



Material Safety Data Sheet

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

Products: **COLORANA®** CM-4, CM-4D, CM-4D Mag.

1 Identification / substance / preparation / company

Product-ID.: **COLORANA® CM-4, CM-4D, CM-4D Mag.**

REACH

Registration-No.: 01-2119457646-28-0008

Material: Black Iron Oxide Powder

Color Index: Pigment Black 11, 77499

Synonyms: Natural magnetite, ferrosoferric oxide, magnetic iron oxide, ferriferous oxide, iron oxide black.

Applications: Colourants (pigments), technical applications, magnetic applications.

Company: RG Mineral AS (a Rana Gruber Group Company)
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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.
Long term exposure to dust in excess of the Occupational Exposure Standard should be avoided. Iron oxide dust may produce a benign pneumoconiosis (siderose).

3 Composition / information on ingredients

Characterization: Chemical substance

Chemical Designation: Magnetite, Fe₃O₄
Color Index: Pigment Black 11, 77499

Ingredient name	CAS-no.	Weight-%	EINECS	EU-Classification
Triiron tetraoxide	1317-61-9	97-100	215-277-5	No classification
Iron oxide (Fe ₃ O ₄), Magnetite	1309-38-2	97-100	215-169-8	No classification
Iron oxide black	12227-89-3	97-100	235-442-5	No classification

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, other than removal 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:** Remove material from fireplace and keep under observation as material may react due to overheating (see section 10).
No risk for explosion (see section 10).
- 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:** 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 except for avoid spillage to drains and reservoirs of drinking water due to its potential of colouring.
- 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:** 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 removal of the polythene film from IBC (big bags) and palletised sacks may generate an electrostatic charge and should therefore not be carried out in atmospheres containing flammable vapours.
Big bags should be handled on pallets or sling hoists designed for the purpose. Never lift using all four loops on a single hook. When using a fork lift truck place two loops over each fork and ensure that the weight is evenly distributed.



Special care should be taken when piling the material. Pallets with big bags or paperbags are unsuitable as foundation.

Storage:

Store in a cool and dry place away from strong light. Prevent from overheating due to elevated temperatures during storage of larger volumes of pigment. Elevated persisting temperatures and extreme temperatures of above 80°C must be avoided (see section 10).

Protect from flammable media.

Once opened, close and seal bags to avoid contamination, moisture uptake and dusting.

Storage Class:

13 “not combustible”.

8 Exposure controls / personal protection

Engineering Measures:

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/m³, respirable dust = 3mg/m³

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)



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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:	Fine black powder.
Odour:	Odourless.
pH:	5 - 9 at 50 g/l
Relative density:	5.2g / cm ³
Tamped density:	1.0-1.5g / cm ³
Melting point:	above 1500 °C.
Grain size:	Predominantly grain size for the products is from 2 to 10 microns. The products do not contain any nano-size particles <100nm as defined by the technical standard CEN/TS 27687:2008.
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: May oxidise to Fe₂O₃ (red/brown iron oxide), a no hazardous decomposition product, at temperatures >80 °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.

Iron oxide dust is hygroscopic and may result in a dry-out of the human skin.

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

Toxicological investigations on equivalent products 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

Carcinogenicity: Iron Oxides are currently determined as non-carcinogenic 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. 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

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.
Waste EWC-Code: 01... and 15... according to 75/442/EEG (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 8310, class of poison free (link to section 11).

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



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- 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
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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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