Labor
PEEN	PEEN (Pan European Ecological Network)
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
SIDS	SIDS (Screening Information Dataset) for High Volume Chemicals
SYKE	The Finnish Environment Institute (SYKE)
USDA	USDA (United States Department of Agriculture)
USDC	USDC (United States Department of Commerce)
WHO	WHO (World Health Organization)

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By	Hach Product Compliance Department
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Revision Note	No information available

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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End of Safety Data Sheet