

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 20.07.2018

Version 9.12

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## SECTION 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

REACH Registration Number A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. 7775-14-6

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

Identified uses Materials for use in technical applications  
In compliance with the conditions described in the annex to this safety data sheet.

### 1.3 Details of the supplier of the safety data sheet

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Responsible Department LS-QHC \* e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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Self-heating substances, Category 1, H251

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H251 Self-heating: may catch fire.

EUH031 Contact with acids liberates toxic gas.

EUH208 - Contains:

Hexamethylenetetramine

May produce an allergic reaction.

#### **Reduced labelling (≤125 ml)**

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H251 Self-heating: may catch fire.

*Index-No.* 016-028-00-1

## 2.3 Other hazards

The Safety Data Sheets for catalogue items are available at [www.merckgroup.com](http://www.merckgroup.com)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub>	Na <sub>2</sub> O <sub>4</sub> S <sub>2</sub> (Hill)
Index-No.	016-028-00-1	
EC-No.	231-890-0	
Molar mass	174,11 g/mol	

#### Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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sodium dithionite (>= 50 % - <= 100 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

7775-14-6	01-2119520510-57-	
	XXXX	Self-heating substances, Category 1, H251 Acute toxicity, Category 4, H302

sodium carbonate (>= 3 % - < 10 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

497-19-8	01-2119485498-19-	
	XXXX	Eye irritation, Category 2, H319

Hexamethylenetetramine (>= 0,1 % - < 1 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

100-97-0	01-2119474895-20-	Flammable solid, Category 2, H228
	XXXX	Skin sensitisation, Category 1, H317

For the full text of the H-Statements mentioned in this Section, see Section 16.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air. Consult doctor if feeling unwell.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

irritant effects, Cough, respiratory paralysis, Shortness of breath, pain, Diarrhoea, Nausea, Vomiting, collapse, muscular weakness, Allergic reactions, death

### 4.3 Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Dry powder, Sand

*Unsuitable extinguishing media*

Water, Foam

### 5.2 Special hazards arising from the substance or mixture

Combustible.

danger of spontaneous combustion!

Risk of dust explosion.

Vapours are heavier than air and may spread along floors.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

Sulphur oxides

May not get in touch with:

Water

Caution! in contact with water product releases:

Sulphur oxides, The product reacts with water and generates heat.

## 5.3 Advice for firefighters

*Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Caution! Temperatures > 50°C cause evolution of gas in closed containers. Overpressure produces a risk of bursting.

Observe label precautions.

Keep workplace dry. Do not allow product to come into contact with water.

#### *Hygiene measures*

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

#### *Storage conditions*

Tightly closed. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

### 7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### **Derived No Effect Level (DNEL)**

##### *sodium dithionite (7775-14-6)*

Worker DNEL, longterm	Systemic effects	inhalation	10 mg/m <sup>3</sup>
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##### *sodium carbonate (497-19-8)*

Worker DNEL, longterm	Local effects	inhalation	10 mg/m <sup>3</sup>
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##### *Hexamethylenetetramine (100-97-0)*

Worker DNEL, longterm	Systemic effects	dermal	8,8 mg/kg Body weight
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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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Worker DNEL, Systemic effects inhalation 31 mg/m<sup>3</sup>  
longterm

## Predicted No Effect Concentration (PNEC)

*sodium dithionite (7775-14-6)*

PNEC Fresh water 1 mg/l  
PNEC Marine water 0,1 mg/l  
PNEC Sewage treatment plant 45,3 mg/l

*sodium carbonate (497-19-8)*

PNEC no data available

*Hexamethylenetetramine (100-97-0)*

PNEC Fresh water 3 mg/l  
PNEC Marine water 0,5 mg/l  
PNEC Fresh water sediment 2,4 mg/kg  
PNEC Marine sediment 0,4 mg/kg  
PNEC oral 53,33 mg/kg  
PNEC Sewage treatment plant 100 mg/l

## 8.2 Exposure controls

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

## *Eye/face protection*

Safety glasses

## *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

## *Other protective equipment*

protective clothing

## *Respiratory protection*

required when dusts are generated.

Recommended Filter type: filter ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

## **Environmental exposure controls**

Do not let product enter drains.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	powder
Colour	white
Odour	stinging
Odour Threshold	No information available.
pH	5,5 - 8,5 at 50 g/l 20 °C
Melting point	ca. 100 °C (decomposition)
Boiling point/boiling range	Not applicable
Flash point	> 100 °C Method: DIN 51758
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	Not applicable

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

Relative vapour density	No information available.
Density	2,5 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	ca.250 g/l at 20 °C (slow decomposition)
Partition coefficient: n-octanol/water	log Pow: < -4,7 (calculated) (External MSDS) Bioaccumulation is not expected.
Auto-ignition temperature	Self-heating: may catch fire.
Decomposition temperature	> 80 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	> 200 °C Method: DIN 51794
Bulk density	ca.1.250 kg/m <sup>3</sup>

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

Self-heating: may catch fire.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

Forms explosive mixtures with air on intense heating.

Risk of dust explosion.

## 10.2 Chemical stability

In case of decomposition in closed containers and tubes risk of bursting due to buildup of overpressure.

## 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Oxidizing agents, salts of oxyhalogenic acids

Risk of ignition or formation of inflammable gases or vapours with:

Water

Generates dangerous gases or fumes in contact with:

Acids

## 10.4 Conditions to avoid

Exposure to moisture

Heating (decomposition).

Strong heating.

## 10.5 Incompatible materials

no information available

## 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

*Acute oral toxicity*

LD50 Rat: 2.500 mg/kg

(External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

## *Acute inhalation toxicity*

Symptoms: Irritation symptoms in the respiratory tract., Cough, Shortness of breath

## *Acute dermal toxicity*

This information is not available.

## *Skin irritation*

Rabbit

Result: No irritation

(External MSDS)

## *Eye irritation*

Possible damages: slight irritation

## *Sensitisation*

May produce an allergic reaction.

## *Germ cell mutagenicity*

### *Genotoxicity in vitro*

Ames test

Result: negative

(External MSDS)

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## *Aspiration hazard*

This information is not available.

## **11.2 Further information**

After uptake of large quantities:

Nausea, Vomiting

Systemic effects:

pain, Diarrhoea, muscular weakness, collapse, respiratory paralysis, death

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **12.1 Toxicity**

#### *Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): 46 - 68 mg/l; 96 h

DIN 38412

(Regulation (EC) No 1272/2008, Annex VI)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 98 mg/l; 48 h

(External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

#### *Toxicity to algae*

IC50 *Desmodesmus subspicatus* (green algae): 206 mg/l; 72 h

(External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

#### *Toxicity to bacteria*

EC50 *Pseudomonas putida*: 107 mg/l; 17 h

DIN 38412

(Regulation (EC) No 1272/2008, Annex VI)

### **12.2 Persistence and degradability**

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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*Chemical Oxygen Demand (COD)*

210 mg/g

(External MSDS)

## **12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: < -4,7

(calculated)

(External MSDS) Bioaccumulation is not expected.

## **12.4 Mobility in soil**

No information available.

## **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

## **12.6 Other adverse effects**

*Additional ecological information*

Reacts with water to form toxic decomposition products.

Discharge into the environment must be avoided.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number	UN 1384
14.2 Proper shipping name	SODIUM DITHIONITE
14.3 Class	4.2
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 UN number	UN 1384
14.2 Proper shipping name	SODIUM DITHIONITE
14.3 Class	4.2
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

### Sea transport (IMDG)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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**14.1 UN number** UN 1384  
**14.2 Proper shipping name** SODIUM DITHIONITE  
**14.3 Class** 4.2  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
**EmS** F-A S-J  
**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

Major Accident Hazard SEVESO III  
Legislation Not applicable  
Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1$  % (w/w).



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## *National legislation*

Storage class 4.2

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H228	Flammable solid.
H251	Self-heating: may catch fire.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

### Training advice

Provide adequate information, instruction and training for operators.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

### Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

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## EXPOSURE SCENARIO 1 (Industrial use)

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### 1. Industrial use Materials for use in technical applications)

#### Sectors of end-use

*SU 3* Industrial uses: Uses of substances as such or in preparations at industrial sites  
*SU 10* Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)  
*SU16* Manufacture of computer, electronic and optical products, electrical equipment

#### Chemical product category

*PC19* Intermediate  
*PC21* Laboratory chemicals

#### Process categories

*PROC1* Use in closed process, no likelihood of exposure  
*PROC2* Use in closed, continuous process with occasional controlled exposure  
*PROC3* Use in closed batch process (synthesis or formulation)  
*PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises  
*PROC8a* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities  
*PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
*PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
*PROC14* Production of preparations or articles by tableting, compression, extrusion, pelletisation  
*PROC15* Use as laboratory reagent

#### Environmental Release Categories

*ERC1* Manufacture of substances  
*ERC2* Formulation of preparations  
*ERC3* Formulation in materials  
*ERC7* Industrial use of substances in closed systems

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### 2. Contributing scenarios: Operational conditions and risk management measures

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#### 2.1 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC15

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

## Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.  
Physical Form (at time of use) Solid, high dustiness

## Frequency and duration of use

Frequency of use 8 hours/day  
Frequency of use 5 days/week

## Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

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## 2.2 Contributing scenario controlling worker exposure for: PROC8a

### Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.  
Physical Form (at time of use) Solid, high dustiness

### Frequency and duration of use

Frequency of use 8 hours/day  
Frequency of use 5 days/week

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

### Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation. Provide extraction ventilation at points

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

where emissions occur. Provide extract ventilation to material transfer points and other openings.  
(Effectiveness (of a measure): 78 %)

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear respiratory protection. Wear suitable gloves (tested to EN374) and eye protection.

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## 2.3 Contributing scenario controlling worker exposure for: PROC9, PROC14

### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, high dustiness

### Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	5 days/week

### Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)
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### Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation. Provide extraction ventilation at points where emissions occur. Provide extract ventilation to material transfer points and other openings.  
(Effectiveness (of a measure): 78 %)

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

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## 3. Exposure estimation and reference to its source

The Safety Data Sheets for catalogue items are available at [www.merckgroup.com](http://www.merckgroup.com)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106505  
Product name Sodium dithionite EMPLURA®

---

## Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

## Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC1	longterm, inhalative, systemic	0,001	MEASE
2.1	PROC2	longterm, inhalative, systemic	0,1	MEASE
2.1	PROC3	longterm, inhalative, systemic	0,1	MEASE
2.1	PROC4	longterm, inhalative, systemic	0,55	MEASE
2.1	PROC8b	longterm, inhalative, systemic	0,55	MEASE
2.1	PROC15	longterm, inhalative, systemic	0,5	MEASE
2.2	PROC8a	longterm, inhalative, systemic	0,275	MEASE
2.3	PROC9	longterm, inhalative, systemic	0,44	MEASE
2.3	PROC14	longterm, inhalative, systemic	0,22	MEASE

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) acute effects risk management measures are based on qualitative risk characterisation.

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## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users;

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	106505
Product name	Sodium dithionite EMPLURA®

---

ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).