Sorbic Acid

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Sorbic Acid
Chemical Formula: C₆H₈O₂
CAS Number: 110-44-1
Other Designations: 2,4-Hexadienoic Acid
General Use:
Emergency Telephone: (ChemTel) Contract MIS0000335; 800 255-3924; INTL 813 248-0585

Section 2 - Hazards Identification

Emergency Overview
CAUTION! CAUSES IRRITATION.

Potential Health Effects
Primary Entry Routes: Inhalation, ingestion and skin contact.
Target Organs:

HAZARDS IDENTIFICATION
Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

GHS Label elements, including precautionary statements
Pictogram

Signal word
Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
Sorbic Acid

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

Acute Effects

Inhalation:
Eye: Irritation.
Skin: Irritation.

Ingestion:

Carcinogenicity: IARC, NTP, and OSHA do not list Sorbic Acid as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: No information found.

Chronic Effects: No information found.

Section 3 - Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS Number</th>
<th>EINECS/ELINCS</th>
<th>% wt % vol</th>
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</thead>
<tbody>
<tr>
<td>Sorbic Acid</td>
<td>110-44-1</td>
<td>110-44-1</td>
<td>98</td>
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</table>

Trace Impurities:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>OSHA PEL TWA</th>
<th>STEL</th>
<th>ACGIH TLV TWA</th>
<th>STEL</th>
<th>NIOSH REL TWA</th>
<th>STEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
</table>

Section 4 - First Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Prompt action is essential.

Eye Contact: In case of eye contact, immediately flush with plenty of water for at least 15 minutes.

Skin Contact: In case of contact, flush skin with water.

Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians:

Special Precautions/Procedures:

Section 5 - Fire-Fighting Measures

Flash Point: 127 °C (261°F)
Flash Point Method: CC

Burning Rate:

Autoignition Temperature:
LEL: not available
UEL: not available

Flammability Classification: low

Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unusual Fire or Explosion Hazards: none known

Hazardous Combustion Products:

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Wear self-contained breathing apparatus and full protective clothing.

Spills: With clean shovel, carefully place material into clean, dry container and cover; remove from area.

Large Spills

Containment: For large spills, dike far ahead of spill for later disposal. Do not release into sewers or waterways.

Cleanup: Flush spill area with water.
Sorbic Acid

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions/Storage Requirements: Do not store near oxidizing materials. Keep container tightly closed. Store in a cool, dry, well-ventilated area. Store in light-resistant containers. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls:
Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State:</td>
<td>solid</td>
</tr>
<tr>
<td>Appearance and Odor:</td>
<td>White crystalline powder</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>0.04 mm Hg (ASTM E 1782)</td>
</tr>
<tr>
<td>Vapor Density (Air=1):</td>
<td></td>
</tr>
<tr>
<td>Formula Weight:</td>
<td>112.13</td>
</tr>
<tr>
<td>Density:</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity (H2O=1, at 4 °C):</td>
<td>3.87</td>
</tr>
<tr>
<td>pH:</td>
<td></td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>slightly soluble (1000 mg/L @ 25°C)</td>
</tr>
<tr>
<td>Other Solubilities:</td>
<td></td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>228 °C (442 °F)</td>
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<tr>
<td>Freezing/Melting Point:</td>
<td>133.9 °C (273 °F)</td>
</tr>
<tr>
<td>Log Kow:</td>
<td>0.62</td>
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<tr>
<td>Refractive Index:</td>
<td></td>
</tr>
<tr>
<td>Surface Tension:</td>
<td></td>
</tr>
<tr>
<td>% Volatile:</td>
<td>0</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td></td>
</tr>
</tbody>
</table>

Section 10 - Stability and Reactivity

Stability: Sorbic Acid is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization will not occur.
Chemical Incompatibilities: Strong oxidizing agents.
Conditions to Avoid: Incompatibilities, Heat, Light.

Hazardous Decomposition Products: Thermal oxidative decomposition of Sorbic Acid can produce carbon monoxide, carbon dioxide.

Section 11- Toxicological Information

Toxicity Data:

Acute Oral Effects: Rat, oral, LD50: 7360 mg/kg

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Sorbic Acid

Ecotoxicity: In the acute toxicity test D. magna test, the LC$_{50}$ was 128.2 mg/L and in the acute toxicity test P. promelas, the LC$_{50}$ was 117.5 mg/L.

Environmental Fate:
Environmental Degradation:
Soil Absorption/Mobility:

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Not regulated for transportation

US FEDERAL
TSCA
CAS# 110-44-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 110-44-1: acute.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE

(WG2100000), for additional toxicity data.
2,4-Hexadienoic acid is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XI
Risk Phrases:
S 4/25 Avoid contact with skin and eyes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident of if you feel unwell, seek medical advice immediately (show the label where possible).
S 28B After contact with skin, wash immediately with plenty of water and soap.

WGK (Water Danger/Protection)
CAS# 110-44-1: 0
Canada
CAS# 110-44-1 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of D2B, F.
CAS# 110-44-1 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits

Section 16 - Other Information

Disclaimer: All information, recommendations and suggestions appearing herein are based upon sources believed to be reliable:
However, it is the users responsibility to determine the safety, toxicity and suitability for its own use of this product.