



Material Safety Data Sheet

Conforms to 1907/2006/EC REACH and additional guidelines from 91/155/EEC amended 2001/58/EEC

Products: Sirofloc Magnetite M-10

1 Identification / substance / preparation / company

Product-ID.: Sirofloc Magnetite M-10

REACH

Registration-No.: Natural product. No registration required according to 1907/2006 EC Chapter 2(7)(b) and Annex V, Sentence 7.

Material: Magnetite slurry

Synonyms: Natural magnetite, ferrosferric oxide, magnetic iron oxide, ferriferous oxide.

Applications: Sirofloc[®] waterplants

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2 Hazards information

Classification: The substance is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Risk Phrases: No risk phrases according to 67/548/EC Annex I.
Not applicable according to EU-Resolution 1272/2008 (CLP/GHS).

Labelling: No



Other risks not associated with risk phrases which may be attributed to the products

Eye contact: May cause mechanical irritation and soreness.
Skin contact: May cause mechanical irritation and soreness.
Inhalation: May cause mechanical irritation and soreness.

Long term exposure: There are no known or foreseeable long term effects.

3 Composition / information on ingredients

Characterization: Chemical substance

Chemical Designation: Magnetite, Fe₃O₄

Ingredient name	CAS-no.	Weight-%	EINECS	EU-Classification
Triiron tetraoxide	1317-61-9	98.5-99	215-277-5	No classification
Iron oxide (Fe ₃ O ₄), Magnetite	1309-38-2	98.5-99	215-169-8	No classification
Iron oxide black	12227-89-3	98.5-99	235-442-5	No classification
Rock forming minerals	999999-99-4	1.0-1.5	310-127-6	No classification
Water (H ₂ O)	7732-18-5	20-25	231-791-2	No classification
Potassiumhypochlorite solution with 10-15% free Cl (NaOCl)**	7681-52-9	0.15	231-668-3	C, R35*

* C=corrosive, R35=causes severe burns.

**NaOCl is added due to customers requirement.

The substance contains minor amounts of non-hazardous impurities with no obligation to clarify according to the current regulations.

4 First - aid measures

General: In all cases of doubt or when symptoms persist seek medical advice. No delayed effects anticipated.

Eye contact: Check for and remove any contact lenses. In case of contact with eyes, immediately flush out with water particularly under eyelid. No significant irritation expected other than possible mechanical effects. Obtain medical advice if irritation persists.

Skin contact: Wash with soap and water. Obtain medical advice if irritation persists.

Inhalation: No emergency care anticipated.
When dry: remove from exposure.

Ingestion: Small quantities are unlikely to constitute a health hazard.



If large quantities are ingested seek qualified medical advice.

5 Fire - fighting measures

Extinguishing Media: No special measures necessary. Water saturated product.

Special exposure hazards: Non. The product is dispersed in water.

Equipment for fire-fighters: Wear self-contained breathing apparatus (SCBA) and fully protective suit.

6 Accidental release measures

General: Exclude non-essential personnel.

Personal precautions: Non.

When dry: avoid breathing dust and skin contact.
Use respiratory protective equipment of sufficiently high standard to prevent exposure in excess of occupational exposure limits.

Environmental precautions: No special measures necessary.

Methods for cleaning up: Collect spillage mechanically or by vacuum. Reclaim or dispose the material according to section 13.

7 Handling and storage

Local exhaust ventilation: Not necessary as long as the product is dispersed in water.

When dry: ensure adequate ventilation / dust extraction so that dust levels are maintained below the occupational exposure standard. If this is not possible use an approved respirator.

Handling: The product is stored in plastic drums, 4 to each pallet. Check the security iron ribbons and suspensions made of wood to be in place and in proper condition before any handling of the pallets takes place. Avoid personnel to be in the immediate vicinity of pallets moved by forklift trucks.



Use handling equipment approved for security by the authorities for lifting the drums off the pallet and under removal of the product from the drum.

Storage:

Special care should be taken when piling the material. Pallets with Sirofloc Magnetite are unsuitable as foundation.

Material should be stored in a cool place away from strong light. Avoid storage outside during winter time to prevent the water from freezing, which may result in the destruction of the plastic drum.

Storage Class:

12 and 13 “not combustible liquids/solids”.

8 Exposure controls / personal protection

Engineering Measures:

No special measures necessary. Water saturated product.

When dry: provide adequate ventilation. Where reasonably practicable this should be achieved by containment at source, local exhaust ventilation (LEV) and good general extraction. If these are not sufficient to maintain concentrations of particulate below the relevant exposure limits, suitable respiratory protection should be worn.

Occupational Exposure limits:

United Kingdom:

Ingredient name	Type	Exposition	OELV	Person	Effect
Magnetite, as Fe	DNEL	STEL	10mg/m ³	worker	local
	DNEL	TWA	5mg/m ³	worker	local
Airborne dust limits: inhalable dust = 10mg/m ³ , respirable dust = 3mg/m ³					

Other countries:

OEL-Austria:	MAK	6 mg/m ³	(dust, fume)
OEL-Belgium:	MAK	5 mg/m ³	(dust, fume)
OEL-Denmark:	TWA	3.5 mg/m ³	(as Fe)
OEL-Finland:	TWA	5 mg/m ³	(dust, fume)
OEL-France:	VME	5 mg/m ³	(dust, fume)
OEL-Germany:	MAK	6 mg/m ³	(dust, fume)
OEL-Italy:	TWA	5 mg/m ³	(as Fe)
OEL-Italy:	STEL	10 mg/m ³	(as Fe)
OEL-The Netherl.:	MAC-TGG	10 mg/m ³	(resp. dust)



OEL-The Netherl.:	MAC-TGG	5 mg/m ³	(inhal. dust)
OEL-Norway:	TWE	3 mg/m ³	(as Fe)
OEL-Norway:	TWE	10 mg/m ³	(dust/fume)
OEL-Poland:	MAC(TWA)	5 mg/m ³	(dust/fume)
OEL-Spain:	VLA-DE	5 mg/m ³	(dust as Fe)
OEL-Sweden:	NGV	3.5 mg/m ³	(dust/fume)
OEL-Switzerland:	MAK-W	6 mg/m ³	(dust/fume)

(MAK=Maximale Arbeitsplatzkonzentration, MAC-TGG= Maximale aanvaarde concentratie-Tijdgewogen gemiddelde, TWA=Time Weighted Average, STEL=Short Term Exposure Limit, VME= Valeurs limites de moyenne d'exposition, VLA-DE=Valores de Eposición Diaria, NGV=Nivågränsvärde)

Personal Protection:

Where LEV is not practicable and exposure is likely to be excessive, approved respiratory protection to CEN standards EN 140 and EN 141, 143 or 149 should be worn.

Wear dust-appropriate suit (tight woven overalls) to avoid dust to reach the skin. Prevent naked skin for soiling. Use rubber safety gloves (EN 420/EN 374) or skin-protecting ointments when direct in contact with the pigment.

Prevent eyes for dust. Use safety glasses with side-shields.

Handle in accordance with good industrial hygiene and safety practice. Keep away from food and drink or smoke at work.

See section 7 and 4.

9 Physical and chemical properties

Appearance:	Darkgrey to black liquid.
Odour:	Odourless.
pH:	6 - 8 at 50 g/l; with the addition of SHC-solution: 7 - 8
Relative density:	Magnetite: 5.2g / cm ³ ; Sirofloc slurry: approx 2.7g / cm ³
Melting point:	Melting point for magnetite: above 1500 °C.
Grain size:	The product contains average 7% sub-micron particles (acc. to Sympatec Helos dry laser determination).
Explosionsgefahr(ATEX):	no risk
Solubility:	0,000001 g/l (Water)

10 Stability and reactivity

Solubility: Insoluble in water and organic solvents. Soluble in acids.

Stability: The product is stable-

When dry: may oxidise to Fe₂O₃ (red/brown iron oxide), a no hazardous decomposition product, at long standing temperatures above 120 °C. The reaction is exothermic, it generates heat



which, under favourable conditions, may result in the combustion of flammable materials in contact with the product. The product must not be stored near to heat sources (see section 7).

The product itself is not flammable.

Dust explosion (ATEX): No explosion protection is required. The products are explosion proof under normal conditions.

Hazardous decomposition products: No decomposition when used as directed.

Incompatibility: No hazardous reactions if stored and handled as prescribed.

11 Toxicological information

Occupational Exposure limits: See section 8.

Toxicity: According to the present state of knowledge this product is physiologically harmless. The Product is not classified as dangerous according to 67/548/EEC.

Acute oral toxicity for Fe₃O₄ (triiron tetraoxide): LD50 rat: > 5000 mg/kg.

Toxicological investigations on sub-micron iron oxide products (triirontetraoxide) have resulted in conclusions as follows:

Skin-irritation: Rabbit/skin 24hours: not irritating.

Eye-irritation: not irritant. Under extreme conditions, mechanical action arising from eye contact may cause irritation.

Toxicological investigations on Fe₃O₄ (triiron tetraoxide) have resulted in the following conclusions:

Sensitisation of the skin: Maurer optimisation test/guinea pig: not sensitising.

Genetic toxicity: negative

Cancerogenity: Iron Oxides are currently determined as non-cancerogenic substances according to IARC (International Agency for Research on Cancer). Magnetite, Fe₃O₄, is not listed in the IARC Monograph, Vol. 1-102.

(<http://www.inchem.org/documents/iarc/suppl7/heamatite.html>)

12 Ecological information

Acute fish toxicity: OECD 203/EU C.1 Test: Fish Daniorerio/LC0 96h: >10000mg/l.



There is a high probability that the product is not acutely harmful to aquatic organisms.

Acute toxicity, Daphnia: OECD 202/EU C.2 Test: Daphnia-Daphnia magna/EC0 46h >10000mg/l. No impact on life.
There is a high probability that the product is not acutely harmful to aquatic organisms.

Persistence and degradability: The product is insoluble in water and can be separated easily from water by magnetic methods.

Persistence and bioaccumulation potential: The product is not readily bioavailable due to its consistency and insolubility in water. **PBT and vPvB free.** The products do not contain **SVHC** as listed in Annex XIV of the REACH Regulation 1907/2006/EWG and amendments.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislations.

Water pollution: CAS 1317-61-9, Reg.no. 751, Water risk class: nwg (not water polluting) according to VwVwS of 27.05.2005.

13 Disposal considerations

Product: The relevant EC Directives and local, regional and national regulations must be followed.
May be disposed of in approved landfill sites provided that all relevant regulations are observed.

Not hazardous waste according to Council Directive 91/689/EEC on hazardous waste.
Product waste classified as EWC-Code: 010399 (75/442/EEC, European Waste Catalogue).

Packaging: Packaging should be recycled.
Packaging waste classified as EWC-Code: 150102/03/04 (75/442/EEC, European Waste Catalogue).



14 Transport information

General: The products are not classified as dangerous goods according to 67/548/EC and CLP/GHS Regulation 1272/2008/EC.
Free from transport regulations:

UN/SI No.	Not restricted
UN Class	Not restricted
ADR/RID	Not restricted
ADNR	Not restricted
IMDG/GGVSee	Not restricted
ICA/IATA-DGR	Not restricted

15 Regulatory information

Dangerous substance: Not classified as a dangerous substance in accordance with 67/548/EEC and 1999/45/EEC (including amendments).
No labelling required. No classification required according to CLP/GHS regulation 1272/2008/EC.
No restriction on Marketing and Use (76/769/EEC).
Not listed and no classification according to VDA 232-101 (List of Declarable Substances).
Not hazardous substance/waste in connection with 2000/53/EEC and amendments (End-of life vehicles).

PBT and SVHC: Not part of the products (see section 12).

Waste: Not hazardous waste according to Council Directive 91/689/EEC on hazardous waste.
The product fulfills in all respect the requirements for "inert waste" in accordance with 2009/356/EC, clause 1 and 2.
Waste class: EAK-Code: 010399 (75/442/EC)(see section 13).

EU regulation – risk phrases: This product is not classified according to EU legislations.

International Chemical Inventory Status: Australian AICS, Canadian DSL/NDSL, European EINECS, Japanese ENCS, Korean KECI, Phillipine PICCS, USA TSCA, China IECSC.
Swiss law of poison (Giftliste 1 und 2): G 8310, class of poison free (link to section 11).

ATEX (94/9/EC): Non-explosive dust (see section 10).



- TA Luft (air) 2002:** Para 5.2.1 Total Dust and Annex 7, Tab.22: S-Value for “Schwebstaub” (Germany) (see section 12).
- Ozone Protection:
(Montreal Protocol)** The Product complies with the principles of the Ozone Action Programme of April 1999, UNEP, “Montreal Protocol on Substances that Deplete the Ozone Layer”.
The production process and product itself do not involve or produce substances known as being harmful to the ozone layer of the Earth.
- VCI Guideline:** Storage Class 13 “not combustible” (see section 7).
- Chemical Weapons
Convention (CWC):** The product complies with the principles of the CWC of 19th April 1997. No restrictions on either the production or trade.

16 Other information

Abbreviations:

ATEX = Atmosphere Explosive Directive.
CAS = Chemical Abstracts Service.
CLP/GHS = Classification, Labelling and Packaging/Globally Harmonized System (Richtlinie 1272/2008 der europäischen Union).
CSR = Chemical Safety Report.
DNEL = Derived-No-Effect-Levels.
EC= European Community.
EEC= European Economic Community.
EINECS = European Inventory of Existing Chemical Substances.
EN = Europäische Norm (Standard) (Germany).
EWG = Europäische Wirtschaftsgemeinschaft.(Germany)
LD = Letale Dosis.
MAK = Maximale Arbeitsplatz Konzentration (OEL Germany)
OECD = Organisation of Economic Co-operation and Development.
OEL= Occupational Exposure Level
PBT/vPvB = Persistence, Bioaccumulation, Toxicity/very Persistent,very Bioaccumulative.
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals (Regulation 1907/2006 of the European Union).
SVHC= Substances of very high concern.
VCI = Verband der Chemischen Industrie eV.
VwVwS = Verwaltungsvorschrift wassergefährdender Stoffe (Waterclass Germany).

The above information is believed to be correct but does not purport to be all inclusive. The information is based on RG Mineral AS`'s present knowledge and experience, and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.



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MSDS
Product: Sirofloc M-10
Page 10/10

It is the user's responsibility to satisfy itself as to the suitability and completeness of such information for their own particular use.

For further information on uses and restrictions contact Rana Gruber AS/RG Mineral AS.

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