Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

Product Identifier

Perihalan Produk: **Manganese atomic absorption standard solution**
Product Description: **Manganese atomic absorption standard solution**
Cat No. : 196111000; 196115000; 196110000

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

Company

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SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Substances/mixtures corrosive to metal	Category 1 (H290)
Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 1 (H318)

Label Elements

Signal Word **Danger**

Hazard Statements
H290 - May be corrosive to metals
H315 - Causes skin irritation
H318 - Causes serious eye damage

Precautionary Statements
Prevention
P234 - Keep only in original packaging
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
Response
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P310 - Immediately call a POISON CENTER or doctor
P390 - Absorb spillage to prevent material damage
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P362 + P364 - Take off contaminated clothing and wash it before reuse
Storage
P406 - Store in corrosion resistant polypropylene container with a resistant inliner
Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Manganese	7439-96-5	0.1
Nitric acid …% [C ≤ 70 %]	7697-37-2	2-5
Water	7732-18-5	95-98

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Most important symptoms and effects, both acute and delayed

None reasonably foreseeable. Causes severe eye damage.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Nitrogen oxides (NOx).

Advice for fire-fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Ensure adequate ventilation. Use personal protective equipment as required.

Environmental precautions
Should not be released into the environment.

Methods and Material for Containment and Cleaning Up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material.

Reference to Other Sections
Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Conditions for Safe Storage, Including any Incompatibilities
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Do not store in metal containers.

Specific End Uses
Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Manganese		TWA: 0.02 mg/m³ TWA: 0.1 mg/m³	(Vacated) TWA: 1 mg/m³ Ceiling: 5 mg/m³ (Vacated) STEL: 3 mg/m³ (Vacated) Ceiling: 5 mg/m³
Nitric acid …% [C ≤ 70 %]		TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m³ TWA: 2 ppm TWA: 5 mg/m³

Component	European Union	The United Kingdom	Germany
Manganese	TWA: 0.2 mg/m³ (8h) TWA: 0.05 mg/m³ (8h)	STEL: 0.6 mg/m³ 15 min STEL: 0.15 mg/m³ 15 min TWA: 0.2 mg/m³ 8 hr TWA: 0.05 mg/m³ 8 hr	TWA: 0.2 mg/m³ (8 Stunden). AGW - exposure factor 8 TWA: 0.02 mg/m³ (8 Stunden). AGW - exposure factor 8 TWA: 0.2 mg/m³ (8 Stunden). MAK TWA: 0.02 mg/m³ (8 Stunden). MAK Höhepunkt: 1.6 mg/m³ Höhepunkt: 0.16 mg/m³
Nitric acid …% [C ≤ 70 %]	STEL: 1 ppm (15min) STEL: 2.6 mg/m³ (15min)	STEL: 1 ppm 15 min STEL: 2.6 mg/m³ 15 min	TWA: 1 ppm (8 Stunden). AGW - TWA: 2.6 mg/m³ (8 Stunden). AGW -

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles

Hand Protection Protective gloves

Skin and body protection Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

Recommended Filter type: Particulates filter conforming to EN 143

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls No information available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	Odorless	
Odor Threshold	No data available	
pH	<1	
Melting Point/Range	-3 °C / 26.6 °F	
Softening Point	No data available	
Boiling Point/Range	101 °C / 213.8 °F	@ 760mmHg
Flash Point	No information available	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	1.02	
Bulk Density	Not applicable	Liquid
Water Solubility	Soluble	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Nitric acid …% [C ≤ 70 %]	-2.3

Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

None known, based on information available.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

Conditions to Avoid

None known.

Incompatible Materials

Strong bases. Strong reducing agents.

Hazardous Decomposition Products

Nitrogen oxides (NOx).

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Product Information No acute toxicity information is available for this product

(a) acute toxicity;
Oral Based on available data, the classification criteria are not met
Dermal No data available
Inhalation No data available

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese	LD50 = 9 g/kg (Rat)	-	LC50 > 5.14 mg/L (Rat) 4 h
Nitric acid …% [C ≤ 70 %]	-	-	LC50 = 2500 ppm. (Rat) 1h
Water	-	-	-

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid …% [C ≤ 70 %]	-	-	ATE = 2.65 mg/L (vapours)

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

Symptoms / effects,both acute and delayed No information available.

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Manganese	LC50: > 3.6 mg/L, 96h semi-static (Oncorhynchus mykiss)			

Persistence and degradability

Persistence Persistence is unlikely, based on information available, Soluble in water.

Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Nitric acid …% [C ≤ 70 %]	-2.3	No data available

Mobility in soil The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Other adverse effects No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Other Information Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains Do not flush to sewer

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

UN-No UN3264
Hazard Class 8
Packing Group III
Proper Shipping Name Corrosive liquid, acidic, inorganic, n.o.s. Nitric acid

Road and Rail Transport

UN-No UN3264
Hazard Class 8
Packing Group III
Proper Shipping Name Corrosive liquid, acidic, inorganic, n.o.s. Nitric acid

IATA

UN-No UN3264
Hazard Class 8
Packing Group III
Proper Shipping Name Corrosive liquid, acidic, inorganic, n.o.s. Nitric acid

Special Precautions for User No special precautions required

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Manganese	231-105-1	X	X	X	X		X	X	KE-22999
Nitric acid …% [C ≤ 70 %]	231-714-2	X	X	X	X	X	X	X	KE-25911
Water	231-791-2	X	X	X	X		X	X	KE-35400

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Nitric acid …% [C ≤ 70 %]				Annex I - Y34

National Regulations

Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 16: OTHER INFORMATION

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
POW - Partition coefficient Octanol:Water
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (Volatile Organic Compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Revision Date	21-Mar-2025
Revision Summary	Not applicable.

In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

Disclaimer

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End of Safety Data Sheet