

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name:** Cytochrome C ≥ 95%, for biochemistry**Article number:** 6301**CAS Number:**

9007-43-6

**EC number:**

232-700-9

**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.

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

Laboratory chemical

**Application of the substance / the mixture**

Laboratory chemical

**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Carl Roth GmbH + Co. KG

Schoemperlenstraße 3-5

76185 Karlsruhe

Germany

Telefon: +49/(0)721 5606-0

Telefax: +49/(0)721 5606-149

E-Mail: sicherheit@carlroth.de

**Further information obtainable from:** Department Health, Safety and Environment**1.4 Emergency telephone number:**

Poison Centre Munich

Telefon +49/(0)89 19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008** Void**Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void**Information concerning particular hazards for human and environment:**

No hazardous product as specified in Directive 67/548/EEC.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008** Void**Hazard pictograms** Void**Signal word** Void**Hazard statements** Void**Additional information:**

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**2.3 Other hazards**

All chemicals are potentially dangerous. They are therefore only be handled by specially trained personnel with the necessary care.

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**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**SECTION 3: Composition/information on ingredients****3.1 Chemical characterization: Substances****CAS No. Description**

9007-43-6 Cytochrome c

**Identification number(s)****EC number:** 232-700-9**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:**

Remove any clothing soiled by the product.

**After inhalation:**

Supply fresh air.

**After skin contact:**

Rinse with water

**After eye contact:**

To be sure rinse opened eye under running water. If there is any trouble seek medical help.

**After swallowing:**

Rinse out mouth and then drink water.

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

We have no description of any toxic symptoms.

**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:** CO<sub>2</sub>, powder, foam or water spray.**For safety reasons unsuitable extinguishing agents:** Water with full jet**5.2 Special hazards arising from the substance or mixture**

In the event of fire development of hazardous combustion gases or vapours possible.

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained respiratory protective device.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Avoid formation of dust.

**6.2 Environmental precautions**

Do not allow product to reach sewage system or any water course.

**6.3 Methods and material for containment and cleaning up**

Pick up mechanically.

Dispose of the material collected according to regulations.

**6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Provide suction extractors if dust is formed.

**7.2 Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:**

Store in a cool location.

**Information about storage in one common storage facility:**

Store away from foodstuffs.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in dry conditions.

Protect from exposure to the light.

**Recommended storage temperature:** +4 °C**7.3 Specific end use(s)**

No further relevant information available.

**SECTION 8: Exposure controls/personal protection****Additional information about design of technical facilities:**

No further data; see item 7.

**8.1 Control parameters****Ingredients with limit values that require monitoring at the workplace:** Not required.**Additional information:**

The lists valid during the making were used as basis.

**8.2 Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Wash hands before breaks and at the end of work.

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**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.

**Respiratory protection:**

When dusts are generated: protective device filter P1.

**Protection of hands:**

Protective gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**

Nitrile, thickness:  $\geq$  0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Penetration time of glove material**

Value for the permeation: Level  $\geq$  6

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**As protection from splashes gloves made of the following materials are suitable:**

Nitrile rubber, thickness:  $\geq$  0.11 mm

Value for the permeation: Level  $\geq$  6

**Eye protection:**

Tightly sealed goggles

**Body protection:**

Protective work clothing

## SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Crystalline powder
<b>Colour:</b>	Red-brown
<b>Odour:</b>	Odourless
<b>Odour threshold:</b>	Not determined.

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<b>pH-value:</b>	No information available.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	> 300 °C
<b>Boiling point/Boiling range:</b>	No information available.
<b>Flash point:</b>	No information available
<b>Flammability (solid, gaseous):</b>	No information available
<b>Ignition temperature:</b>	No information available
<b>Decomposition temperature:</b>	No information available
<b>Self-igniting:</b>	No information available
<b>Danger of explosion:</b>	No information available
<b>Explosion limits:</b>	
<b>Lower:</b>	No information available.
<b>Upper:</b>	No information available.
<b>Oxidizing properties:</b>	No information available.
<b>Vapour pressure:</b>	Not applicable.
<b>Density:</b>	No information available.
<b>Vapour density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Solubility in / Miscibility with water:</b>	Partly soluble.
<b>Partition coefficient (n-octanol/water):</b>	No information available
<b>Viscosity:</b>	
<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.
<b>9.2 Other information</b>	No further relevant information available.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No further relevant information available.

### 10.2 Chemical stability

#### Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

### 10.3 Possibility of hazardous reactions

Reacts with strong oxidizing agents.

### 10.4 Conditions to avoid

No information available.

### 10.5 Incompatible materials:

No information available.

### 10.6 Hazardous decomposition products:

In case of fire: see item 5.

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**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity:****LD/LC50 values relevant for classification:**

Quantitative data on the toxicity of this product are not available.

**Specific symptoms in biological assay:****Primary irritant effect:****on the skin:**

Prolonged or repeated contact may cause skin irritations.

**on the eye:**

Intense exposure may cause irritative symptoms.

**after inhalation:**

Intensive contact with dusts may lead to irritations of the eyes and the respiratory tract.

**Sensitization:**

No sensitizing effects known.

**CMR effects:****Germ cell mutagenicity:**

No information available.

**Carcinogenicity:**

No information available.

**Reproductive toxicity:**

No information available.

**Aspiration hazard:**

No information available.

**Specific target organ toxicity - single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

**Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

**Further information:**

The product should be handled with the care usual when dealing with chemicals.

**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:**

Quantitative data on the ecological effect of this product are not available.

**12.2 Persistence and degradability**

No further relevant information available.

**12.3 Bioaccumulative potential**

No further relevant information available.

**12.4 Mobility in soil**

No further relevant information available.

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**Ecotoxicological effects:****Remark:**

Do not allow to enter waters, waste water, or soil!

**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Other adverse effects**

No further relevant information available.

### SECTION 13: Disposal considerations

**Waste treatment methods****Recommendation**

The disposal is regionally differently regulated, therefore the kind of disposal is to be inquired at the responsible authorities.

**Uncleaned packaging:****Recommendation:**

Disposal according to official regulations.

### SECTION 14: Transport information

<b>14.1 UN-Number</b>	
ADR, ADN, IMDG, IATA	Void
<b>14.2 UN proper shipping name</b>	
ADR, ADN, IMDG, IATA	Void
<b>14.3 Transport hazard class(es)</b>	
ADR, ADN, IMDG, IATA Class	Void
<b>14.4 Packing group</b>	
ADR, IMDG, IATA	Void
<b>14.5 Environmental hazards:</b>	
Marine pollutant:	No
<b>14.6 Special precautions for user</b>	Not applicable.
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	
ADR Remarks:	Not subject to transport regulations.
<b>UN "Model Regulation":</b>	-

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**Safety data sheet**  
according to 1907/2006/EC, Article 31



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### SECTION 15: Regulatory information

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

**National regulations:**

**Breakdown regulations:**

**Waterhazard class:**

Generally not hazardous for water (German regulation).

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing MSDS:** Department: Health, Safety and Environment

**Contact:** Frau Weckemann

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport 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 Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

LD50\*: Lethal Dose, 50 percent (Not relevant for classification)

LD50\*: Lethal Concentration, 50 percent (Not relevant for classification)

\* **Data compared to the previous version altered.**