

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/27/2015

Reviewed on 07/27/2015

1 Identification

- **Product identifier**
- **Trade name:** MIV
- **Relevant identified uses of the substance or mixture and uses advised against:**
- **Product description** PC12 Fertilizers

- **Details of the supplier of the safety data sheet:**

- **Manufacturer/Supplier:**

Florikan ESA, LLC

www.Florikan.com

6801 Energy Ct.

Suite 100

Sarasota, FL. 34240

ph: 941-379-4048 ext 332

Fax: 941-377-3633

Email product info: Doug Cabe; dcabe@florikan.com

- **Emergency telephone number:** Chemtrec 800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture:**



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

Eye Irrit. 2B H320 Causes eye irritation.

- **Label elements:**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:**



GHS09

- **Signal word:** Warning

- **Hazard statements:**

Causes eye irritation.

Toxic to aquatic life with long lasting effects.

- **Precautionary statements:**

Avoid release to the environment.

Wash thoroughly after handling.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Collect spillage.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Unknown acute toxicity:**

77.5 percent of the mixture consists of ingredient(s) of unknown toxicity.

- **Hazard description:**

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Magnesium compounds have variable toxicity. There is no evidence that magnesium produces true systemic poisoning. Particles of metallic magnesium or magnesium alloy which perforate the skin or gain entry through cuts and scratches may produce a severe local lesion characterized by the evolution of gas and acute inflammatory reaction, frequently with necrosis.

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMS-ratings (scale 0 - 4)**

HEALTH	1	Health = 1
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Hazard(s) not otherwise classified (HNOC):** None known

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture: consisting of the following components.

- **Dangerous Components:**

CAS: 14567-64-7	Magnesium Sulphate Monohydrate (Kieserite)	25-50%
	⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	
CAS: 13397-24-5	Gypsum (Calcium sulfate)	15-35%
CAS: 7720-78-7 RTECS: NO 8510000	iron(II) sulfate	5-10%
	⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	
CAS: 7487-88-9 RTECS: OM 4500000	Magnesium Sulphate	2-12%
	⚠ STOT SE 3, H335	
CAS: 1309-48-4	Magnesium Oxide	2-12%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	
CAS: 7733-02-0	Zinc Sulphate (anhydrous)	≤ 2.5%
	⚠ Eye Dam. 1, H318; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	
CAS: 11129-60-5	Manganese oxide	≤ 2.5%
CAS: 7758-99-8 RTECS: GL 8800000	Copper Sulfate Pentahydrate	≤ 2.5%
	⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	
CAS: 10034-96-5 RTECS: OP0893500	Manganese(II) Sulfate Monohydrate	≤ 2.5%
	⚠ STOT RE 2, H373; ⚠ Aquatic Chronic 2, H411; ⚠ STOT SE 3, H335; ⚠ Aquatic Acute 2, H401	
CAS: 1314-13-2 RTECS: ZH 4810000	Zinc Oxide	≤ 2.5%
	⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	

4 First-aid measures

- **Description of first aid measures:**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.

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- **After eye contact:**
Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If swallowed and symptoms occur, consult a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed:**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media:**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture:**
Magnesium oxide takes up carbon dioxide and water from the air. Combines with water to form magnesium hydroxide. May have a violent reaction or ignition on contact with inter-halogens.
- **Advice for firefighters:**
- **Protective equipment:**
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:** Not required.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose of the collected material according to regulations.
- **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling:** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities:**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s):** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.

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Components with occupational exposure limits:

14567-64-7 Magnesium Sulphate Monohydrate (Kieserite)

PEL TWA Short-term value: 5 mg/m³
Long-term value: 15 mg/m³

13397-24-5 Gypsum (Calcium sulfate)

REL Long-term value: 10* 5** mg/m³
*Total dust; **Respirable fraction

TLV Long-term value: 10* mg/m³
*as inhalable fraction

7720-78-7 iron(II) sulfate

REL Long-term value: 1 mg/m³
as Fe

TLV Long-term value: 1 mg/m³
as Fe

1309-48-4 Magnesium Oxide

PEL Long-term value: 15* mg/m³
fume; *total particulate

TLV Long-term value: 10* mg/m³
*as inhalable fraction

11129-60-5 Manganese oxide

PEL Ceiling limit value: 5 mg/m³
as Mn

REL Short-term value: 3 mg/m³
Long-term value: 1 mg/m³
as Mn

TLV Long-term value: 0.02* 0.1* mg/m³
as Mn; *respirable **inhalable fraction

Additional information: The lists that were valid during the creation of this SDS were used as basis.

Exposure controls:

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Breathing equipment: Not required.

Protection of hands: Not required.

Material of gloves: Not required.

Penetration time of glove material: Not applicable.

Eye protection:



Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Granulate

Color: Whitish

· **Odor:** Slight

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/Melting range: Not determined.

Boiling point/Boiling range: 3600 °C (6512 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower: Not determined.

Upper: Not determined.

· **Vapor pressure:** Not applicable.

· **Density:**

Relative density: Not determined.

Vapor density: Not applicable.

Evaporation rate: Not applicable.

· **Solubility in / Miscibility with:**

Water: Soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

· **Solvent content:**

Organic solvents: 0.0 %

Solids content: 100.0 %

· **Other information:** No further relevant information available.

10 Stability and reactivity

· **Reactivity:** No further relevant information available.

· **Chemical stability:** Stable under normal conditions.

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Possibility of hazardous reactions:** No dangerous reactions known.

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- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Magnesium hydroxide.

11 Toxicological information

- **Information on toxicological effects:**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

7720-78-7 iron(II) sulfate		
Oral	LD50	1520 mg/kg (mouse)
7487-88-9 Magnesium Sulphate		
Oral	LD50	>2000 mg/kg (rat)
Inhalative	LC50/4 h	>2000 mg/l (rabbit)
	LC50/96 hours	2820 mg/l (Pneumonia)
7758-99-8 Copper Sulfate Pentahydrate		
Oral	LD50	300 mg/kg (rat)
1314-13-2 Zinc Oxide		
Oral	LD50	> 5000 mg/kg (rat)

- **Primary irritant effect:**
- **On the skin:** No irritating effect.
- **On the eye:** Irritating effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories:**

IARC (International Agency for Research on Cancer):	
None of the ingredients are listed.	
NTP (National Toxicology Program):	
None of the ingredients are listed.	
OSHA-Ca (Occupational Safety & Health Administration):	
None of the ingredients are listed.	

12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:**
Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

14567-64-7 Magnesium Sulphate Monohydrate (Kieserite)	
EC50	3100 mg/l (Green algae)
7487-88-9 Magnesium Sulphate	
EC50	2700 mg/l (Green algae)
	343.56 mg/l (Water flea)

- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.

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- **Mobility in soil:** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

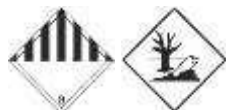
13 Disposal considerations

- **Waste treatment methods:**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number:**
- **DOT** Non-Regulated Material
- **ADR, IMDG, IATA** UN3077
- **UN proper shipping name:**
- **DOT** Non-Regulated Material
- **ADR** UN3077 Environmentally hazardous substances, solid, n.o.s. (Zinc Sulphate (anhydrous), Copper Sulfate Pentahydrate)
- **IMDG** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulphate (anhydrous), Copper Sulfate Pentahydrate), MARINE POLLUTANT
- **IATA** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulphate (anhydrous), Copper Sulfate Pentahydrate)
- **Transport hazard class(es):**
- **DOT**
- **Class:** Non-Regulated Material

· **ADR**



- **Class:** 9 (M7) Miscellaneous dangerous substances and articles
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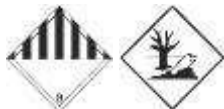
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· **Label:** 9

· **IMDG, IATA**



· **Class:** 9 Miscellaneous dangerous substances and articles
 · **Label:** 9
 · **Packing group:** Non-Regulated Material
 · **DOT** III
 · **ADR, IMDG, IATA** III
 · **Environmental hazards:** Product contains environmentally hazardous substances: Zinc Sulphate (anhydrous)
 · **Special marking (ADR):** Symbol (fish and tree)
 · **Special marking (IATA):** Symbol (fish and tree)
 · **Special precautions for user:** Warning: Miscellaneous dangerous substances and articles
 · **Danger code (Kemler):** 90
 · **EMS Number:** F-A,S-F
 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
 · **Transport/Additional information:**

· **ADR**
 · **Excepted quantities (EQ):** Code: E1
 Maximum net quantity per inner packaging: 30 g
 Maximum net quantity per outer packaging: 1000 g

· **IMDG**
 · **Limited quantities (LQ):** 5 kg
 · **Excepted quantities (EQ):** Code: E1
 Maximum net quantity per inner packaging: 30 g
 Maximum net quantity per outer packaging: 1000 g
 · **UN "Model Regulation":** UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (ZINC SULPHATE (ANHYDROUS), COPPER SULFATE PENTAHYDRATE), 9, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
 · **SARA (Superfund Amendments and Reauthorization):**

· **Section 355 (extremely hazardous substances):**

7720-78-7	iron(II) sulfate
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· **Section 313 (Specific toxic chemical listings):**

7733-02-0	Zinc Sulphate (anhydrous)
11129-60-5	Manganese oxide
7758-99-8	Copper Sulfate Pentahydrate
10034-96-5	Manganese(II) Sulfate Monohydrate
1314-13-2	Zinc Oxide

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• TSCA (Toxic Substances Control Act):	
7720-78-7	iron(II) sulfate
7487-88-9	Magnesium Sulphate
1317-61-9	Iron Oxide
1309-48-4	Magnesium Oxide
7733-02-0	Zinc Sulphate (anhydrous)
7758-99-8	Copper Sulfate Pentahydrate
1314-13-2	Zinc Oxide
7631-95-0	Sodium Molybdate

• California Proposition 65:	
• Chemicals known to cause cancer:	
None of the ingredients are listed.	
• Chemicals known to cause reproductive toxicity for females:	
None of the ingredients are listed.	
• Chemicals known to cause reproductive toxicity for males:	
None of the ingredients are listed.	
• Chemicals known to cause developmental toxicity:	
None of the ingredients are listed.	

• Carcinogenic categories:		
• EPA (Environmental Protection Agency):		
7733-02-0	Zinc Sulphate (anhydrous)	D, I, II
11129-60-5	Manganese oxide	D
10034-96-5	Manganese(II) Sulfate Monohydrate	D
1314-13-2	Zinc Oxide	D, I, II

• TLV (Threshold Limit Value established by ACGIH):		
1309-48-4	Magnesium Oxide	A4

• NIOSH-Ca (National Institute for Occupational Safety and Health):	
None of the ingredients are listed.	

• GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

• Hazard pictograms:



GHS09

• Signal word: Warning

• Hazard statements:

Causes eye irritation.
Toxic to aquatic life with long lasting effects.

• Precautionary statements:

Avoid release to the environment.
Wash thoroughly after handling.

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If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 Collect spillage.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

• **State Right to Know:**

CAS: 14567-64-7	Magnesium Sulphate Monohydrate (Kieserite)	25-50%
	⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	
CAS: 13397-24-5	Gypsum (Calcium sulfate)	15-35%
CAS: 7720-78-7 RTECS: NO 8510000	iron(II) sulfate	5-10%
	⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	
CAS: 7487-88-9 RTECS: OM 4500000	Magnesium Sulphate	2-12%
	⚠ STOT SE 3, H335	
CAS: 1317-61-9	Iron Oxide	2-12%
CAS: 1309-48-4	Magnesium Oxide	2-12%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	
All ingredients are listed.		

• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

• **Date of preparation / last revision:** 07/27/2015 / -

• **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
 ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 ACGIH: American Conference of Governmental Industrial Hygienists
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 NFPA: National Fire Protection Association (USA)
 HMIS: Hazardous Materials Identification System (USA)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Acute Tox. 4: Acute toxicity, Hazard Category 4
 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
 Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
 Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
 Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
 STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
 STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
 Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
 Aquatic Acute 2: Hazardous to the aquatic environment - AcuteHazard, Category 2
 Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

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Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· * **Data compared to the previous version altered.**

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