



Material Safety Data Sheet

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

Products: Mo i Rana Concentrate H-150, H-260, H-400

1 Identification / substance / preparation / company

Product-ID.: H-150, H-260, H-400

REACH

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

Material: Hematite concentrate

Synonyms: Natural hematite, ferric oxide, alpha-iron oxide, iron(III)oxide, iron sesquioxide, hematite iron ore.

Applications: Technical applications, raw material for chemical and metallurgical processes.

Company: Rana Gruber AS
Postboks 434
8601 Mo i Rana
Norway
Telephone: +47 751 37300 Fax: +47 751 37302
Email: market@ranagruber.no
Home page: www.ranagruber.no

Emergency call: Rana Gruber AS: +47 751 37 300 (normal working hours)

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

Chemical Designation: Hematite, Fe₂O₃

Ingredient name	CAS-no.	Weight-%	EINECS	EU-Classification
Diirontrioxide	1309-37-1	89-95	215-168-2	No classification
Iron oxide (Fe ₂ O ₃), Hematite	1317-60-8	89-95	215-275-4	No classification
Iron oxide	1337-37-2	89-95		No classification
Fe-Al-Mg Silicates (no asbestos), mica, granet, amfibole, epidote.	Several 999999-99-4	4-6	Several 310-127-6	No classification
Limestone (CaCO ₃ , CaMg(CO ₃) ₂), dolomite, calsite.	1317-65-3	2-3	215-279-6	No classification
Crystalline quartz (SiO ₂).	14808-60-7	1-2	238-878-4	R48/49*
Feltspar (Ca,Na,K-Al silicates)	68475-25-5	0-1	310-127-6	No classification
Water (H ₂ O)	7732-18-5	4-7	231-791-2	No classification

* R48 = Danger of serious damage to health by prolonged exposure, R49 = may cause cancer by inhalation.

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: Use appropriate extinguishing media: CO₂, extinguishing powder or water spray.

Special exposure hazards: Non

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 contains its natural moisture.
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: No special care to be taken when handled as bulk product.

Storage: Prevent for dusting from bulk material stored outside. Use water guns in dry periods to maintain the level of natural moisture of the product, which prevents the particles from being removed from the surface of the stock pile.



Rana Gruber AS

Postboks 434, N-8601 Mo i Rana
Tel.: +47 751 37 300, Fax: +47 751 37 302
e-mail: market@ranagruber.no
http: www.ranagruber.no, www.colorana.com

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Packed material should be stored in a dry place in order to avoid additional water uptake.

Once opened, close and seal bags to avoid contamination and spill..

Storage Class: 13 “not combustible”.

8 Exposure controls / personal protection

Engineering Measures: No special measures necessary.

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
Hematite, as Fe	DNEL	STEL	10mg/m ³	worker	local
	DNEL	TWA	5mg/m ³	worker	local
Crystalline silica RCS		WEL	0.1mg/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/m³ (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

Occurrence:	Light grey, powder-like material with metallic lustre.
Odour:	Odourless.
pH:	6 - 8 at 50 g/l
Relative density:	5.1g / cm ³
Bulk density:	1.8-2.0g / cm ³
Tamped density:	2.3-2.6g / cm ³
Melting point:	above 1500 °C.
Grain size:	The products do not contain particles < 1micron..
Explosionsgefahr(ATEX):	no risk
Solubility:	0,000001 g/l (Water)

10 Stability and reactivity

Solubility:	Insoluble in water and organic solvents. Soluble in strong acids.
Stability:	The product is completely oxidized and will not be capable to react further under oxidizing conditions. The product 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.

11 Toxicological information

Occupational Exposure limits: See section 8.

Toxicity: According to the present state of knowledge this product is physiologically harmless. The products are not classified as dangerous according to 67/548/EEC. The products are not dangerous and require no registration or labeling in accordance to CLP/GHS Directive 1272/2008 EEC.

Crystalline silica as quartz is determined as a cancerogenic substance as far as the particles are fine enough to penetrate to the gass-exchange region of the lungs (respirable dust = **P10 particles according to WHO.**)

The products contain < 0.5% respirable crystalline silica (RCS). The content of the P10 fraction in the products is as follows:

H-400: 0%

H-260: 0,2% with approx. 1% RCS.

H-150: 0,4% with approx. 1% RCS.

Toxicological investigations on sub-micron hematite products have resulted in as follows:

Acute oral toxicity / LD50 rat: >10000 mg/kg.

Inhalationstudy pigment dust: LC50 rat: >195g/m³ 6h and 2 weeks.

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

Skin irritation / rabbit/24h: not irritating.

Sensitisation / Maurer optimisation test/guinea pig: not sensitizing.

Genetic toxicity / Ames test on Salmonella typhimurium TA 94, TA98, TA100: negative.

Genetic toxicity / Cytogenetic assay / Chromosomenaberrationstest: negative.

Cancerogenity: Iron Oxides are currently determined as non-cancerogenic substances according to IARC (International Agency for Research on Cancer) Ferric Oxide with CAS-Nr. 1309-37-1 and Hämatit with CAS 1317-60-8 are listed as "Group 3" substances: „not classifiable as to carcinogenity in humans“ definiert.

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



12 Ecological information

- Acute fish toxicity:** Toxicological investigations on sub-micron hematite products have resulted in as follows:
OECD 203/EU C.1 test: Daniorerio/LC0 96h: >100000 mg/l.
There is a high probability that the product is not acutely harmful to aquatic organisms.
- Acute Bacterial toxicity:** Toxicological investigations on sub-micron hematite products have resulted in as follows:
OECD 202/EU C.2 test: Daphnia-Daphnia magna/EC40 48h:
>100 mg/l. No harmful effects.
- Algae growth inhibition test:** No harmful effects detected from eluate (EC₅₀>100%) and organic extrate (EC₅₀ >13567mg/L and 45978mg/L) on Skeletonema costatum (NIVA, LAB kode B749/3, 4.03.2011).
- Persistence and degradability:** The product is insoluble in water and can be separated from water by sedimentation or the use of a filter.
- 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. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable level.
- 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: 010308 (75/442/EEC, European Waste Catalogue).

Packaging:

Packaging should be recycled.
Packaging waste classified as EWC-Code: 15... (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	See IMSBC
ICA/IATA-DGR	Not restricted

IMSBC Code:

Restrictions for shipment of solid bulk cargos. The products are placed in "Group A" (Dangerous goods, with the ability to plastizise at a water content in excess of the TML) and require the determination of the TML before shipment.

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 EWC-Code: 01... and 15... according to 75/442/EWG (European Waste List) (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 3717, 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 Direktive.
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).



Rana Gruber AS

Postboks 434, N-8601 Mo i Rana
Tel.: +47 751 37 300, Fax: +47 751 37 302
e-mail: market@ranagruber.no
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EWG = Europäische Wirtschaftsgemeinschaft.(Germany)
IMSBC = International Maritime Solid Bulk Cargos Code.
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.
TML = Transport Moisture Limit.
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.

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.

Prepared by: RG Mineral AS, Dr. Frank-Dieter Priesemann.