1 Identification

- **Product identifier**

- **Trade name:** Cellulase »Onozuka R-10«
  from *Trichoderma viride* ca. 1 U/mg

- **Article number:** 16419
- **CAS Number:** 9012-54-8
- **EC number:** 232-734-4
- **Index number:** 647-002-00-3

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

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

  - **Manufacturer/Supplier:**
    SERVA Electrophoresis GmbH
    Carl-Benz-Str. 7
    D-69115 Heidelberg
    Tel.: +49 6221 13840-0
    FAX: +49 6221 13840-10
    msds.info@serva.de

  - **Information department:** Product Safety department
    Tel.: +49 6221 13840-35

  - **Emergency telephone number:**
    Medical Emergency Information in case of poisoning:
    Poison Information Center Mainz - Phone: +49 (0) 6131 19240
    (advisory service in German or English language)

2 Hazard(s) identification

- **Classification of the substance or mixture**

  - **GHS08**

  Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

- **Label elements**

  - **GHS label elements**
    The substance is classified and labeled according to the Globally Harmonized System (GHS).

  - **Hazard pictograms**
    GHS08

  - **Signal word**
    Danger

  - **Hazard statements**
    May cause allergy or asthma symptoms or breathing difficulties if inhaled.

- **Precautionary statements**

  - **Avoid breathing dust/fume/gas/mist/vapors/spray**
    [In case of inadequate ventilation] wear respiratory protection.

  - **If inhaled:** If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

  - **If experiencing respiratory symptoms:** Call a poison center/doctor.

- **Classification system:**

  - **NFPA ratings (scale 0 - 4)**

    - Health = 2
    - Fire = 0
    - Reactivity = 0

(Contd. on page 2)
Trade name: Cellulase »Onozuka R-10«
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HMIS-ratings (scale 0 - 4)

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Health = 2
Fire = 0
Reactivity = 0

Other hazards
Results of PBT and vPvB assessment
PBT: PBT - assessment not available.
vPvB: vPvB - assessment not available.

Chemical characterization: Substances
CAS No. Description
9012-54-8 Cellulase

Identification number(s)
EC number: 232-734-4
Index number: 647-002-00-3
Description:
MW: ca. 52000

Description of first aid measures
After inhalation: Supply fresh air and to be sure call for a doctor.
After skin contact:
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
After eye contact:
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
After swallowing:
Wash out mouth. Drink plenty of water and supply fresh air. Seek medical advice if discomfort occurs.

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.

Extinguishing media
Suitable extinguishing agents:
CO₂ extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards arising from the substance or mixture
Formation of dangerous gases or vapours is possible in case of fire.
In case of fire, the following can be released:
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOₓ)
Advice for firefighters
Protective equipment: Wear self-contained respiratory protective device.
6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective clothing.
  Ensure adequate ventilation
  Avoid contact with the eyes and skin.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Pick up mechanically.
  Dispose contaminated material as waste according to item 13.
- 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.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of dust.
  - 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 at +2 to +8 °C
  - Information about storage in one common storage facility: Not required.
- Further information about storage conditions:
  Keep receptacle tightly sealed and store in dry conditions.
  Protect from exposure to the light.
- Specific end use(s) No further relevant information available.

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.
    Store protective clothing separately.
    Immediately remove all soiled and contaminated clothing.
    Avoid contact with the eyes and skin.
    Wash hands before breaks and at the end of work.
  - Breathing equipment:
    Short term filter device:
    Filter P3
- Protection of hands:
  Protective gloves
  The glove material has to be impermeable and resistant to the product/substance/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

- **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 trough 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:**
  - Natural rubber, NR
  - Nitrile rubber, NBR

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing

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### 9 Physical and chemical properties

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

  - **General Information**
    - **Appearance:** lyophilisate
    - **Color:** Beige
    - **Odor:** Odorless

  - **pH-value:** Not determined.

  - **Change in condition**
    - **Melting point/Melting range:** Undetermined.
    - **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.

- **Density:** Not determined.

- **Solubility in / Miscibility with Water:** Soluble.

- **Other information:** No further relevant information available.

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### 10 Stability and reactivity

- **Reactivity** No further relevant information available.

- **Chemical stability**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

- **Possibility of hazardous reactions**
  As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.

- **Conditions to avoid** No further relevant information available.

- **Incompatible materials:** No further relevant information available.

- **Hazardous decomposition products:** In case of fire: See Section 5
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - Primary irritant effect:
      - on the skin: No irritant effect.
      - on the eye: No irritating effect.
    - Sensitization: Sensitization possible through inhalation.
  - Additional toxicological information:
    - Carcinogenic categories
      - IARC (International Agency for Research on Cancer) Substance is not listed.
      - NTP (National Toxicology Program) Substance is not listed.
      - OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability No further relevant information available.
  - Behavior in environmental systems:
    - Bioaccumulative potential No further relevant information available.
  - Mobility in soil No further relevant information available.
  - Additional ecological information:
    - General notes:
      - Water hazard class 1 (Self-assessment): slightly hazardous for water
      - Do not allow product 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.
    - Disposal must be made according to official regulations.
  - Uncleaned packagings:
    - Recommendation:
      - Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

14 Transport information

- UN-Number
  - DOT, ADR, ADN, IMDG, IATA Void
- UN proper shipping name
  - DOT, ADR, ADN, IMDG, IATA Void

(Contd. on page 6)
Transport hazard class(es)

DOT, ADN
Class Void

ADR, IMDG, IATA
Class Void
Label -

Packing group
DOT, ADR, IMDG, IATA Void

Environmental hazards:
Not applicable.

Special precautions for user
Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Transport/Additional information:
Not dangerous according to the above specifications.

UN "Model Regulation": Void

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Section 355 (extremely hazardous substances): Substance is not listed.
Section 313 (Specific toxic chemical listings): Substance is not listed.
TSCA (Toxic Substances Control Act): Substance is listed.
Proposition 65 Substance is not listed.
Chemicals known to cause cancer; Substance is not listed.
Chemicals known to cause reproductive toxicity for females: Substance is not listed.
Chemicals known to cause reproductive toxicity for males: Substance is not listed.
Chemicals known to cause developmental toxicity: Substance is not listed.

Cancerogenity categories
EPA (Environmental Protection Agency) Substance is not listed.
TLV (Threshold Limit Value established by ACGIH) Substance is not listed.
NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
GHS label elements
The substance is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms GHS08
Signal word Danger
Hazard statements
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements
Avoid breathing dust/fume/gas/mist/vapors/spray
[In case of inadequate ventilation] wear respiratory protection.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a poison center/doctor.
Dispose of contents/container in accordance with local/regional/national/international regulations.
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.

Department issuing SDS: Product safety department
Safety Data Sheet  
acc. to OSHA HCS

Trade name: Cellulase »Onozuka R-10«  
from Trichoderma viride ca. 1 U/mg

- **Contact:** +49 6221 13840-35  
- **Date of preparation / last revision:** 11/08/2018 / 1  
- **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 Organisation  
  - PBT: persistent, bioaccumulative, toxic substance (REACH)  
  - vPvB: very persistent, very bioaccumulative substance (REACH)  
  - REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals  
  - CLP: Regulation on classification, labelling and packaging of substances and mixtures  
  - bw: body weight  
  - 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  
  - DOT: US Department of Transportation  
  - IATA: International Air Transport Association  
  - 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)  
  - HMIS: Hazardous Materials Identification System (USA)  
  - PBT: Persistent, Bioaccumulative and Toxic  
  - vPvB: very Persistent and very Bioaccumulative  
  - NIOSH: National Institute for Occupational Safety  
  - OSHA: Occupational Safety & Health  
  - TLV: Threshold Limit Value  
  - PEL: Permissible Exposure Limit  
  - REL: Recommended Exposure Limit  
  - Resp. Sens. 1: Respiratory sensitisation – Category 1

- * Data compared to the previous version altered.