Safety Data Sheet

1. Product and company identification

Trade Name

Panosorb®

Manufacturer, importer, supplier
Celanese Production Germany GmbH & Co. KG
Am Unisys-Park 1
65843 Sulzbach (Taunus)
Germany

Transportation emergency phone numbers:
In USA, call  800 424 9300
Outside USA, call +001 703 527 3887, collect calls accepted.

Identified uses
Food additive

2. Hazard Identification

Label elements

Signal Word  Warning
Hazard Statements  Causes skin irritation
  Causes eye irritation
  May cause respiratory irritation
Precautionary statements
Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
Use only outdoors or in a well-ventilated area.
Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves
IF ON SKIN: Wash with plenty of water.
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor if you feel unwell.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed
Dispose of contents/ container to an approved waste disposal plant.

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.

Authority Notification
Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:

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.

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

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

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

Incompatible products
No special restrictions on storage with other products

8. Exposure controls / personal protection

OSHA Exposure Limits
Safety Data Sheet

No exposure limits established.

ACGIH Exposure Limits
No exposure limits established.

Mexico National 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.

Protective equipment
A safety shower and eyewash should be readily available.

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

9. Physical and chemical properties

Appearance
Form powder
Color white
Odor odorless
Flash point Not applicable
Ignition temperature > 120°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
Vapor density Not determined
Evaporation Rate Not determined
Water solubility 1.56 g/l @ 20°C
Solubility in other solvents Not determined
Partition coefficient 1.32 @ 20°C (pH: 2.5)
(n-octanol/water)

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.

Possibility of hazardous reactions
None anticipated.
11. Toxicological information

Potential health effects

Routes of exposure
Skin, eyes, inhalation.

Immediate effects

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td></td>
<td></td>
<td>LD50: &gt; 10000 mg/kg, rat</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td></td>
<td></td>
<td>LD50: &gt; 2000 mg/kg, rat</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td></td>
<td>EEC 84/449, B.4</td>
<td>No skin irritation rabbit</td>
</tr>
<tr>
<td>Skin Sensitization</td>
<td></td>
<td></td>
<td>nonsensitizer guinea pig</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>rabbit eye</td>
<td>EEC 84/449, B.5</td>
<td>Irritant</td>
</tr>
<tr>
<td>Carcinogenic effects</td>
<td></td>
<td></td>
<td>No evidence of carcinogenicity</td>
</tr>
<tr>
<td>in vitro Mutagenicity</td>
<td></td>
<td>Method: OECD 474</td>
<td>negative</td>
</tr>
<tr>
<td>in vivo Mutagenicity</td>
<td>Mammalian Erythrocyte Micronucleus Test in mice</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Repeated exposure</td>
<td></td>
<td></td>
<td>No consistent differences between treated and control groups, although there were some statistically significant differences in the high dose males and/or females</td>
</tr>
</tbody>
</table>

12. Ecological Information

Hexa-2,4-dienoic acid

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute fish toxicity</td>
<td>Brachidanio rerio (zebra fish)</td>
<td>OECD 203</td>
<td>LC50: 1250 mg/l (96h)</td>
</tr>
<tr>
<td>Acute daphnia toxicity</td>
<td>Daphnia magna</td>
<td></td>
<td>EC50: 353 mg/l (48h)</td>
</tr>
</tbody>
</table>

(Reference substance: Potassium sorbate)
12. Ecological Information

<table>
<thead>
<tr>
<th>Method</th>
<th>Toxicity to aquatic plants</th>
<th>Toxicity to bacteria</th>
<th>Biodegradation</th>
<th>Other potential hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>EC50: 24.1 mg/l (72h)</td>
<td>EC50 (3h): &gt; 100 mg/l</td>
<td>Readily biodegradable</td>
<td>The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII</td>
</tr>
<tr>
<td>Species</td>
<td>Scenedesmus subspicatus</td>
<td>OECD 209</td>
<td>OECD 301 B</td>
<td></td>
</tr>
</tbody>
</table>

13. Disposal considerations

Disposal considerations
Dispose of spilled material in accordance with state and local regulations for waste that is non-hazardous by Federal definition. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

14. Transport information

| US Department of Transportation | Not regulated           |
| TDG                              | Not regulated           |
| Mexico Transport Information     | Not regulated           |
| ICAO/IATA                        | Not restricted          |
| IMDG                             | Not regulated           |

15. Regulatory Information

US State Regulations
Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):
none

U.S. FEDERAL REGULATIONS

TSCA Inventory:
We certify that all components are either on the TSCA inventory or qualify for an exemption.
Sorbic acid is regulated by the Food, Drug and Cosmetics Act, GRAS status (21CFR 182.3089)

Environmental Regulations:

SARA 311:
- Acute health: Yes
- Chronic health: No
- Fire: No
- Sudden release of pressure: No
- Reactive: No

INTERNATIONAL REGULATIONS

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

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..

Other Information:
Observe national and local legal requirements
Changes against the previous version are marked by ***
Product Name: Panosorb®
MSDS number: 81045
Revision Number: 2.01
Revision Date: May.30.2018
Issuing date: Dec.14.2018

Abbreviation and Acronym:
ADR = Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS = Chemical Abstracts Service (division of the American Chemical Society)
CLP = Classification, Labelling and Packaging
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial Chemical Substances
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
ICAO = International Civil Aviation Organization
IMDG = International Maritime Code for Dangerous Goods
LC50 = Lethal Concentration
LD50 = Lethal Dose
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
vPvB = very Persistent and very Bioaccumulative
RID = Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)