

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.06.2018

Version number 1

Revision: 01.06.2018

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

- **Product identifier**
- **Trade name:** **Ruthenizer 535**
- **CAS Number:**
141460-19-7
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Substance
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SOLARONIX SA
Rue de l'Ouriette 129, CH-1170 Aubonne, Switzerland
info@solaronix.com
T +41 21 821 22 80
www.solaronix.com
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info@solaronix.com
- **Emergency telephone number:** Swiss Toxicological Information Center: +41 44 251 51 51

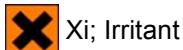
2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**

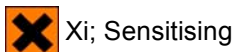


Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



R36/37/38: Irritating to eyes, respiratory system and skin.



R43: May cause sensitisation by skin contact.

- **Information concerning particular hazards for human and environment:** Not applicable.

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS07

- **Signal word** Warning

- **Hazard-determining components of labelling:**

cis-diisothiocyanato-bis(2,2'-bipyridyl-4,4'-dicarboxylic acid) ruthenium(II)

(Contd. on page 2)

Safety data sheet

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Trade name: **Ruthenizer 535**

(Contd. of page 1)

· Hazard statements

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H335 May cause respiratory irritation.

· Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P321 Specific treatment (see on this label).
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards**· Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Substances**· CAS No. Description**

141460-19-7 cis-diisothiocyanato-bis(2,2'-bipyridyl-4,4'-dicarboxylic acid) ruthenium(II)

4 First aid measures

· Description of first aid measures**· General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After excessive inhalation:

In case of unconsciousness place patient in a stable laying down side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.**· After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· After swallowing:

Do not induce vomiting; call for medical help immediately.

If symptoms persist consult a doctor.

· Information for doctor:**· Most important symptoms and effects, both acute and delayed**

No further relevant information available.

· Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Firefighting measures

· Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Contd. on page 3)

Safety data sheet

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Revision: 01.06.2018

Trade name: **Ruthenizer 535**

(Contd. of page 2)

- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Nitrogen oxides (NO_x)
Carbon monoxide (CO)
Under certain fire conditions, traces of other toxic gases cannot be excluded.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Avoid formation of dust.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protective equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
- **Information about fire - and explosion protection:**



Keep ignition sources away - Do not smoke.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see section 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.

(Contd. on page 4)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

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Version number 1

Revision: 01.06.2018

Trade name: Ruthenizer 535

(Contd. of page 3)

- **Additional information:**
As a basis for the production of this document, the most current valid lists were used.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Keep away from food, beverages and petfood. Immediately remove all soiled and contaminated clothing Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

- **Gloves material :**
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.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- | | |
|--|---|
| · Information on basic physical and chemical properties | |
| · General Information | |
| · Appearance: | |
| Form: | Powder |
| Colour: | Black |
| · Odour: | Characteristic |
| · Odour threshold: | Not determined. |
| · pH-value: | Not applicable. |
| · Change in condition | |
| Melting point/Melting range: | Undetermined. |
| Boiling point/Boiling range: | Undetermined. |
| · Flash point: | Not applicable. |
| · Flammability (solid, gaseous): | Product is not flammable. |
| · Ignition temperature: | Not applicable. |
| · Decomposition temperature: | Not determined. |
| · Self-igniting: | Not determined. |
| · Danger of explosion: | Product does not present an explosion hazard. |

(Contd. on page 5)

Safety data sheet

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(Contd. of page 4)

· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water:	Insoluble.
· Segregation coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
To avoid thermal decomposition do not overheat.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

(Contd. on page 6)

GB

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(Contd. of page 5)

- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

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



Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Land transport ADR/RID (cross-border) :**
- **ADR/RID class:** -

- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

- **UN "Model Regulation":** -
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

15 Regulatory information

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association

(Contd. on page 7)

Safety data sheet
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(Contd. of page 6)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS: Chemical Abstracts Service (division of the American Chemical Society)

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