

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **KRONoCHROME**
 UFI: **D160-M02U-200N-4TTQ**
 (Germany, Austria, Belgium, Czech Republic, Croatia, Finland,
 France, Luxembourg, Poland, The Netherlands, Romania)

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

Identified uses of the substance or mixture: **Chromate reduction in cement**
 Uses advised against: **None**

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: **KRONOS INTERNATIONAL, Inc.**
KRONOS ecochem
Peschstrasse 5
51373 Leverkusen, Germany
Tel.: INT +49 214 356-0

EMERGENCY TELEPHONE NUMBER:

KRONOS INTERNATIONAL, Inc. (Germany)
Tel.: INT + 49 214 356-4444

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008: **The product is classified and labelled according to the CLP regulation.**

Hazard pictograms



GHS07

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements

P280 Wear protective gloves / eye protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

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P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

Additional information: The product is not classified pursuant to Regulation 2020/217 (14th ATP to Regulation (EU) 1272/2008, Annex VI). EUH 212 is included in Section 2.2 voluntarily.
EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

2.3 Other hazards
Results of PBT and vPvB assessment

The product is an inorganic substance and does not fulfill the criteria for PBT and vPvB according to Annex XIII of REACH.

Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Dangerous components:

CAS: 17375-41-6	Ferrous sulphate monohydrate	25 - 50%
EINECS: 231-753-5	⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319	
Reg.nr.: 01-2119513203-57-xxxx		
CAS: 13463-67-7	titanium dioxide	2.5 - 10%
EINECS: 236-675-5		
Reg.nr.: 01-2119489379-17-xxxx		

SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation: Supply fresh air; consult doctor in case of symptoms.

After skin contact: Instantly wash with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor.

After eye contact: Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing: Rinse out mouth and then drink plenty of water.

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4.2 Most important symptoms and effects, both acute and delayed

Call a doctor immediately.

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use fire fighting measures that suit the environment. CO₂, extinguishing powder or water jet. Fight larger fires with water jet.

5.2 Special hazards arising from the substance or mixture

Sulphur dioxide (SO₂)

5.3 Advice for firefighters

Protective equipment:

Use protective measures that suit the hazard conditions.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment.

6.2 Environmental precautions:

Do not allow to enter the ground/soil. Do not allow to enter drainage system, surface or ground water. If material reaches soil inform authorities responsible for such cases. Inform respective authorities in case product reaches water or sewage system.

6.3 Methods and material for containment and cleaning up:

Collect mechanically. Dispose of contaminated material as waste according to item 13.

6.4 Reference to other sections

See Section 8 for information on personal protective equipment. See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Information about protection against explosions and fires:

Ensure good ventilation/exhaustion at the workplace.

The product is not flammable.

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7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and containers: Suitable material for containers and pipes: Plastics and steel.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: Store under dry conditions.

7.3 Specific end use(s) There are no further specific end uses than those named in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with critical values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Not required.

DNELs
Worker

Dermal (Worker): 8.51 mg/kg/d (Systemic long-term effects)

PNECs Iron is an essential trace element for fish, aquatic invertebrates and plants. A direct toxicity could not be demonstrated in tests. Therefore no PNEC was derived.

8.2 Exposure controls

Information related to exposure control can be found in the respective exposure scenarios in the annex of the SDS.

Appropriate engineering controls

No further data; see Section 7

Individual protection measures, such as personal protective equipment

General protective and hygienic measures: Listed in section 8 are the general personal protection measures corresponding to the standard of the chemical industry. Specific information and detailed requirements are referred to in the exposure scenarios in the annex of the SDS. The usual precautionary measures should be adhered to in handling chemicals.

Breathing equipment:

Details can be found in the exposure scenarios in the annex of the SDS.

Hand protection

Requirements according to EN 374
Check protective gloves prior to each use for their proper condition. Preventive skin protection by use of skin-protecting agents is recommended.

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Material of gloves:	Details on the material can be found in the exposure scenarios in the annex of the SDS.
Penetration time of glove material	Details can be found in the exposure scenarios in the annex of the SDS.
Eye/face protection	Tightly sealed safety glasses.
Body protection:	Protective work clothing.
Environmental exposure controls	Information related to exposure control can be found in the respective exposure scenarios in the annex of the SDS.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Physical state	Solid
Colour:	Light brown
Smell:	Odourless
Odour threshold:	Not determined.
Melting point/freezing point:	Not applicable.
Boiling point or initial boiling point and boiling range	Not applicable
Flammability	Product is not flammable.
Flash point:	Not applicable
Decomposition temperature:	>400°C
pH	Not determined.
Viscosity:	
Kinematic viscosity	Not applicable
Solubility in / Miscibility with Water at 20°C:	ca. 50 g/l
Partition coefficient n-octanol/water (log value)	Not applicable
Vapour pressure:	Not applicable.
Density and/or relative density	
Density:	2.72 g/cm ³
Apparent density:	0.8-1.1 t/m ³
Vapour density	Not applicable.
Particle characteristics	Average particle size D50(volume-based) = 18.23 µm (laser diffraction) Percentage of particles with an aerodynamic diameter ≤ 10 µm in the products identified in Section 1.1
	mean [%] minimum [%] maximum [%] method
	0,0763 0,0745 0,0781 EN15051-2

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9.2 Other information

Appearance:

Form: Powder

Important information on protection of health and environment, and on safety.

Self-flammability: Product is not selfigniting.

Explosive properties: Product is not explosive.

Change in condition:

Evaporation rate Not applicable.

Information with regard to physical hazard classes

not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance is stable under normal use conditions.

10.2 Chemical stability

Thermal decomposition /
Conditions to be avoided:

No decomposition if used and stored according to specifications.
Loss of constitutional water when heated above 300 °C

10.3 Possibility of hazardous reactions

Not relevant

10.4 Conditions to avoid

No further data; see Section 7

10.5 Incompatible materials:

No further data; see Section 7

10.6 Hazardous decomposition products:

Formation of toxic gases is possible during heating (> 400 °C); see item 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity Harmful if swallowed.

LD/LC50 values that are relevant for classification:

Oral LD50 669 mg/kg (rat) (OECD 423)

Dermal LD50 > 2,000 mg/kg (rat) (OECD 402)

Inhalative LC50 no relevant data available

Primary irritant effect:

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/irritation Causes serious eye irritation.

Respiratory or skin sensitisation No sensitizing effects.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Based on available data, the classification criteria are not met.

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Reproductive toxicity	Based on available data, the classification criteria are not met.
STOT-single exposure	Based on available data, the classification criteria are not met.
STOT-repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.

Subacute to chronic toxicity:

Oral NOAEL 167 mg/kg/d (rat) (OECD 422)

Dermal NOAEL no relevant data available

Inhalative NOAEC no relevant data available

11.2 Information on other hazards

Endocrine disrupting properties The product does not contain substances with endocrine disrupting properties.

SECTION 12: Ecological information

12.1 Toxicity

Data are experimentally not accessible.
Under standard test conditions, the ferrous ion, Fe²⁺, is unstable and is oxidised to the ferric, Fe³⁺, ion. Ferric iron salts have a high rate of conversion to insoluble ferric hydroxide, in consequence, Fe²⁺ is to a great extent removed from the test system.
Furthermore, iron plays an important role in biological processes, with iron homeostasis being under strict control.
In conclusion, iron is not considered to be toxic to the aquatic environment under normal conditions.

12.2 Persistence and degradability

Not relevant for inorganic substances.

12.3 Bioaccumulative potential

Iron is a bioessential trace element for organisms and plays an important role in biological processes.
The uptake of iron is strictly controlled by homeostatic process.
In conclusion, bioaccumulation poses no concern.

12.4 Mobility in soil

The substance is immobile in soil.

12.5 Results of PBT and vPvB assessment

The product is an inorganic substance and does not fulfill the criteria for PBT and vPvB according to Annex XIII of REACH.

PBT:

Not applicable

vPvB:

Not applicable

12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects

Additional ecological information:

AOX-indication: <2 mg/kg

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

European waste catalogue Waste code number according to origin of waste

Uncleaned packagings:

Recommendation: Disposal according to official regulations

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN

Not dangerous according to transport specifications.
not applicable

ADN, IMDG, IATA

14.2 UN proper shipping name

ADR/RID/ADN

not applicable
not applicable

ADN, IMDG, IATA

14.3 Transport hazard class(es)

ADR/RID/ADN, ADN, IMDG, IATA

Class

not applicable

14.4 Packing group

ADR/RID/ADN, IMDG, IATA

not applicable

14.5 Environmental hazards

Not an environmentally hazardous substance

14.6 Special precautions for user

None

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV): (Substances not listed)

None of the ingredients is listed.

Regulation (EU) No 649/2012

None of the ingredients is listed.

DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

None of the ingredients is listed.

REGULATION (EU) 2019/1148

Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))

None of the ingredients is listed.

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

None of the ingredients is listed.

Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

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REGULATION (EU) 2024/590 on substances that deplete the ozone layer

None of the ingredients is listed.

15.2 Chemical Safety Assessment
Substances of very high concern (SVHC) according to REACH, Article 57

The product is not listed as SVHC, it does not contain any substances of very high concern.

Chemical safety assessment: A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Department issuing data sheet: Global Quality Management

Contact: KRONOS INTERNATIONAL, Inc.
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Abbreviations and acronyms: ICAO: International Civil Aviation Organisation
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
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 – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

* Data compared to the previous version altered.

Amended according to Regulation (EU) no 2020/878

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Annex: Exposure scenario

1. Short title of the exposure scenario	ES 1: Industrial use of KROnoCHROME
2. Description of activities/ process(es) covered in the Exposure Scenario	Use in manufacture of cement (reduction of chromates)
Sector of Use	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
Environmental release category	ERC2 Formulation into mixture
3. Conditions of use	
Worker	7 workdays/week Regular use with exposure up to 8 hours per workday.
Environment	Annual tonnage per site: up to 7500 t (product) Typical amount per lot: 25 (product) Emission days per site: 365
4. Physical parameters	
4.1 Physical state	Powder
4.2 Concentration of the substance in the mixture	Raw material.
5. Other operational conditions determining exposure	
5.1 Other operational conditions affecting environmental exposure	None
5.2 Other operational conditions affecting worker exposure	None

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5.3 Other operational conditions affecting consumer exposure Not relevant for this Exposure Scenario.

5.4 Other operational conditions affecting consumer exposure during the use of the product Not relevant for this Exposure Scenario.

6.0 Risk management measures

6.1 Worker protection

6.1.1 Organisational protective measures

Handling procedures must be well documented.
Provide Internal Plant Instruction.
Ensure that activities are executed by specialists or authorised personnel only.

6.1.2 Technical protective measures

Use and handle product preferably in enclosed systems.
Carry out filling operations only at sites with extractors available.
Prevent formation of dust.
Provide vacuum dust collection if dust is formed.

6.1.3 Personal protective measures

General measures corresponding to the standard of the chemical industry: see SDS section 8 .
Material of gloves and resistance:
Polychloroprene
Resistance to:
Sulphuric acid
Value for the permeation: Level \geq 6
Respiratory protection:
(recommended for PROC 8b, 9)
Recommended filter device for short term use:
EN149: FFP2; EN143: P2
In case of intensive or longer exposure and/or if workplace exposure limits are exceeded, use breathing apparatus that is independent of circulating air.

6.2 Measures for consumer protection

Not relevant for this Exposure Scenario.

6.3 Environmental protection measures

6.3.1 Air

Exhaust air is cleaned in dedusting process.

6.3.2 Water

No relevant way of exposure.

6.3.3 Soil

No relevant way of exposure.

6.4 Notes

In case of unintended release of the product: See section 6 of the Safety Data Sheet.

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7. Waste related measures

7.1 Disposal procedures

Disposal according to official regulations
Waste code number according to origin of waste

7.2 Waste type

Solid product residues

8. Exposure estimation

Worker (oral)

No significant oral exposure

Worker (dermal)

The highest dermal exposure for the substance to be expected is 0.0017 mg/kg/day (PROC 1, 3)
The highest dermal exposure for the substance to be expected is 0.0034 mg/kg/day (PROC 2, 8b, 9)
The exposure estimation was carried out in accordance with ECETOC TRA.

Worker (inhalation)

The highest inhalative exposure to be expected is 0.01 mg/m³ (duration of use ≤8h/d) (PROC 1)
The highest inhalative exposure to be expected is 1 mg/m³ (duration of use ≤8h/d) (PROC 2, 3)
The highest inhalative exposure to be expected is 1.25 mg/m³ (duration of use ≤8h/d) (PROC 8b)
The highest inhalative exposure to be expected is 2 mg/m³ (duration of use ≤8h/d) (PROC 9)
The exposure estimation was carried out using the "Advanced REACH Tool (ART)".

RCR (Risk Characterisation Ratio)

Risk Characterisation Ratio RCR (dermal exposure) = 0.0002 - 0.0004
Risk Characterisation Ratio RCR (inhalative exposure) = 0.003 - 0.66
Poměr rizikové charakteristiky (RCR, celkem) <1 (0.66), je možné předpokládat bezpečné používání, pokud jsou dodržena opatření pro řízení rizik podrobně popsána v bodě 6 přílohy.
The calculation of RCR (inhalation) is based on the specified OEL in Chapter 8 .

Environment

Since no PNECS were derived further assessment of the environmental exposure is not necessary.

Consumer

Not relevant for this Exposure Scenario.

9. Guidance for downstream users

Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.