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

Product Identifier

Perihalan Produk: **MIX FOR ISO-SENSITEST MEDIUM**
Product Description: **MIX FOR ISO-SENSITEST MEDIUM**
Cat No. : MIX37

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Thermo Scientific Microbiology Sdn Bhd
No.6, Jalan TTC 6, Taman Teknologi Cheng,
Cheng, 75250 Melaka, Malaysia
+606 334 0975 .

Supplier
.
Oxoid Ltd.
Wade Road
Basingstoke, Hants, UK
RG24 8PW
Telephone: +44 (0) 1256 841144

E-mail address mbd-sds@thermofisher.com

Emergency Telephone Number

(603) 5122 8888
CHEMTREC Malaysia **1-800-815-308** (Malay)
CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Carcinogenicity	Category 1B (H350)
Chronic aquatic toxicity	Category 3 (H412)

Label Elements

Signal Word **Danger**

Hazard Statements

H350i - May cause cancer by inhalation

H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

P201 - Obtain special instructions before use
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P308 + P313 - IF exposed or concerned: Get medical advice/attention

Other Hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Cysteine hydrochloride, L-(+)-, monohydrate	7048-04-6	4.9
1H-Purin-6-amine, sulfate (2:1)	321-30-2	1.1
Guanine hydrochloride	33735-91-0	1.1
1H-Purine-2,6-dione, 3,7-dihydro-	69-89-6	1.1
Nicotinamide	98-92-0	0.7
Manganous chloride tetrahydrate	13446-34-9	0.4
Ferrous Sulphate	7782-63-0	0.2
Cobalt(II) sulfate heptahydrate	10026-24-1	0.2
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	0.2
Zinc sulfate heptahydrate	7446-20-0	0.2

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention.

Inhalation Remove to fresh air. Get medical attention. Get medical attention immediately 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

No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

None under normal use conditions.

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

Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation.

Environmental precautions

See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.

Methods and Material for Containment and Cleaning Up

Pick up and transfer to properly labelled containers. Clean contaminated surface thoroughly. Avoid dust formation.

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Ensure adequate ventilation. Do not breathe dust. Avoid contact with skin, eyes or clothing. Avoid dust formation.

Conditions for Safe Storage, Including any Incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Specific End Uses

Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Manganous chloride tetrahydrate		TWA: 0.02 mg/m³ TWA: 0.1 mg/m³	(Vacated) Ceiling: 5 mg/m³ Ceiling: 5 mg/m³
Ferrous Sulphate		TWA: 1 mg/m³	(Vacated) TWA: 1 mg/m³

Cobalt(II) sulfate heptahydrate		TWA: 0.02 mg/m³	
Copper (II) sulfate pentahydrate (1:1:5)		TWA: 1 mg/m³	

Component	European Union	The United Kingdom	Germany
Manganous chloride tetrahydrate	TWA: 0.05 mg/m³ (15min)	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
Ferrous Sulphate		STEL: 2 mg/m³ 15 min TWA: 1 mg/m³ 8 hr	
Cobalt(II) sulfate heptahydrate		STEL: 0.3 mg/m³ 15 min TWA: 0.1 mg/m³ 8 hr Resp. Sens.	Haut
Copper (II) sulfate pentahydrate (1:1:5)		STEL: 2 mg/m³ 15 min TWA: 1 mg/m³ 8 hr	TWA: 0.01 mg/m³ (8 Stunden). MAK Höhepunkt: 0.02 mg/m³
Zinc sulfate heptahydrate			TWA: 0.1 mg/m³ (8 Stunden). MAK TWA: 2 mg/m³ (8 Stunden). MAK Höhepunkt: 0.4 mg/m³ Höhepunkt: 4 mg/m³

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.
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 Wear safety glasses with side shields (or 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
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 Prevent product from entering drains

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance		
Physical State	Powder Solid	
Odor	No information available	
Odor Threshold	No data available	
pH	Not applicable	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	Not applicable	
Flash Point	Not applicable	**Method -** No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	No information available	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Nicotinamide	-0.38

Autoignition Temperature	Not applicable	
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
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	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

Conditions to Avoid

None known.

Incompatible Materials

None known.

Hazardous Decomposition Products

None under normal use conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nicotinamide	LD50 = 3500 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	
Manganous chloride tetrahydrate	LD50 = 1484 mg/kg (Rat)		
Cobalt(II) sulfate heptahydrate	LD50 = 582 mg/kg (Rat)		
Copper (II) sulfate pentahydrate (1:1:5)	LD50 = 960 mg/kg (Rat)	LD50 > 8 g/kg (Rabbit)	
Zinc sulfate heptahydrate	1260 mg/kg (Rat)		

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	IARC	UK
Cobalt(II) sulfate heptahydrate	Group 2B	

Sensitization No information available
Mutagenic Effects No information available
Reproductive Effects No information available
Developmental Effects No information available
Target Organs No information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Nicotinamide	LC50: > 1000 mg/L, 96h static (Poecilia			

	reticulata)			
Manganous chloride tetrahydrate			ErC50 = 61 mg/l	
Copper (II) sulfate pentahydrate (1:1:5)	Onchorhynchus mykiss: LC50 = 0.1-2.5 mg/L/96h	EC50 = 0.24 mg/L/48h		Photobacterium phosphoreum: EC50 = 0.25 mg/L/30min as Cu++ Photobacterium phosphoreum EC50= 1.3 mg/L/5 min as Cu++
Zinc sulfate heptahydrate	1.9 mg/L LC50 96 h			

Persistence and degradability No information available

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative potential No information available

Component	log Pow	Bioconcentration factor (BCF)
Nicotinamide	-0.38	No data available

Mobility in soil No information available.

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 Do not flush to sewer 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 let this chemical enter the environment

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO Not regulated

Road and Rail Transport Not regulated

IATA Not regulated

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
Cysteine hydrochloride, L-(+)-, monohydrate	-	-	-	X	X		X	X	KE-01430
1H-Purin-6-amine, sulfate (2:1)	206-286-5	X	X	X	-		X	X	-
Guanine hydrochloride	251-661-9	-	-	-	-		-	-	KE-18120
1H-Purine-2,6-dione, 3,7-dihydro-	-	X	X	X	X	X	X	X	KE-10741
Nicotinamide	-	X	X	X	X	X	X	X	KE-29935
Manganous chloride tetrahydrate	-	-	-	X	-		X	X	-
Ferrous Sulphate	-	-	-	X	X	X	X	X	-
Cobalt(II) sulfate heptahydrate	-	-	-	X	X	X	X	X	-
Copper (II) sulfate pentahydrate (1:1:5)	-	-	-	X	X		X	X	-
Zinc sulfate heptahydrate	-	-	X	X	X		X	X	-

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)
Copper (II) sulfate pentahydrate (1:1:5)				Annex I - Y22
Zinc sulfate heptahydrate				Annex I - Y23

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	28-Mar-2023
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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. 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

End of Safety Data Sheet