GPS Safety Summary
Retinyl palmitate

Chemical Identity

Name: Retinyl palmitate

CAS number: 79-81-2

Molecular formula: C_{36}H_{60}O_{2}

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-palmitate

For synonyms see end of document
Product Uses

Retinyl palmitate is used as source of vitamin A in food and feed fortification.

In cosmetics, retinyl palmitate is a source for vitamin A, which is used as active ingredient in advanced skin care formulations for “anti-ageing” and UV damaged skin.

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.

In cosmetics, vitamin A is used due its effects on the cell renewal process, thus reducing signs of ageing and improving the overall appearance of the skin.

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>Virtually nontoxic after single ingestion.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Skin contact causes irritation.</td>
</tr>
<tr>
<td></td>
<td>Not irritating to the eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing 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</td>
</tr>
</tbody>
</table>
Environmental Information

Environment 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 effects in aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Moderately biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Does not significantly accumulate in organisms. Because of the product's consistency and low water solubility, bioavailability is improbable.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment

- Retinyl palmitate is a yellow subcooled liquid which appears insoluble in water. It is non flammable and has 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>Subcooled liquid</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>Physical state starts changing before final melting at approximate 26 °C is reached.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable, substance decomposes</td>
</tr>
</tbody>
</table>
### Exposure Potential

- **Workplace exposure:** Exposure can occur either in a retinyl palmitate manufacturing facility or in the various industrial or manufacturing facilities that use retinyl palmitate. Those working with retinyl palmitate 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 palmitate are regulated and safety values are well established. Since consumer products contain only small amounts of retinyl palmitate, 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:** Retinyl palmitate is of very low acute toxicity towards aquatic organisms. However it is not readily biodegradable and it has a very low water solubility. Hence, sustained exposure of aquatic organisms resulting from the use of retinyl palmitate in nutrition and cosmetics products by the general public can not be excluded. 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 statements:
H316 Causes mild skin irritation
H360 May damage the unborn child
H413 May cause long lasting 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)

Most commonly used synonyms

» Retinol, palmitate, all-trans-
» Arovit
» Dispatabs Tabs
» Myvax
» Testavol S
» Vitamin A palmitate
» Axerophthol palmitate
» Aquasol A
» Aquapalm
» Vitazyme A

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