SAFETY DATA SHEET

Product Name: Nutrinova® Sorbic acid

Manufacturer or supplier's details
Celanese Production Germany GmbH & Co. KG
Am Unisys-Park 1
65843 Sulzbach (Taunus)
Germany

Product Information
HazCom@celanese.com

Emergency telephone number
+(65) 62656917 (Operations Room direct dial)
or fax request to +(65) 62664696 (Facsimile to Operations Room)
or email to posh.er@paccoffshore.com.sg

In China Emergency Number: 86-532-83889090 (NRCC)

Identified uses
Preservative in the food industry, feed additive, pharmaceutical

2. Hazards identification

Symbol(s)

Signal Word
Warning

Hazard Statements
H315 - Causes skin irritation
H320 - Causes eye irritation
H335 - May cause respiratory irritation
H336 - May cause drowsiness and dizziness
Precautionary Statements

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P321 - Specific treatment (see supplemental first aid instructions on this label)
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON PHYSICIAN/doctor/physician if you feel unwell.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local regulations.

3. Composition/Information on ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Percent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexa-2,4-dienoic acid</td>
<td>110-44-1</td>
<td>100</td>
</tr>
</tbody>
</table>

4. First aid measures

Skin
Wash off immediately with plenty of water. Get medical attention if irritation develops and persists.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Inhalation
Get medical attention immediately if symptoms occur. Move to fresh air in case of accidental inhalation of vapors.

Ingestion
Do NOT induce vomiting. Call a physician immediately.

5. Fire-fighting measures

Suitable extinguishing media
Carbon dioxide (CO2), Water spray, Foam, Dry chemical
Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
Under conditions giving incomplete combustion, hazardous gases produced may consist of
Carbon monoxide
Carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Risk of dust explosion

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus and protective suit.

Environmental precautions
Dike and collect water used to fight fire. Water used to fight fire runoff can cause environmental damage.

6. Accidental release measures

Personal precautions
Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation. Do not breathe dust. Move out of dangerous area.

Environmental precautions
Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater.

Methods for cleaning up
Use mechanical handling equipment. Dispose of in accordance with local regulations.

7. Handling and storage

Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

Incompatible products
No special restrictions on storage with other products

Protection - fire and explosion:
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Dust Explosion Group
Class 1

Material storage
Store locked up. Keep in a dry, cool place. Protect against light.

Incompatible products
No special restrictions on storage with other products

Technical measures/Storage conditions
Keep tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

ACGIH Exposure Limits
No exposure limits established.
OSHA Exposure Limits
No exposure limits established.

Exposure controls

Engineering measures
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General advice
Avoid contact with skin and eyes. Do not breathe dust.

Hygiene measures
Avoid contact with the skin and the eyes.. When using, do not eat, drink or smoke.. Wash hands before breaks and at the end of workday..

Respiratory protection
respirator with P2 filter. Equipment should conform to EN 136 or EN 140 and EN 143.

Eye protection
Tightly fitting safety goggles. Face-shield.

Skin protection
Protective suit

Hand protection
Chemicals resistant gloves

Suitable material
Nitrile rubber

Evaluation
according to EN 374: level 6

Material thickness
Approx. 0.5 mm

Break through time
480 min

9. Physical and chemical properties

Appearance
Form
powder
Color
white
Odor
odorless

Flash point
Not applicable
Ignition temperature
> 120°C
Melting point/range
134 °C
Boiling point/range
170 °C
Density
1.2 g/ml @ 20°C
pH
3.3 @ 20°C @ 1.6 g/l
Viscosity
not applicable
Vapor pressure
1.8 x 10⁻⁴ hPa @ 20°C
Water solubility
1.56 g/l @ 20°C
Solubility in other solvents
Not determined

Explosive Properties
not applicable based on consideration of the structure
9. Physical and chemical properties

- **Oxidizing Properties**: not applicable based on consideration of the structure
- **Dissociation constant**: $pK_a = 4.65 \pm 0.04$
- **Granulometry**: $L_{10}: 16.57 \, \mu m$ $L_{90}: 254.18 \, \mu m$

10. Stability and reactivity

- **Reactivity**: Stable under normal conditions of handling, use and transportation.

- **Conditions to avoid**: Avoid dust formation.

- **Incompatible Materials**: Keep away from: Oxidizing agents

- **Hazardous Combustion or Decomposition Products**: Thermal decomposition products may include oxides of carbon.
11. Toxicological information

Potential health effects

Routes of exposure  
Skin, eyes, inhalation.

Immediate effects

<table>
<thead>
<tr>
<th>Part</th>
<th>Effect</th>
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<tr>
<td>Skin</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause respiratory tract irritation.</td>
</tr>
</tbody>
</table>

Hexa-2,4-dienoic acid

- Acute oral toxicity  
  LD50: > 10000 mg/kg, rat
- Acute dermal toxicity  
  LD50: > 2000 mg/kg, rat
- Skin corrosion/irritation  
  Species: rabbit
  Method: EEC 84/449, B.4
- Skin Sensitization  
  Species: guinea pig
  Method: Similar to: EEC 96/54, B.6
- Serious eye damage/eye irritation  
  Species: rabbit eye
  Method: EEC 84/449, B.5
- Carcinogenic effects  
  Species: rats
- in vitro Mutagenicity  
  - negative
- in vivo Mutagenicity  
  Mammalian Erythrocyte Micronucleus Test in mice: negative
  - Method: OECD 474
- Repeated exposure  
  No consistent differences between treated and control groups, although there were some statistically significant differences in the high dose males and/or females

12. Ecological Information

Hexa-2,4-dienoic acid

- Acute fish toxicity  
  Species: Brachidanio rerio (zebra fish)
  Method: OECD 203
  LC50: 1250 mg/l (96h) (Reference substance: Potassium sorbate)
- Acute daphnia toxicity  
  Species: Daphnia magna
  Method: OECD 202
  EC50: 353 mg/l (48h)
- Toxicity to aquatic plants  
  EC50: 24.1 mg/l (72h)
12. Ecological Information

Species: Scenedesmus subspicatus
Toxicity to bacteria
- EC50 (3h): > 100 mg/l
- OECD 209
Biodegradation
- Readily biodegradable
- OECD 301 B
Other potential hazards
- The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

13. Disposal considerations

Product information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

14. Transport information

US Department of Transportation Not regulated
ADR/RID Not regulated
ADN ADN: Container and Tanker
- Not regulated
ICAO/IATA Not restricted
IMDG Not regulated

15. Regulatory information

International Inventories
Australia (AICS)
Canada (DSL)
China (IECSC)
Europe (EINECS)
Japan (ENCS)
Japan (ISHL)
Korea (KECI)
New Zealand (NZIoC)
Philippines (PICCS)
United States (TSCA)
16. Other information

Prepared By
Product Stewardship Department
Celanese

Food / Feed Safety Emergency Contact:
24 h Food / Feed Safety Emergency No:
(Please contact only in emergency situations) +49 (0)69 305 6418

Other Information:
Observe national and local legal requirements.

Changes against the previous version are marked by ***

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 1907/2006/EC indicates that no data meeting these requirements is available.

Further information
This information is based on our present state of knowledge. It shall describe our products regarding safety requirements and shall not be construed as a guarantee or statement of condition and/or quality For more information, other material safety data sheets or technical data sheets please consult the Celanese homepage (www.celanese.com)