GPS Safety Summary
_retinyl acetate_

Chemical Identity

Name: Retinyl acetate

CAS number: 127-47-9

Molecular formula: $C_{22}H_{32}O_2$

Structure

IUPAC name:

[(2E,4E,6E,8E)-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)nona-2,4,6,8-tetraenyl] acetate

BASF brand names:

Vitamin A acetate

For synonyms see end of document

Product Uses

Retinyl acetate or Vitamin A acetate is used for the vitaminisation of a wide variety of foods and beverages.

Benefits

Vitamin A and its esters is an essential micronutrient required by humans and animals for vision, growth differentiation and proliferation of a wide range of epithelial tissues, bone growth, reproduction, embryonic development and health maintenance.

Health Information

Human Health Safety Assessment
Note: The information contained in the table below may be useful to someone handling the concentrated substance such as a manufacturer or transporter. Consumers are not likely to come in contact with the concentrated substance. The data, while verifiable, are not intended to be comprehensive nor replace the data found in the (M)SDS.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Of low toxicity after single ingestion.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Skin contact causes irritation. Not irritating to the eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitization effects were not observed in animal studies.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Not mutagenic in bacteria, in the majority of mammal cell culture tests and in tests with mammals. Based on available data not considered mutagenic.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on current knowledge not considered to be carcinogenic.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Repeated exposure to large quantities may lead to hypervitaminosis A, affecting certain organs.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>May cause harm to the unborn child.</td>
</tr>
</tbody>
</table>

Environmental Information

Environmental Safety Assessment

Note: The information in this chapter is intended to provide brief and general information of this substance’s environmental impact. The results in the table below refer to testing performed with the concentrated substance. The data contained in this section explain the relative effect of the concentrated substance on the environment, as defined by certain tests.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>May cause long lasting harmful effects to aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Moderately biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Significant accumulation in organisms is not expected.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment
Retinyl acetate is a yellow crystalline solid which is insoluble in water. It is non flammable and possesses no explosive properties.

Note: The results in the table below refer to testing performed with the concentrated substance. It is not intended to be comprehensive or to replace information found in the (M)SDS.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>58.6 - 59.3 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Substance decomposes before boiling.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable since the substance is a solid.</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>395 °C at 1013 hPa</td>
</tr>
</tbody>
</table>

Exposure Potential

- **Workplace exposure**: Exposure can occur either in a retinyl acetate manufacturing facility or in the various industrial or manufacturing facilities that use retinyl acetate. Those working with retinyl acetate in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. Safety showers and eye-wash stations should be accessible nearby. Workers should follow the recommended safety measures in the Extended Safety Data Sheet (eSDS).

- **Consumer exposure**: Vitamin A is essential for the growth and maintenance of higher organisms. The use of retinol and esters like retinyl acetate are regulated and safety values are well established. Since consumer products contain only small amounts of retinyl acetate, consumers are exposed to concentrations which do not pose an irritant or harmful potential. However, carefully read and follow the instructions given on product labels for proper use.

- **Environmental exposure**: Retinylacetate has no adverse effects on aquatic life in the range of its water solubility. It is not considered to be present in surface waters from the use in industrial settings where releases are strictly controlled. However, retinol is used
in a wide variety of consumer products like personal care articles, foods and feeds as well as in vitamin preparations and the environment is exposed to the substance in many ways. Though the classification for retinol states that it may be harmful to aquatic life with long lasting effects it is degraded by microorganisms and indirectly by light and hence released substance by consumers is not expected to remain in the environment and an accumulation in the food chain is not expected. Conclusively, all identified uses are safe for the environment based on the scientific facts summarized above and when carried out in compliance with recommended risk management measures and applicable regulations.

Recommended Handling Measures

The recommended safety measures generally apply in contact with the concentrated substance. It is NOT intended to replace the comprehensive guidance found in the (M)SDS, only supplement it. Please refer to the (M)SDS for specific safety and first aid measures.

When using concentrated chemicals always make sure that there is adequate ventilation. Always use appropriate chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. For specific advice please consult the corresponding (Material) Safety Data Sheet of the substance.

All effluent releases that may include the substance must be directed to a (municipal) waste water treatment plant that removes the substance from the final releases to the receiving water.

Regulatory Information / Classification and Labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the (M)SDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

Note: The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance’s labelling. It is not intended to be comprehensive or to replace information found in the (M)SDS.
Labeling according to UN GHS

UN GHS is the basis for country specific GHS labeling

Signal word: Danger

Hazard Statement:
- H303 May be harmful if swallowed
- H316 Causes mild skin irritation
- H360 May damage the unborn child
- H413 May cause long lasting harmful effects to aquatic life

Additional information

1. IFA GESTIS-database on hazardous substances
   http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp

2. Information on registered substance (ECHA)

3. BASF Product Finder
   http://www.basf.com/group/corporate/de/Product-finder/index

Most commonly used synonyms

» Retinyl acetate
» Retinol, acetate, all-trans- (8CI)
» all-trans-Vitamin A acetate

Disclaimer

This Product Safety Summary is intended to provide a general overview of the chemical substance. It contains basic information and is not intended to provide emergency response
information, medical information or treatment information. The summary cannot be relied on to provide in-depth safety and health information. In-depth safety and health information must be obtained from the Material Safety Data Sheet ((M)SDS) for the chemical substance.

IMPORTANT: While the data and information contained herein are presented in good faith and believed to be accurate at the date of printing, it is provided for your guidance only and may be revised in the future. No warranties of any kind, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made regarding the data or information provided. Further, it is expressly understood that the data and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability whatsoever resulting from use of or reliance on the data and information given.

Contact

For further information on this substance or GPS safety summaries in general, please contact: info.gps@basf.com