

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 18.10.2018

Version 9.10

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

### 1.1 Product identifier

Catalogue No. 106437

Product name Sodium cyanide 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. 143-33-9

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

Identified uses Materials for use in technical applications  
For additional information on uses please refer to the Merck Chemicals portal ([www.merckgroup.com](http://www.merckgroup.com)).

### 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](mailto: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)

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Acute toxicity, Category 2, Oral, H300  
Acute toxicity, Category 2, Inhalation, H330  
Acute toxicity, Category 1, Dermal, H310  
Specific target organ toxicity - repeated exposure, Category 1, thyroid, H372  
Acute aquatic toxicity, Category 1, H400  
Chronic aquatic toxicity, Category 1, H410  
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*

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.  
H372 Causes damage to organs (thyroid) through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.  
EUH032 Contact with acids liberates very toxic gas.

#### *Precautionary statements*

##### Prevention

P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing.

##### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

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## Reduced labelling (≤125 ml)

### Hazard pictograms



### Signal word

Danger

### Hazard statements

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.  
H372 Causes damage to organs (thyroid) through prolonged or repeated exposure.  
EUH032 Contact with acids liberates very toxic gas.

### Precautionary statements

P280 Wear protective gloves/ protective clothing.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium cyanide

Index-No. 006-007-00-5

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	NaCN	CNNa (Hill)
Index-No.	006-007-00-5	
EC-No.	205-599-4	
Molar mass	49,01 g/mol	

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

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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sodium cyanide (<= 100 % )		
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143-33-9	*)	
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Acute toxicity, Category 2, H300

Acute toxicity, Category 2, H330

Acute toxicity, Category 1, H310

Specific target organ toxicity - repeated exposure, Category 1,  
H372

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

M-Factor: 10

\*) 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.

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

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

*General advice*

First aider needs to protect himself.

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

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

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

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If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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

irritant effects, Cough, respiratory paralysis, Shortness of breath, Unconsciousness, agitation, spasms, Nausea, Vomiting, cardiovascular disorders, Headache, cardiac arrest, death  
The following applies to cyanogen compounds/ nitriles in general: utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration. Cardiovascular disorders, dyspnoea, unconsciousness.

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

Keep antidotes ready:  
dimethylaminophenol  
Cobalt-EDTA  
sodium thiosulphate

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Water, Foam

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

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Hydrogen cyanide (hydrocyanic acid)

May not get in touch with:

Water

Caution! in contact with water product releases:

Hydrogen cyanide (hydrocyanic acid)

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## 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 generation and inhalation of dusts in all circumstances. 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 carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

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*

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

Observe label precautions.

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Work under hood. Do not inhale substance/mixture.

### *Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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

### *Requirements for storage areas and containers*

No metal or light-weight-metal containers.

### *Storage conditions*

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

## **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## **SECTION 8. Exposure controls/personal protection**

### **8.1 Control parameters**

### **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.

#### *Eye/face protection*

Safety glasses

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## *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 B-(P3)

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.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	solid
Colour	white
Odour	bitter almond-like
Odour Threshold	No information available.
pH	ca. 11,7 at 100 g/l 20 °C
Melting point	563 °C
Boiling point/boiling range	1.496 °C at 1.013 hPa
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	at 20 °C Not applicable

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Relative vapour density No information available.

Density 1,6 g/cm<sup>3</sup>  
at 20 °C

Relative density No information available.

Water solubility 370 g/l  
at 20 °C

Partition coefficient: n-  
octanol/water No information available.

Auto-ignition temperature No information available.

Decomposition temperature > 1.500 °C

Viscosity, dynamic No information available.

Explosive properties Not classified as explosive.

Oxidizing properties none

## 9.2 Other data

Ignition temperature Not applicable

Bulk density ca.750 - 900 kg/m<sup>3</sup>

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 10.2 Chemical stability

sensitive to moisture

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## 10.3 Possibility of hazardous reactions

Risk of explosion with:

chlorates, nitrites, nitrates

Oxidizing agents, Release of:, Hydrogen cyanide (hydrocyanic acid)

Violent reactions possible with:

Nitric acid, urea

Carbon dioxide (CO<sub>2</sub>), (in the presence of atmospheric oxygen and/or moisture), Release of:,  
Hydrogen cyanide (hydrocyanic acid)

Generates dangerous gases or fumes in contact with:

alkali salts, Acids, Water

Release of:, Hydrogen cyanide (hydrocyanic acid)

## 10.4 Conditions to avoid

Exposure to moisture

no information available

## 10.5 Incompatible materials

Aluminium, Metals, Zinc

## 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: 5,09 mg/kg

(ECHA)

Symptoms: Nausea, Vomiting

*Acute inhalation toxicity*

Acute toxicity estimate: 0,051 mg/l; dust/mist

Expert judgement

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Symptoms: Possible damages:, mucosal irritations

### *Acute dermal toxicity*

LD50 Rabbit: 7,35 mg/kg  
(ECHA)

### *Skin irritation*

This information is not available.

### *Eye irritation*

This information is not available.

### *Sensitisation*

Sensitisation possible in predisposed persons.

### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: US-EPA

### *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*

Causes damage to organs through prolonged or repeated exposure.

Target Organs: thyroid

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## *Aspiration hazard*

This information is not available.

## **11.2 Further information**

Lethal effect after absorption.

Systemic effects:

agitation, spasms, Unconsciousness, Headache, Shortness of breath, respiratory paralysis, cardiovascular disorders, cardiac arrest, death

The following applies to cyanogen compounds/ nitriles in general: utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration. Cardiovascular disorders, dyspnoea, unconsciousness.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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## **SECTION 12. Ecological information**

### **12.1 Toxicity**

#### *Toxicity to fish*

flow-through test LC50 Fish: 0,0988 mg/l; 96 h  
(ECHA) (referred to cyanide ions)

### **12.2 Persistence and degradability**

#### *Chemical Oxygen Demand (COD)*

816 mg/g

(IUCLID)

#### *Ratio BOD/ThBOD*

BOD7 6 %

### **12.3 Bioaccumulative potential**

No information available.

### **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*

Biological effects:

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Hazard for drinking water supplies.  
Forms toxic and corrosive mixtures with water even if diluted.  
Discharge into the environment must be avoided.

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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 1689
14.2 Proper shipping name	SODIUM CYANIDE, SOLID
14.3 Class	6.1
14.4 Packing group	I
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	C/E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 UN number	UN 1689
14.2 Proper shipping name	SODIUM CYANIDE, SOLID
14.3 Class	6.1
14.4 Packing group	I
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

### Sea transport (IMDG)

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**14.1 UN number** UN 1689  
**14.2 Proper shipping name** SODIUM CYANIDE, SOLID  
**14.3 Class** 6.1  
**14.4 Packing group** I  
**14.5 Environmentally hazardous** yes  
**14.6 Special precautions for user** yes  
**EmS** F-A S-A

**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 ACUTE TOXIC  
H1  
Quantity 1: 5 t  
Quantity 2: 20 t

SEVESO III  
ENVIRONMENTAL HAZARDS  
E1  
Quantity 1: 100 t  
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

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

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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).

#### *National legislation*

Storage class 6.1B

## 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.

H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H330	Fatal if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

### Training advice

Provide adequate information, instruction and training for operators.

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## Labelling

### Hazard pictograms



### Signal word

Danger

### Hazard statements

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.

H372 Causes damage to organs (thyroid) through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

EUH032 Contact with acids liberates very toxic gas.

### Precautionary statements

#### Prevention

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing.

#### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium cyanide

## 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

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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.*