SAFETY DATA SHEET

Multivitamin (with Sunflower Oil) Formulation

SECTION 1. IDENTIFICATION

Product name: Multivitamin (with Sunflower Oil) Formulation
Other means of identification: No data available

Manufacturer or supplier's details
Company name of supplier: Merck & Co., Inc
Address: 126 E. Lincoln Avenue
Rahway, New Jersey U.S.A. 07065
Telephone: 908-740-4000
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product
Restrictions on use: Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Reproductive toxicity: Category 1A
Specific target organ toxicity - repeated exposure: Category 1 (Liver)

GHS label elements
Hazard pictograms:

Signal Word: Danger
Hazard Statements: H360D May damage the unborn child.
H372 Causes damage to organs (Liver) through prolonged or repeated exposure.

Precautionary Statements
Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:
P308 + P313 IF exposed or concerned: Get medical attention.
SAFETY DATA SHEET

Multivitamin (with Sunflower Oil) Formulation

Version 1.6
Revision Date: 04/04/2023
SDS Number: 6599062-00007
Date of last issue: 10/01/2022
Date of first issue: 10/15/2020

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunflower oil</td>
<td>Helianthus annuus seed oil</td>
<td>8001-21-6</td>
<td>87.486</td>
</tr>
<tr>
<td>Retinyl propionate</td>
<td>([2E,4E,6E,8E]-3,7-Dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)nona-2,4,6,8-tetraenyl] propionate</td>
<td>7069-42-3</td>
<td>8.649</td>
</tr>
<tr>
<td>(dl)-a-Tocopheryl acetate</td>
<td>2H-1-Benzopyran-6-ol, 3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-, 6-acetate</td>
<td>7695-91-2</td>
<td>2.162</td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>Benzenemethanol</td>
<td>100-51-6</td>
<td>1.081</td>
</tr>
<tr>
<td>Colecalciferol</td>
<td>Cyclohexanol, 3-{(2E)-2-[(1R,3aS,7aR)-1-{(1R)-1,5-dimethylhex-yl}octahydro-7a-methyl-4H-inden-4-ylidene]ethylidene}-4-methylene-, (1S</td>
<td>67-97-0</td>
<td>0.081</td>
</tr>
</tbody>
</table>
General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

If inhaled: If inhaled, remove to fresh air. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: May damage the unborn child. Causes damage to organs through prolonged or repeated exposure.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: None known.

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions: Avoid release to the environment.
Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up:
- Soak up with inert absorbent material.
- For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
- Clean up remaining materials from spill with suitable absorbent.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation:
- If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe mist or vapors.
- Do not swallow.
- Avoid contact with eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Keep container tightly closed.
- Do not eat, drink or smoke when using this product.
- Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage:
- Keep in properly labeled containers.
- Store locked up.
- Keep tightly closed.
- Store in accordance with the particular national regulations.

Materials to avoid:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Self-reactive substances and mixtures
  - Organic peroxides
  - Explosives
  - Gases
Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
--- | --- | --- | --- | --- |
Sunflower oil | 8001-21-6 | TWAEV (Mist) | 10 mg/m³ | CA QC OEL |
(dl)-a-Tocopheryl acetate | 7695-91-2 | TWA | 5000 ug/m³ (OEB 1) | Internal |
Colecalciferol | 67-97-0 | TWA | 5 µg/m³ (OEB 4) | Internal |

**Engineering measures**: All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Essentially no open handling permitted. Use closed processing systems or containment technologies. If handled in a laboratory, use a properly designed biosafety cabinet, fume hood, or other containment device if the potential exists for aerosolization. If this potential does not exist, handle over lined trays or benchtops.

**Personal protective equipment**

*Respiratory protection*: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

*Filter type*: Organic vapor Type

*Hand protection*: Chemical-resistant gloves

*Remarks*: Consider double gloving.

*Eye protection*: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

*Skin and body protection*: Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.

*Hygiene measures*: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use. The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.
# SAFETY DATA SHEET

## Multivitamin (with Sunflower Oil) Formulation

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>transparent amber</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
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</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.925 g/cm³</td>
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<tr>
<td>Solubility(ies)</td>
<td>Water solubility No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Viscosity</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Multivitamin (with Sunflower Oil) Formulation

Molecular weight : No data available
Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions : Can react with strong oxidizing agents.
Conditions to avoid : None known.
Incompatible materials : Oxidizing agents
Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity
Not classified based on available information.

Product:
Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

Sunflower oil:
Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Retinyl propionate:
Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

(dl)-a-Tocopheryl acetate:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Acute dermal toxicity : LD50 (Rat): > 3,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

**Benzyl alcohol:**
Acute oral toxicity: LD50 (Rat): 1,620 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 4.178 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: OECD Test Guideline 403

**Colecalciferol:**
Acute oral toxicity: LD50 (Rat, male): 35 mg/kg
Acute inhalation toxicity: Acute toxicity estimate: 0.05 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: Expert judgment
Acute dermal toxicity: Acute toxicity estimate: 50 mg/kg
   Method: Expert judgment

**Skin corrosion/irritation**
Not classified based on available information.

**Components:**

**Sunflower oil:**
Species: Rabbit
Result: No skin irritation
Remarks: Based on data from similar materials

**Retinyl propionate:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: Mild skin irritation

**(dl)-a-Tocopheryl acetate:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

**Benzyl alcohol:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

**Serious eye damage/eye irritation**
Not classified based on available information.
SAFETY DATA SHEET

Multivitamin (with Sunflower Oil) Formulation

Components:

Sunflower oil:
Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

Retinyl propionate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

(dl)-a-Tocopheryl acetate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Benzyl alcohol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
Method: OECD Test Guideline 405

Colecalciferol:
Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

Sunflower oil:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative
Remarks: Based on data from similar materials

Retinyl propionate:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Components:

Sunflower oil:
Genotoxicity in vitro: Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Retinyl propionate:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Remarks: Based on data from similar materials

(dl)-a-Tocopheryl acetate:
Genotoxicity in vitro: Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
### Genotoxicity in vivo

**Benzyl alcohol:**
- **Genotoxicity in vitro**: Test Type: Bacterial reverse mutation assay (AMES)  
  Result: negative

**Colecalciferol:**
- **Genotoxicity in vitro**:  
  - Test Type: Bacterial reverse mutation assay (AMES)  
    Method: OECD Test Guideline 471  
    Result: equivocal
  - Test Type: In vitro mammalian cell gene mutation test  
    Method: OECD Test Guideline 476  
    Result: negative
  - Test Type: Chromosome aberration test in vitro  
    Method: OECD Test Guideline 473  
    Result: negative

**Genotoxicity in vivo**
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
  Species: Rat  
  Application Route: Ingestion  
  Method: OECD Test Guideline 474  
  Result: negative
- Test Type: In vivo mammalian alkaline comet assay  
  Species: Rat  
  Application Route: Ingestion  
  Result: positive

**Germ cell mutagenicity - Assessment**
- Weight of evidence does not support classification as a germ cell mutagen.

### Carcinogenicity

Not classified based on available information.

### Components:

**(dl)-a-Tocopheryl acetate:**
- Species: Rat
Application Route: Ingestion
Exposure time: 104 weeks
Result: negative

Benzyl alcohol:
Species: Mouse
Application Route: Ingestion
Exposure time: 103 weeks
Method: OECD Test Guideline 451
Result: negative

Reproductive toxicity
May damage the unborn child.

Components:
Retinyl propionate:
Effects on fetal development:
Test Type: Embryo-fetal development
Species: Monkey
Application Route: Ingestion
Result: positive
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment:
Positive evidence of adverse effects on development from human epidemiological studies.

(dl)-a-Tocopheryl acetate:
Effects on fertility:
Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development:
Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

Benzyl alcohol:
Effects on fertility:
Test Type: Fertility/early embryonic development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development:
Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
Result: negative

STOT-single exposure
Not classified based on available information.
**SAFETY DATA SHEET**

**Multivitamin (with Sunflower Oil) Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>04/04/2023</td>
<td>6599062-00007</td>
<td>10/01/2022</td>
<td>10/15/2020</td>
</tr>
</tbody>
</table>

**STOT-repeated exposure**
Causes damage to organs (Liver) through prolonged or repeated exposure.

**Components:**

**Retinyl propionate:**
- Routes of exposure: Ingestion
- Target Organs: Liver
- Assessment: Causes damage to organs through prolonged or repeated exposure.
- Remarks: Based on data from similar materials

**Colecalciferol:**
- Routes of exposure: Ingestion
- Target Organs: Kidney, Blood, Bone
- Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

**Repeated dose toxicity**

**Components:**

**Retinyl propionate:**
- Species: Rat
- LOAEL: > 1 - 10 mg/kg
- Application Route: Ingestion
- Exposure time: 3 Months
- Remarks: Based on data from similar materials

**(dl)-a-Tocopheryl acetate:**
- Species: Rat
- NOAEL: 500 mg/kg
- Application Route: Ingestion
- Exposure time: 90 Days

**Benzyl alcohol:**
- Species: Rat
- NOAEL: 1.072 mg/l
- Application Route: Inhalation (dust/mist/fume)
- Exposure time: 28 Days
- Method: OECD Test Guideline 412

**Colecalciferol:**
- Species: Rat
- NOAEL: 0.06 mg/kg
- LOAEL: 0.3 mg/kg
- Application Route: Ingestion
- Exposure time: 90 Days
- Method: OECD Test Guideline 408
Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

Retinyl propionate:
Ingestion:
Symptoms: liver impairment
Remarks: Based on data from similar materials
Symptoms: Embryo-fetal toxicity.
Remarks: Based on data from similar materials

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Sunflower oil:
Toxicity to fish:
LC50 (Leuciscus idus (Golden orfe)): > 100 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 32 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials
Remarks: No toxicity at the limit of solubility.

Toxicity to microorganisms:
EC10 (Pseudomonas putida): 883 mg/l
Exposure time: 18 h
Remarks: Based on data from similar materials

Retinyl propionate:
Toxicity to fish:
LL50 (Leuciscus idus (Golden orfe)): > 10,000 mg/l
Exposure time: 96 h
Method: DIN 38412

Toxicity to microorganisms:
EC50 (activated sludge): > 1,000 mg/l
Exposure time: 180 min
Method: OECD Test Guideline 209

(dl)-a-Tocopheryl acetate:
Toxicity to fish:
LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
### Exposures

**Benzyl alcohol:**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to algae/aquatic plants</th>
<th>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
<th>Toxicity to algae/aquatic plants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure time: 96 h</td>
<td>Exposure time: 48 h</td>
<td>Exposure time: 72 h</td>
<td>NOEC (Pseudokirchneriella subcapitata (green algae)): 310 mg/l</td>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td></td>
<td>LC50 (Pimephales promelas (fathead minnow)): 460 mg/l</td>
<td>EC50 (Daphnia magna (Water flea)): 230 mg/l</td>
<td>EC50 (Pseudokirchneriella subcapitata (green algae)): 770 mg/l</td>
<td></td>
<td>EC50 (Scenedesmus capricornutum (fresh water algae)): &gt; 100 mg/l</td>
</tr>
</tbody>
</table>

**Colecalciferol:**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to algae/aquatic plants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure time: 96 h</td>
<td>Exposure time: 48 h</td>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td></td>
<td>LL50 (Danio rerio (zebra fish)): &gt; 100 mg/l</td>
<td>EL50 (Daphnia magna (Water flea)): &gt; 100 mg/l</td>
<td>EL50 (Scenedesmus capricornutum (fresh water algae)): &gt; 100 mg/l</td>
</tr>
</tbody>
</table>

**Exposure time:**

- 72 h
- 28 d
- 30 min
- 48 h
- 72 h
- 21 d
- 96 h
- 48 h
- 96 h

**Method:**

- OECD Test Guideline 201
- OECD Test Guideline 202
- OECD Test Guideline 203
- OECD Test Guideline 211
- ISO 8192

**NOEC (Pseudokirchneriella subcapitata (green algae)):**

- >= 100 mg/l
- 310 mg/l
- NOEC

**EC50:**

- > 927 mg/l
- > 100 mg/l
- > 100 mg/l
Persistence and degradability

**Components:**

**Retinyl propionate:**
Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 40 - 50 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**(dl)-a-Tocopheryl acetate:**
Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 21.7 - 31 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**Benzyl alcohol:**
Biodegradability : Result: Readily biodegradable.  
Biodegradation: 92 - 96 %  
Exposure time: 14 d

**Colecalciferol:**
Biodegradability : Result: Not readily biodegradable.  
Biodegradation: <= 7 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

Bioaccumulative potential

**Components:**

**Retinyl propionate:**
Remarks: Calculation

**Benzyl alcohol:**
Partition coefficient: n-octanol/water : log Pow: 1.05

**Colecalciferol:**
Partition coefficient: n-octanol/water : log Pow: > 6.2  
Method: OECD Test Guideline 107

Mobility in soil
No data available

Other adverse effects
No data available
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Dispose of in accordance with local regulations. Do not dispose of waste into sewer.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations
UNRTDG
Not regulated as a dangerous good
IATA-DGR
Not regulated as a dangerous good
IMDG-Code
Not regulated as a dangerous good
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation
TDG
Not regulated as a dangerous good
Special precautions for user
Not applicable

SECTION 15. REGULATORY INFORMATION

The ingredients of this product are reported in the following inventories:
DSL : not determined
AICS : not determined
IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
CA QC OEL / TWAEV : Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

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