TENNANTS DISTRIBUTION LIMITED
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PRODUCT SPECIFICATION

Product Name	Magnesium Silicofluoride Hexahydrate
Alternative Name	Magnesium Fluorosilicate, Magnesium Hexafluorosilicate
Specification Reference	MASIF/3 (10/18/0034392)

PHYSICAL PROPERTIES

Description	White crystals
$MgSiF_6.6H_2O$	98 % min
Insoluble Residue in H_2O	0.3 % max
Granulometric analysis type	
>495 microns	15% max
Apparent density	0.9 – 1.1 kg/l

NOTES

Exclusion of Liability

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Product Name	MAGNESIUM SILICOFLUORIDE HEXAHYDRATE
Synonyms	Magnesium silicofluoride. Magnesium fluorosilicate. Magnesium hexafluorosilicate
CAS Number	18972-56-0
REACH Registration Number	01-2119980031-47-XXXX

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

Identified use(s)

Formulation. Crystallisation. Concrete. Waterproofing additive. Waterproofing additive for cement, concrete hardener, terrazzo flooring polisher, wood preserving, ceramics

Uses advised against:

No data available for uses advised against.

1.3 Details of the supplier of the safety data sheet

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1.4 Emergency telephone number

Tel: 44(0)844 335 0001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation 1272/2008 (CLP)

Acute Tox. 3 (Oral) H301
Serious eye damage Cat. 1. Chronic aquatic toxicity Cat.3

2.2 Label elements

2.2.1 According to Regulation (EC) No. 1272/2008 (CLP).

Hazard Pictogram

Signal word(s) Danger.

Hazard statement(s)

H301: Toxic if swallowed.
H318: Causes serious eye damage.
H332: Harmful by inhalation.
H412: Harmful to aquatic organisms, with long-lasting harmful effects.

Precautionary statement(s)

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P330: Rinse mouth.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P405: Store locked up.
P501: Dispose of contents / container to hazardous or special waste collection point.

Physioco-chemical hazards

The product, heated above 120º C, releases toxic and corrosive fumes.
In contact with strong mineral acids, it produces Hydrofluoric Acid.

Environmental hazards

Fluorides may poison the biota. It is very soluble in water

Human health hazards

Adverse effects are observed by ingestion and acute inhalation.
According to the tests carried out, long-term adverse effects are not expected.

2.3 Other Hazards
It is not considered a PBT or vPvB

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
Chemical family: Inorganic fluoride
Chemical name: Magnesium Hexafluorosilicate
CAS No.: 18972-56-0

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation
Remove the affected person from the danger area. Make him/her as comfortable as possible and protect him/her from cold. If breathing becomes laboured or the patient is cyanotic, give him/her oxygen through a facemask. Go immediately to a doctor.

Skin contact
Wash immediately the skin with plenty of water. Take off contaminated clothes. If irritation persists after washing, seek medical advice.

Eye contact
Wash immediately the eyes with plenty of water for 10 minutes at least, keeping the eyelids open. Seek immediate medical advice.

Ingestion
Seek immediate medical help if possible carrying this SDS or container label. Do not induce vomiting or give drink / eat anything to the injured person.

4.2 Most import symptoms and effects, both acute and delayed
In case of contact it can cause irritation to skin, eyes and respiratory tract. If swallowed, it can cause gastrointestinal irritation and subsequent Fluoride poisoning. The immediate treatment is essential to reduce the severity of the consequences of burns or poisoning. In either case it is always recommended to seek medical attention.

4.3 Indication of any immediate medical attention and special treatment needed
It is strongly recommended the presence of emergency showers and eye baths close to workstations. Because of the singularity of fluorides burns and poisoning, accident assistance and emergency services at local hospitals should be duly informed of the specific and concrete medical treatment required.

5. FIRE FIGHTING MEASURES

The product is non-combustible and non-comburent.

5.1 Extinguishing Media
Use fire-extinguishing media appropriate for surrounding materials.

5.2 Special Fire fighting procedures
Above 120ºC , emission of SiF_4 + MgF_2

5.3 Advice for fire-fighters
Remove the containers to a safe area if this operation may be done without danger. When extinguishing fires, breathing apparatuses and full chemical protective clothing should be worn.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear suitable protective clothing (see paragraph 8). Provide good ventilation. Keep away from heat sources. Do not allow the access to release area to people who do not use personal protective equipment.

6.2 Environmental precautions
Recuperate as much product as possible for the productive cycle. Prevent soil, water and drain pollution.

6.3 Methods and material for containment and cleaning up
Mechanically pick-up avoiding dust formation. Introduce the product into clean, dry, sealable and duly marked containers. Move the containers off the spillage area. Then, thoroughly wash the area with plenty of water.

6.4 Reference to other sections
See sections 8 and 13

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid inhalation, absorption and contact with the product. Carefully handle and open the container avoiding spillage and dust formation. Assure good ventilation. Partially used containers should be hermetically closed after use and returned to the store. The empty containers may contain waste, so they should be handled as if they were full.

7.2 Conditions for safe storage, including any incompatibilities
The store should be situated in a dry and, well- ventilated place, in an area specially adapted to toxic products far from heat sources and separate from incompatible products. Store the product in the hermetically closed original container. Do not store near foodstuffs destined to human or animal nutrition. In Spain, storage must meet the R.D. 379/2001

(Chemical Products Storage Regulations) if the quantity stored is above 250 Kg.
Plasticized paper bags, plastic bags, plasticized cardboard drums, plastic drums or plastic RIG can be used as packing materials.

7.3 Specific end use(s)
See section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Limit level for repeated exposures:
VLA-ED: 2.5 mg (F)/m^3 – Guide of INSHT Biological limit level: VLB
Biological indicator: Fluorides in urine.
End of working day: 8 mg/l. – Guide of INSHT
Before shift, 4-mg/g creatinine; after shift: 7-mg/g creatinine BAT.
DNEL: Derived No Effect Level

Exposure pattern	Route	Value	Effects	Population
Acute effects (systemic and local)	Inhalation	2.5mg/m^3		workers
Long-term effects (systemic and local)	Inhalation	2.5mg/m^3		workers

PNEC: Predicted No Effect Level

	Value
Freshwater	0.9 mg/l
Seawater	0.9 mg/l
Sediments (freshwater)	No data
Waste treatment plant	51 mg/kg wwt
SOIL	11 mg/kg soil dw

8.2 Exposure controls

Process Conditions
Local vacuuming recommended for keeping dust emissions below the lowest admissible exposure levels. Periodic control of working environment should be done.

Appropriate engineering controls
If handling conditions make dust, it should be necessary to use personal protection equipments. Do not eat, drink or smoke while handling the product. At the end of work, shower or wash.
Before breaks, wash your hands. Change working clothing after handling the product. Change dirty or moistened clothing and wash prior to its reuse. Keep working clothing separated. The shower and washing areas should be separated from changing rooms. Keep the product away from food, beverages and condiments.

Respiratory protection
In accordance with exposure levels, use the respiratory equipment adequate to those levels. The appropriate respiratory equipments –all of them EPI's category 3-, may be self-filtering masks type FFP·, filters with half- face mask type P3, filters with full-face mask type P3, aid-ventilation with helmet or hood type THP3, aid- ventilation with full-face mask type TMP3.

Hand protection
Gloves of rubber or neoprene.

Eye protection
Well-fitted chemical protective goggles type motorist or diver. It is generally known that contact lenses must not be worn when working with chemicals because they may contribute to the severeness of possible damage to the eyes.

Skin protection
In normal conditions, light protective clothing (overall) with long sleeves, and rubber or neoprene boots. Additional, and for emergencies, they should have a particle-proof suit, EPI category 3 type 5, with self- contained breathing equipment.

Environmental exposure control
Gaseous emission: specific limits as per integrated environmental authorisation.
R.D. 102/2011 – Gaseous emission (out of the manufacturing site):
Fluorides 60µg/m^3 (30min)
Fluorides 20µg/m^3 (1 day)

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	White crystalline solid
Odour:	Odourless
pH:	2 – 3 dissolved in water at 20º C.
Melting point / Freezing point:	No data available
Initial boiling point and boiling range:	Approx. 120º C with decomposition
Flash point:	Non-flammable
Evaporation rate:	No data available
Flammability:	Non-flammable
Explosive limits:	Non-explosive
Vapour pressure:	N/A
Vapour density:	N/A
Relative density:	0.9 – 1.1 g. / cm^3
Solubility(ies):	
Solubility in water:	590 g. / l. at 20º C.
Solubility in other chemical products:	No data available
Partition coefficient n-Octanol/water:	No data available
Auto-ignition temperature:	Non-flammable
Decomposition temperature:	120º C approx.
Viscosity:	No data available
Explosive properties:	Non-explosive
Comburent properties:	Non-comburent.

9.2 Other information

Miscibility:	Miscible in water.
Liposolubility:	No data available
Conductivity:	No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity
With strong mineral acids, generates HF. Moisture. The product should be kept dry..

10.2 Chemical stability
Stable under normal conditions. It does not decompose when used as per the rules..

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Temperatures above 120ºC.

10.5 Incompatible materials
Strong mineral acids: the reaction with strong mineral acids produces HF.

10.6 Hazardous decomposition products
Heating above 120ºC, will cause the production of $SiF_4 + MgF_2$

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Ingestion:
Toxic by ingestion. LDL50 = 291 mg / Kg bw
Inhalation:
LC50 = 3900 mg/m^3

Skin corrosion/irritation
Not irritant
Serious eye damage/irritation
Causes serious eye damage. Irreversible effects on the eyes
Respiratory or skin sensitisation
Not sensitising
Germ cell mutagenicity
Not considered mutagenic

Carcinogenicity
There is no evidence of an association between cancer and exposure to inorganic fluorides (IARC).
Reproductive toxicity
Not considered toxic for reproduction
Specific toxicity in certain organs (STOT) – single exposure
In view of the available data, the criteria for classification are not met.
Specific toxicity in certain organs (STOT) – repeated exposure
In view of the available data, the criteria for classification are not met.
Aspiration hazard
Possible irritation of the respiratory tract and possible poisoning by Fluorides. No experimental data available.
Other data
RTECS / NIOSH-ED Toxicity Registration Number: WA 8470000.

12. ECOLOGICAL INFORMATION

12.1 Acute Fish Toxicity
Acute toxicity freshwater fish
LC50 = 100 mg / l
Long-term toxicity freshwater fish EC10 / LC10 = 4mg / l
Short-term toxicity for freshwater invertebrates EC50 / LC50 = 100 mg / l
Long-term toxicity for freshwater invertebrates EC10 / LC10 = 8.9 mg / l
Toxicity in freshwater algae EC50 / LC50 = 27.4 mg / l EC10 / LC10 = 21.6 mg / l
Toxicity to aquatic microorganisms EC50 / LC50 = 151mg / l. EC10 / LC10 = 62.5 mg / l
Acute toxicity freshwater fish LC50 = 100 mg / l
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Long-term toxicity for freshwater invertebrates EC10 / LC10 = 8.9 mg / l
Toxicity in freshwater algae EC50 / LC50 = 27.4 mg / l EC10 / LC10 = 21.6 mg / l
Toxicity to aquatic microorganisms EC50 / LC50 = 151mg / l
EC10 / LC10 = 62.5 mg / l
Toxic effect on fish and plankton, plants and foliage.
Prevent the substance from entering surface water, wastewater and the soil.

12.2 Persistence and degradability
The substance dissociates and hydrolyses in aqueous solution. The overall reaction is very influenced by pH. However, at pH of the environment, the substance is completely hydrolysed, giving rise to the fluoride ion. No biodegradation observed in water.

12.3 Bio accumulative potential
Due to the water-soluble nature of magnesium fluorosilicate, bioaccumulation cannot be evaluated. The substance has a low potential for bioaccumulation due to its rapid hydrolysis.

12.4 Mobility in soil
The product has low mobility in soil. The soil natural alkalinity will slowly dissipate acidity. If pH > 6.5, the soil will strongly bind fluorides. High calcium content will also immobilize fluorides.

12.5 Results of PBT and vPvB assessment
Not considered a PBT or vPvB substance.

12.6 Other adverse effects
No experimental data available

13. DISPOSAL CONSIDERATIONS

Use as much of the product as possible in the production cycle. The product packed in dry sealed vessels should be given to authorised waste agent in order to manage its elimination that will probably be done by means of a physiochemical treatment and later settlement in a controlled chemical waste weir.
Treatment of containers
Remove dust with caution from containers before their disposal or deposit. Once they are almost clean, dispose of them by placing in an authorized dumping place or, in any case, burning them at a legally authorised plant. Non-contaminated packaging will be treated as inert residues or as recyclable material.
Other information
Before any disposal process, take advice of the national, autonomic and local legislation.
An authorised waste manager, or the product manufacturer, may collaborate / advise in said disposal.

14. TRANSPORT INFORMATION

14.1 UN Number UN NO.(ADR/RID/ADN)	2853
14.2 UN Proper Shipping Name Proper Shipping Name	Magnesium Fluorosilicate

14.3 Transport Hazard Class	
ADR/DID/ADN Class	6.1 T5
ADR/DID/ADN Class	Class 6.1: Toxic substances
ADR Label No.	60
Transport Labels	
14.4 Packing Group	
ADR/DID/AND Packing Group	III
14.5 Environmental Hazards	
Environmentally Hazardous Substance/ Marine Pollutant	No

14.6 Special Precautions for User
Protect from moisture. Keep away from foodstuff and pharmaceuticals.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
MARPOL Annex II: rules to prevent pollution by noxious liquid substances. Not applicable

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
It is not included in Regulation (EC) 689/2008 on the export and import of dangerous chemicals. Due to its toxicity, it comes into SEVESO category.

15.2 Chemical safety assessment
A Chemical Safety Assessment has been carried out

16. OTHER INFORMATION

This safety data sheet is from Magnesium Hexahydrate fluorosilicate. The magnesium fluorosilicate hexahydrate has the identifier CAS number: 18972-56-0, but there is no EINECS number as identifier. Hexahydrated Magnesium Hexafluorosilicate has no harmonized classification according to Regulation 1272/2008 (CLP Regulation), and the classification indicated here is based on the tests required for the REACH registration. In the list of harmonized classification of the CLP Regulation is listed the Hexafluorosilicato of Magnesium, in its anhydrous form.

Full text of H-Statements referred to under sections 2 and 3
H301: Toxic if swallowed.
H318: Causes serious eye damage.
H332: Harmful by inhalation.
H412: Harmful to aquatic organisms, with long-lasting harmful effects.

Source of key data used to compile the data sheet
Supplier information

Modifications from last revision
The Specification has been updated. The Safety Data Sheet has been updated throughout in accordance with current requirements
Date: 05/10/18