1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Identifier:

Product name: MANGANESE SULPHATE MONOHYDRATE

Chemical Name: Manganese Sulphate, hydrate

Synonyms: MANGANESE SULPHATE; Feed additive (3b503).

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Chemical formula: O4SMn·H2O

CAS number: 10034-96-5

EC number: 232-089-9

UK REACH Registration Number: EU REACH 01-2119456624-35-XXXX

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

Relevant identified uses: Use according to manufacturer's directions.

Uses advised against: No specific uses advised against are identified.

Company name: Nexchem Ltd
Unit 3 Barshaw Park
Leycroft Road
Leicester
LE4 1ET
Tel: 0116 2311130
24/7 Emergency Tel: 0800 246 1274
Email: sales@nexchem.co.uk

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567:

H411 - Hazardous to the Aquatic Environment Long-Term Hazard Category 2
H373 - Specific Target Organ Toxicity - Repeated Exposure Category 2
H318 - Serious Eye Damage/Eye Irritation Category 1

Legend: 1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567.

Label elements:

Hazard pictogram(s):

Signal word: Danger.

[cont…]

Hazard statement(s): H411 Toxic to aquatic life with long lasting effects.
H373 May cause damage to organs through prolonged or repeated exposure. (Nervous system, Brain) (In the event of inhalation of dust or powder, supply fresh air and provide artificial respiration if not breathing. If breathing is difficult give oxygen.)
H318 Causes serious eye damage.

Supplementary statement(s): Not Applicable.

Precautionary statement(s) Prevention:
P260 Do not breathe dust/fume.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P273 Avoid release to the environment.

Precautionary statement(s) Response:
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/doctor/physician/first aider.
P391 Collect spillage.

Precautionary statement(s) Storage: Not Applicable.

Precautionary statement(s) Disposal:
P501 Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

Other hazards:
REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances:
Name: Manganese Sulphate Monohydrate
CAS No: 10034-96-5*
EC No: 232-089-9
Index No: Not Available.
REACH No: 01-2119456624-35-XXXX
%[weight]: >95
Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567:
Hazardous to the Aquatic Environment Long-Term Hazard Category 2,
Specific Target Organ Toxicity – Repeated Exposure Category 2,
Serious Eye Damage/Eye Irritation Category 1,
H411, H373, H318.
SCL / M-Factor: Not Available.
Nanoform Particle Characteristics: Not Available.

[cont…]

Legend: 1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties.

Mixtures: See 'Information on ingredients' in section 3.1.

4. FIRST AID MEASURES

Description of first aid measures:

Eye Contact:

If this product comes in contact with the eyes:

Immediately hold eyelids apart and flush the eye continuously with running water.
Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
Transport to hospital or doctor without delay.
Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact:

If skin or hair contact occurs: Flush skin and hair with running water (and soap if available).
Seek medical attention in event of irritation.

Inhalation: If fumes, aerosols or combustion products are inhaled remove from contaminated area.
Other measures are usually unnecessary.

Ingestion: Immediately give a glass of water.
First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed: See Section 11.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Water spray or fog.
Foam.
Dry chemical powder.
BCF (where regulations permit).
Carbon dioxide.

Special hazards arising from the substrate or mixture:

Fire Incompatibility: None known.

[cont…]

Advice for firefighters:

Fire Fighting:

Alert Fire Brigade and tell them location and nature of hazard.
Wear breathing apparatus plus protective gloves in the event of a fire.
Prevent, by any means available, spillage from entering drains or water courses.
Use firefighting procedures suitable for surrounding area.
DO NOT approach containers suspected to be hot.
Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard:

Non-combustible.
Not considered a significant fire risk, however containers may burn.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: See section 8.

Environmental precautions: See section 12.

Methods and material for containment and cleaning up:

Minor Spills:

Environmental hazard - contain spillage.
Clean up all spills immediately.
Avoid contact with skin and eyes.
Wear impervious gloves and safety glasses.
Use dry clean up procedures and avoid generating dust.
Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
Do NOT use air hoses for cleaning.
Place spilled material in clean, dry, sealable, labelled container.

Major Spills:

Environmental hazard - contain spillage.
Moderate hazard.
CAUTION: Advise personnel in area.
Alert Emergency Services and tell them location and nature of hazard.
Control personal contact by wearing protective clothing.
Prevent, by any means available, spillage from entering drains or water courses.
Recover product wherever possible.
IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal.
IF WET: Vacuum/shovel up and place in labelled containers for disposal.
ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
If contamination of drains or waterways occurs, advise Emergency Services.

Reference to other sections: Personal Protective Equipment advice is contained in Section 8 of the SDS.

[cont…]

7. HANDLING AND STORAGE

Precautions for safe handling:

Safe handling:

Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
DO NOT allow material to contact humans, exposed food or food utensils.
Avoid contact with incompatible materials.
When handling, **DO NOT** eat, drink or smoke.
Keep containers securely sealed when not in use.
Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately. Launder contaminated clothing before re-use.
Use good occupational work practice.
Observe manufacturer's storage and handling recommendations contained within this SDS.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Fire and explosion protection: See section 5.

Other information:

Store in original containers.
Keep containers securely sealed.
Store in a cool, dry area protected from environmental extremes.
Store away from incompatible materials and foodstuff containers.
Protect containers against physical damage and check regularly for leaks.
Observe manufacturer's storage and handling recommendations contained within this SDS.

For major quantities:

Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams}.
Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

Conditions for safe storage, including any incompatibilities:

Suitable container:

Polyethylene or polypropylene container.
Check all containers are clearly labelled and free from leaks.

Storage incompatibility: None known.

Hazard categories in accordance with Regulation (EC) No 1272/2008:

E2: Hazardous to the Aquatic Environment in Category Chronic 2.

Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of:

E2 Lower- / Upper-tier requirements: 200 / 500.

Specific end use(s): See section 1.2.

[cont…]

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
Not Available	Not Available	Not Available

* Values for General Population

Occupational Exposure Limits (OEL):

INGREDIENT DATA:

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	MANGANESE SULPHATE MONOHYDRATE	Manganese and its inorganic compounds - Respirable fraction	0.05 mg/m3	N/A	N/A	N/A
UK Workplace Exposure Limits (WELs).	MANGANESE SULPHATE MONOHYDRATE	Manganese and its inorganic compounds - Inhalable fraction	0.2 mg/m3	N/A	N/A	N/A

Emergency Limits:

Ingredient	TEEL-1	TEEL-2	TEEL-3
MANGANESE SULPHATE MONOHYDRATE	9.2 mg/m3	15 mg/m3	90 mg/m3

Ingredient	Original IDLH	Revised IDLH
MANGANESE SULPHATE MONOHYDRATE	500 mg/m3	Not Available

Exposure controls:

Appropriate engineering controls: Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

-Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powered by mutual friction.

-If despite local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:

(a): particle dust respirators, if necessary, combined with an absorption cartridge.

(b): filter respirators with absorption cartridge or canister of the right type.

(c): fresh-air hoods or masks.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

[cont…]

Type of Contaminant:	**Air Speed:**
Direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
Grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range:	**Upper end of the range:**
1: Room air currents minimal or favourable to capture .	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity.
3: Intermittent, low production.	3: High production, heavy use.
4: Large hood or large air mass in motion.	4: Small hood-local control only.

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore, the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Individual protection measures, such as personal protective equipment:

Eye and face protection:

-Safety glasses with side shields.
-Chemical goggles.
-Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

[cont…]

Skin protection: See Hand protection below.

Hands/feet protection: The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

-Frequency and duration of contact.
-Chemical resistance of glove material.
-Glove thickness and dexterity.
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
Some glove polymer types are less affected by movement, and this should be taken into account when considering gloves for long-term use.
Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as:

-Excellent when breakthrough time > 480 min
-Good when breakthrough time > 20 min
-Fair when breakthrough time < 20 min
-Poor when glove material degrades.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks.

[cont…]

For example:

Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e., where there is abrasion or puncture potential.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
-Polychloroprene.
-Nitrile rubber.
-Butyl rubber.
-Fluorocaoutchouc.
-Polyvinyl chloride.
Gloves should be examined for wear and/ or degradation constantly.

Body protection: See Other protection below.

Other protection:
Overalls.
P.V.C apron.
Barrier cream.
Skin cleansing cream.
Eye wash unit.

Respiratory protection:

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1	-	PAPR-P1
	Air-line*	-	-
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand
** - Continuous flow
A(All classes) = Organic vapours,
B AUS or B1 = Acid gasses,
B2 = Acid gas or hydrogen cyanide(HCN),
B3 = Acid gas or hydrogen cyanide(HCN),
E = Sulphur dioxide(SO2),
G = Agricultural chemicals,
K = Ammonia(NH3),
Hg = Mercury,
NO = Oxides of nitrogen,
MB = Methyl bromide,
AX = Low boiling point organic compounds(below 65°C)

[cont…]

Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
Use approved positive flow mask if significant quantities of dust becomes airborne.
Try to avoid creating dust conditions.

Environmental exposure controls: See section 12.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:	Powder.		
Physical state:	Solid.	**Relative density (Water = 1):**	2.95
Odour:	Not Available.	**Partition coefficient n-octanol / water:**	Not Available.
Odour threshold:	Not Available.	**Auto-ignition temperature (°C):**	Not Available.
pH (as supplied):	Not Applicable.	**Decomposition temperature (°C):**	Not Available.
Melting point / freezing point (°C):	>450	**Viscosity (cSt):**	Not Available.
Initial boiling point and boiling range (°C):	Not Available.	**Molecular weight (g/mol):**	Not Available.
Flash point (°C):	Not Available.	**Taste:**	Not Available.
Evaporation rate:	Not Available.	**Explosive properties:**	Not Available.
Flammability:	Not Available.	**Oxidising properties:**	Not Available.
Upper Explosive Limit (%):	Not Available.	**Surface Tension (dyn/cm or mN/m):**	Not Applicable.
Lower Explosive Limit (%):	Not Available.	**Volatile Component (%vol):**	Not Available.
Vapour pressure (kPa):	Not Available.	**Gas group:**	Not Available.
Solubility in water:	Miscible.		
pH as a solution (10%):	5 - 6	**Nanoform Particle Characteristics:**	Not Available.
Vapour density (Air = 1):	Not Available.	**VOC g/L:**	Not Available.
Nanoform Solubility:	Not Available.	**Particle Size:**	Not Available.

[cont…]

10. STABILITY AND REACTIVITY

Reactivity: See section 7.2.

Chemical stability: Unstable in the presence of incompatible materials.
Product is considered stable.

Possibility of hazardous reactions: See section 7.2.

Conditions to avoid: See section 7.2.

Incompatible materials: See section 7.2.

Hazardous decomposition products: See section 5.3.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled: The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Ingestion: The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

Skin Contact: The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Open cuts abraded or irritated skin should not be exposed to this material.
Entry into the blood-stream, though, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Eye: If applied to the eyes, this material causes severe eye damage.

Chronic: Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.

MANGANESE SULPHATE MONOHYDRATE:

TOXICITY	IRRITATION
Not Available.	Not Available.

[cont…]

MANGANESE SULPHATE MONOHYDRATE:

TOXICITY	IRRITATION
Intraperitoneal (Mouse) LD50: 147 mg/kg[2]	Not Available.
Intraperitoneal (Mouse) LD50: 534 mg/kg[2]	
Intraperitoneal (Mouse) LD50: 64 mg/kg[2]	
Intraperitoneal (Rat) LD50: 92.6 mg/kg[2]	
Intravenous (Mouse) LD: >31.6 mg/kg[2]	
Intravenous (Mouse) TDLo: 2 mg/kg[2]	
Intravenous (Rat) LD50: 44.1 mg/kg[2]	
Intravenous (Rat) TDLo: 4.5 mg/kg[2]	
Oral (Mouse) LD50; 2330 mg/kg[2]	
Oral (Rat) LD50: 2150 mg/kg[2]	

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity.
2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

Acute Toxicity:	X	**Carcinogenicity:**	X
Skin Irritation/Corrosion:	X	**Reproductivity:**	X
Serious Eye Damage/Irritation	✔	**STOT - Single Exposure:**	X
Respiratory or Skin sensitisation:	X	**STOT - Repeated Exposure:**	✔
Mutagenicity:	X	**Aspiration Hazard:**	X

Legend: Data either not available or does not fill the criteria for classification.
Data available to make classification.

Information on other hazards:

Endocrine disrupting properties: No evidence of endocrine disrupting properties were found in the current literature.

Other information: See Section 11.1

12. ECOLOGICAL INFORMATION

Toxicity:

MANGANESE SULPHATE MONOHYDRATE:

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan), Bioconcentration Data 8. Vendor Data.

[cont…]

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high-water mark.
Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
DO NOT discharge into sewer or waterways.

Persistence and degradability:

Ingredient	**Persistence: Water/Soil**	**Persistence: Air**
	No Data available for all ingredients.	No Data available for all ingredients.

Bioaccumulative potential:

Ingredient	**Bioaccumulation**
	No Data available for all ingredients.

Mobility in soil:

Ingredient	**Mobility**
	No Data available for all ingredients.

Results of PBT and vPvB assessment:

	P	**B**	**T**
Relevant available data:	Not Available	Not Available	Not Available
PBT	X	X	X
vPvB	X	X	X

PBT Criteria fulfilled: No
vPvB: No.

Endocrine disrupting properties: No evidence of endocrine disrupting properties were found in the current literature.

Other adverse effects: No evidence of ozone depleting properties were found in the current literature.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Product / Packaging disposal: Recycle wherever possible or consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Bury residue in an authorised landfill.
Recycle containers if possible or dispose of in an authorised landfill.

Waste treatment options: Not Available.

Sewage disposal options: Not Available.

[cont…]

14. TRANSPORT INFORMATION

Labels Required:

Marine Pollutant.

Land transport (ADR-RID):

UN Number:	3077	
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	
Transport hazard class(es):	Class:	9
	Sub risk:	Not applicable.
Packing Group:	III	
Environmental hazard:	Environmentally hazardous.	
Special precautions for user:	Hazard identification (Kemler):	90
	Classification code:	M7
	Hazard Label:	9
	Special provisions:	274 335 375 601
	Limited quantity:	5kg
	Tunnel Restriction Code:	3 (-)

Air transport (ICAO-IATA / DGR):

UN Number:	3077	
UN Proper Shipping Name:		
Transport hazard class(es):	ICAO/IATA Class:	9
	ICAO / IATA Sub risk:	Not Applicable
	ERG Code:	9L
Packing Group:	III	
Environmental hazard:	Environmentally hazardous.	
Special precautions for user:	Special provisions:	A97 A158 A179 A197 A215
	Cargo Only Packing Instructions:	956
	Cargo Only Maximum Qty/Pack:	400kg
	Passenger and Cargo Packing Instructions: 956	
	Passenger and Cargo Maximum Qty/Pack: 400kg	
	Passenger and Cargo Limited Quantity Packing Instructions: Y956	
	Passenger and Cargo Limited Maximum Qty/Pack: 30kg	

[cont…]

Sea Transport (IMDG-Code/GGVSee):

UN Number:	3077	
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	
Transport hazard class(es):	IMDG Class:	9
	IMDG Sub risk:	Not applicable.
Packing Group:	III	
Environmental hazard:	Marine Pollutant.	
Special precautions for user:	EMS Number:	F-A, S-F
	Special provisions:	274 335 966 967 969
	Limited Quantities	5kg

Inland waterways transport (ADN):

UN Number:	3077	
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	
Transport hazard class(es):	9	
Packing Group:	III	
Environmental hazard:	Environmentally hazardous.	
Special precautions for user:	Classification code:	M7
	Special provisions:	274 335 375 601
	Limited quantity:	5kg
	Equipment required:	PP, A***
	Fire cones numbers:	0

Maritime transport in bulk according to IMO instruments:

Transport in bulk according to Annex II of MARPOL and the IBC code: Not Applicable.

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code:

Product name	**Group**
MANGANESE SULPHATE MONOHYDRATE	Not Available.

Transport in bulk in accordance with the IGC Code:

Product name	**Ship Type**
MANGANESE SULPHATE MONOHYDRATE	Not Available.

15. REGULATORY INFORMATION

Chemical safety assessment: For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

[cont…]

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	No (MANGANESE SULPHATE MONOHYDRATE)
Canada - NDSL	No (MANGANESE SULPHATE MONOHYDRATE)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (MANGANESE SULPHATE MONOHYDRATE)
Japan - ENCS	No (MANGANESE SULPHATE MONOHYDRATE)
Korea - KECI	No (MANGANESE SULPHATE MONOHYDRATE)
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	No (MANGANESE SULPHATE MONOHYDRATE)
Taiwan - TCSI	Yes
Mexico – INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	No (MANGANESE SULPHATE MONOHYDRATE)

Legend: Yes = All CAS declared ingredients are on the inventory
No = One or more of the CAS listed ingredients are not on the inventory.
These ingredients may be exempt or will require registration.

Note: The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Definitions and abbreviations:

PC－TWA: Permissible Concentration-Time Weighted Average
PC－STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OS77F: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
AIIC: Australian Inventory of Industrial Chemicals

[cont…]

DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European Inventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.