

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 12/12/2010

Reviewed on 12/07/2010

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

- **Product identifier**
- **Trade name:** **Alpha-cyano-4-hydroxycinnamic acid**
(*α*-HCCA)
- **CAS Number:**
28166-41-8
- **EINECS Number:**
248-879-1
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bruker Daltonik GmbH
Fahrenheitstrasse 4
D-28359 Bremen / Germany
Tel.: +49(421) 2205-0
Fax : +49(421) 2205-100
E-mail: care@bdal.de
- **Information department:**
Bruker Daltonik GmbH
Tel.: +49 (421) 2205-240



2 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
28166-41-8 2-cyano-3-(4-hydroxyphenyl)acrylic acid
- **Identification number(s):**
- **EINECS Number:** 248-879-1

3 Hazards identification

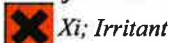
- **Classification of the substance or mixture**



GHS07

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.

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



Xi; Irritant

- R36/37/38: Irritating to eyes, respiratory system and skin.
- **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **Label elements**
- **GHS label elements**
The substance is classified and labelled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning

(Contd. on page 2)

USA


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Reviewed on 12/07/2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(α -HCCA)**

(Contd. of page 1)

- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
 - **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
 - **Classification system**
 - **NFPA ratings (scale 0-4)**
- 

Health = 2
Fire = 0
Reactivity = 0
- **Other hazards**
 - **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.

4 First aid measures

- **Description of first aid measures**
- **General information** Immediately remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air.
Seek medical treatment in case of complaints.
- **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
Seek medical advice.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing**
Rinse the mouth with water immediately
Immediately call a doctor.
- **Information for doctor** No particular measures are known - treat according to symptoms.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **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.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

USA

(Contd. on page 3)

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**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(a-HCCA)**

(Contd. of page 2)

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 - Ensure adequate ventilation
 - Avoid formation of dust.
 - Wear protective clothing.
 - Avoid contact with eyes and skin.
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
 - Pick up mechanically.
 - Avoid causing dust.
 - Ensure adequate ventilation.
- **Reference to other sections**
 - Clean the accident area carefully.
 - See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
 - Keep receptacles tightly sealed.
 - Prevent formation of dust.
 - Prevent formation of aerosols.
 - Provide suction extractors if dust is formed.
 - Keep eye irrigation utensils (bottle) ready for use at place of work.
 - Avoid contact with the eyes and skin.
 - The usual precautionary measures for handling chemicals must be observed.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
 - Store only in unopened original receptacles.
 - Protect from dampness and humidity.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
 - Store in cool, dry conditions in well sealed receptacles.
 - Store receptacle in a well ventilated area.
 - Protect from exposure to the light.
 - Avoid contact with air / oxygen.
- **Storage class 11**

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and feed.
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes and skin.
 - Immediately remove all soiled and contaminated clothing

(Contd. on page 4)

USA

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Reviewed on 12/07/2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 3)

• **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• **Recommended filter device for short term use:**



Filter P1

• **Protection of hands:**

Protective gloves.



Only use chemical-protective gloves with CE-labelling of category III.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

Preventive skin protection by use of skin-protecting agents is recommended.

• **Material of gloves**

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**

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

• **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

PVC or PE gloves

• **As protection from splashes gloves made of the following materials are suitable: PVC or PE gloves**

• **Eye protection:**



Tightly sealed goggles.

• **Body protection: Protective work clothing.**

9 Physical and chemical properties

• **Information on basic physical and chemical properties**

• **General Information**

• **Appearance:**

Form: Powder
Color: Light yellow
Odor: Characteristic

• **Change in condition**

Melting point/Melting range: 245-250°C (473-482°F)
Boiling point/Boiling range: undetermined

• **Flash point:** Not applicable

• **Flammability (solid, gaseous)** Product is not flammable.

• **Danger of explosion:** Product does not present an explosion hazard.

(Contd. on page 5)

USA

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**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 4)

• Density:	Not determined
• Solids content:	100.0 %

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:**
strong acids
Acid anhydrides
- **Hazardous decomposition products:**
in the event of fire:
Carbon monoxide and carbon dioxide
Nitrogen oxides (NO_x)
Hydrogen cyanide (prussic acid)

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.
- **Additional toxicological information:**
Possibly harmful by inhalation, harmful if swallowed and harmful in contact with skin.
Warning, substance not yet fully tested

12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Ecotoxicological effects:** Not determined
- **Additional ecological information:**
- **General notes:**
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must be specially treated adhering to official regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

USA

(Contd. on page 6)

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**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 5)

14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **UN "Model Regulation":** -
- **Special precautions for user** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Carcinogenicity categories**
- **EPA (Environmental Protection Agency)**
Substance is not listed.
- **IARC (International Agency for Research on Cancer)**
Substance is not listed.
- **NTP (National Toxicology Program)**
Substance is not listed.
- **TLV (Threshold Limit Value established by ACGIH)**
Substance is not listed.
- **MAK (German Maximum Workplace Concentration)**
Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.
- **GHS label elements**
The substance is classified and labelled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).

(Contd. on page 7)

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**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(a-HCCA)**

(Contd. of page 6)

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **National regulations**
- **Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.**
- **Sara**

• Section 355 (Extremely hazardous substances):
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Substance is not listed.

• Section 313 (Specific toxic chemical listings):
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Substance is not listed.

• TSCA (Toxic Substances Control Act):

Substance is not listed

• Chemicals known to cause cancer:

Substance is not listed.

- **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.

Changes made since last issue dated 10.12.2009 at the following points: *

- **Department issuing MSDS:**

IGG-AD Ingenieurbüro für Gefahrstoff- und Gefahrgutberatung

Bismarckstraße 10

D-68623 Lampertheim

Fax: 0049-(0)6206-58422 <http://www.igg-ad.de> info@igg-ad.de

- **Contact:**

Dr. U. Prinz (u.prinz@igg-ad.de)

Dipl.-Chem. H. Hinse (heidrun.hinse@igg-ad.de)

- **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

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)

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

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

NFPA: National Fire Protection Association (USA)

MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)

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

USA

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

Printing date 12.12.2010

Revision: 07.12.2010

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

- **Product identifier**

- **Trade name:** Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)

- **CAS Number:**

28166-41-8

- **EINECS Number:**

248-879-1

- **Relevant identified uses of the substance or mixture and uses advised against**

- **Application of the substance / the preparation** Laboratory chemicals

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Bruker Daltonik GmbH

Fahrenheitstrasse 4

D-28359 Bremen / Germany

Tel.: +49(421) 2205-0

Fax : +49(421) 2205-100

E-mail: care@bdal.de



- **Informing department:**

Bruker Daltonik GmbH

Tel.: +49 (421) 2205-240

- **Emergency telephone number:**

Tel.: +49 (361)730730

Gemeinsames Giftinformationszentrum (GGIZ)

2 Hazards identification

- **Classification of the substance or mixture**

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



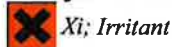
GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

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



Xi; Irritant

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

- **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **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 statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

(Contd. on page 2)

GB

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

Printing date 12.12.2010

Revision: 07.12.2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(α -HCCA)**

(Contd. of page 1)

• **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. Designation:**
28166-41-8 2-Cyano-3-(4-hydroxyphenyl)acrylic acid
- **Identification number(s):**
- **EINECS Number:** 248-879-1

* **4 First aid measures**

- **Description of first aid measures**
- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air.
Seek medical treatment in case of complaints.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
Seek medical advice.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing**
Rinse the mouth with water immediately
Instantly call for doctor.
- **Information for doctor** No particular measures are known - treat according to symptoms.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

* **6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation

(Contd. on page 3)

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

Printing date 12.12.2010

Revision: 07.12.2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(α -HCCA)**

(Contd. of page 2)

- Avoid causing dust.*
- Wear protective clothing.*
- Avoid contact with eyes and skin.*
- **Environmental precautions:** Do not allow product to reach sewage system or water bodies.
- **Methods and material for containment and cleaning up:**
 - Collect mechanically.*
 - Avoid causing dust.*
 - Collect in a suitable container and dispose of as described at paragraph 13.*
 - Ensure adequate ventilation.*
- **Reference to other sections**
 - Clean the accident area carefully.*
 - See Section 8 for information on personal protection equipment.*

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
 - Keep containers tightly sealed.*
 - Prevent formation of dust.*
 - Prevent formation of aerosols.*
 - Provide suction extractors if dust is formed.*
 - Keep eye irrigation utensils (bottle) ready for use at place of work.*
 - Avoid contact with the eyes and skin.*
 - The usual precautionary measures for handling chemicals must be observed.*
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:**
 - Store only in unopened original containers.*
 - Protect from dampness and humidity.*
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
 - Store in cool, dry conditions in well sealed containers.*
 - Store container in a well ventilated position.*
 - Protect from the effects of light.*
 - Avoid contact with air / oxygen.*

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.*
 - Wash hands during breaks and at the end of the work.*
 - Avoid contact with the eyes and skin.*
 - Take off immediately all contaminated clothing*
- **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.*

(Contd. on page 4)

GB

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

Printing date 12.12.2010

Revision: 07.12.2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 3)

- **Recommended filter device for short term use:**



Filter P1

- **Protection of hands:**
Protective gloves.



Only use chemical-protective gloves with CE-labelling of category III.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/
the chemical mixture.

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

Preventive skin protection by use of skin-protecting agents is recommended.

- **Material of gloves**

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**

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

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

PVC or PE gloves

- **As protection from splashes gloves made of the following materials are suitable: PVC or PE gloves**

- **Eye protection:**



Tightly sealed safety glasses.

- **Body protection:** Protective work clothing.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form: Powder
Colour: Light yellow
Odour: Characteristic

- **Change in condition**

Melting point/Melting range: 245-250°C
Boiling point/Boiling range: Not determined

- **Flash point:** Not applicable

- **Inflammability (solid, gaseous)** Product is not inflammable.

- **Danger of explosion:** Product is not explosive.

- **Density** Not determined

(Contd. on page 5)

GB

Safety data sheet
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Revision: 07.12.2010

**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 4)

• **Solids content:** 100.0 %

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:**
 - strong acids
 - Acid anhydrides
- **Hazardous decomposition products:**
 - in the event of fire:
 - Carbon monoxide and carbon dioxide
 - Nitrogen oxides (NO_x)
 - Hydrogen cyanide (prussic acid)

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
 - Possibly harmful by inhalation, harmful if swallowed and harmful in contact with skin.
 - Caution - substance not yet tested completely

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Ecotoxicological effects:** Not determined
- **Additional ecological information:**
- **General notes:**
 - Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
 - Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation** Must be specially treated under adherence to official regulations.

- **European waste catalogue**

18 00 00	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)
18 02 00	wastes from research, diagnosis, treatment or prevention of disease involving animals
18 02 05	chemicals consisting of or containing dangerous substances

(Contd. on page 6)

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**Trade name: Alpha-cyano-4-hydroxycinnamic acid
(*α*-HCCA)**

(Contd. of page 5)

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

14 Transport information

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

- **Maritime transport IMDG:**
- **IMDG Class:** -

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

- **UN "Model Regulation":** -
- **Special precautions for user:** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

* 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.
Changes made since last issue dated 10.12.2009 at the following points: *

- **Department issuing data specification sheet:**
IGG-AD Ingenieurbüro für Gefahrstoff- und Gefahrgutberatung
Bismarckstraße 10
D-68623 Lampertheim
Fax: 0049-(0)6206-58422 <http://www.igg-ad.de> info@igg-ad.de
- **Contact:**
Dr. U. Prinz (u.prinz@igg-ad.de)
Dipl.-Chem. H. Hinse (heidrun.hinse@igg-ad.de)
- **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
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
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
- *** Data compared to the previous version altered.**

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