SAFETY DATA SHEET

Carbidopa / Levodopa Formulation

Version 4.5
Revision Date: 03/23/2020
SDS Number: 50110-00015
Date of last issue: 09/13/2019
Date of first issue: 01/23/2015

SECTION 1. IDENTIFICATION

Product name: Carbidopa / Levodopa Formulation
Other means of identification: No data available

Manufacturer or supplier’s details
Company name of supplier: Merck & Co., Inc
Address: 2000 Galloping Hill Road
Kenilworth - New Jersey - U.S.A. 07033
Telephone: 908-740-4000
Telefax: 908-735-1496
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use
Recommended use: Pharmaceutical

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Acute toxicity (Oral): Category 4
Reproductive toxicity: Category 2
Specific target organ toxicity - repeated exposure (Oral): Category 1 (Central nervous system)

GHS label elements
Hazard pictograms: !

Signal Word: Danger

Hazard Statements: H302 Harmful if swallowed.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure if swallowed.

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 dust.
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/ face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON
SAFETY DATA SHEET

Carbidopa / Levodopa Formulation

Version 4.5 Revision Date: 03/23/2020 SDS Number: 50110-00015 Date of last issue: 09/13/2019 Date of first issue: 01/23/2015

CENTER/ doctor if you feel unwell. Rinse mouth.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:
P405 Store locked up.

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

Other hazards
Dust contact with the eyes can lead to mechanical irritation.
Contact with dust can cause mechanical irritation or drying of the skin.
May form explosive dust-air mixture during processing, handling or other means.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levodopa</td>
<td>CAS-No. 59-92-7</td>
</tr>
<tr>
<td>Carbidopa</td>
<td>CAS-No. 38821-49-7</td>
</tr>
<tr>
<td>Cellulose</td>
<td>CAS-No. 9004-34-6</td>
</tr>
<tr>
<td>Starch</td>
<td>CAS-No. 9005-25-8</td>
</tr>
<tr>
<td>Magnesium stearate</td>
<td>CAS-No. 557-04-0</td>
</tr>
</tbody>
</table>

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

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: If in eyes, rinse well with water. Get medical attention if irritation develops and persists.
If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed: Harmful if swallowed. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure if swallowed.
Contact with dust can cause mechanical irritation or drying of the skin. Dust contact with the eyes can lead to mechanical irritation.

**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

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Water spray</th>
<th>Alcohol-resistant foam</th>
<th>Carbon dioxide (CO2)</th>
<th>Dry chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>None known.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific hazards during fire fighting</td>
<td>Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Exposure to combustion products may be a hazard to health.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous combustion products</td>
<td>Carbon oxides</td>
<td>Metal oxides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific extinguishing methods</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special protective equipment for fire-fighters</td>
<td>In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental precautions</td>
<td>Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.</td>
</tr>
<tr>
<td>Methods and materials for containment and cleaning up</td>
<td>Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. 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</td>
</tr>
</tbody>
</table>
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: Static electricity may accumulate and ignite suspended dust causing an explosion. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Local/Total ventilation: Use only with adequate ventilation.

Advice on safe handling: Do not breathe dust. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Minimize dust generation and accumulation. Keep container closed when not in use. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment.

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

Materials to avoid: Do not store with the following product types: Strong oxidizing agents Organic peroxides Explosives Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levodopa</td>
<td>59-92-7</td>
<td>TWA</td>
<td>500 µg/m³ (OEB 2)</td>
<td>Internal</td>
</tr>
<tr>
<td>Carbidopa</td>
<td>38821-49-7</td>
<td>TWA</td>
<td>2,000 µg/m³ (OEB 1)</td>
<td>Internal</td>
</tr>
<tr>
<td>Cellulose</td>
<td>9004-34-6</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Total dust)</td>
<td>10 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable dust fraction)</td>
<td>3 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWAEV (total dust)</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>
## Starch

<table>
<thead>
<tr>
<th>TWA</th>
<th>10 mg/m³</th>
<th>CA AB OEL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA (Total dust)</th>
<th>10 mg/m³</th>
<th>CA QC OEL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA (respirable dust fraction)</th>
<th>3 mg/m³</th>
<th>CA BC OEL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA</th>
<th>10 mg/m³</th>
<th>ACGIH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA (Inhalable particulate matter)</th>
<th>10 mg/m³</th>
<th>ACGIH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA (Respirable particulate matter)</th>
<th>3 mg/m³</th>
<th>ACGIH</th>
</tr>
</thead>
</table>

## Magnesium stearate

<table>
<thead>
<tr>
<th>TWA</th>
<th>10 mg/m³</th>
<th>CA AB OEL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA</th>
<th>10 mg/m³</th>
<th>CA BC OEL</th>
</tr>
</thead>
</table>

## Engineering measures

Use feasible engineering controls to minimize exposure to compound.
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

## 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.

<table>
<thead>
<tr>
<th>Filter type</th>
<th>Particulates type</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hand protection Material</th>
<th>Chemical-resistant gloves</th>
</tr>
</thead>
</table>

### 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.

### 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.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
## Appearance
- Powder

## Color
- No data available

## Odor
- Odorless

## Odor Threshold
- No data available

## pH
- No data available

## Melting point/freezing point
- No data available

## Initial boiling point and boiling range
- No data available

## Flash point
- No data available

## Evaporation rate
- No data available

## Flammability (solid, gas)
- May form explosive dust-air mixture during processing, handling or other means.

## Flammability (liquids)
- No data available

## Upper explosion limit / Upper flammability limit
- No data available

## Lower explosion limit / Lower flammability limit
- No data available

## Vapor pressure
- No data available

## Relative vapor density
- No data available

## Relative density
- No data available

## Density
- No data available

## Solubility(ies)
- Water solubility
  - No data available

## Partition coefficient: n-octanol/water
- No data available

## Autoignition temperature
- No data available

## Decomposition temperature
- No data available

## Viscosity
- Viscosity, dynamic
  - No data available

## Viscosity, kinematic
- No data available

## Explosive properties
- Not explosive
SECTION 10. STABILITY AND REACTIVITY

Reactivity
: Not classified as a reactivity hazard.
Chemical stability
: Stable under normal conditions.
Possibility of hazardous reactions
: May form explosive dust-air mixture during processing, handling or other means. Can react with strong oxidizing agents.

Conditions to avoid
: Heat, flames and sparks.
Avoid dust formation.
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
Harmful if swallowed.

Product:
Acute oral toxicity
: Acute toxicity estimate: 1,952 mg/kg
Method: Calculation method

Components:

Levodopa:
Acute oral toxicity
: LD50 (Rat): 1,780 mg/kg
LD50 (Mouse): 2,363 mg/kg

Carbidopa:
Acute oral toxicity
: LD50 (Rat): 4,810 mg/kg
LD50 (Mouse): 1,750 mg/kg

Cellulose:
Acute oral toxicity
: LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity
: LC50 (Rat): > 5.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

**Acute dermal toxicity**: LD50 (Rabbit): > 2,000 mg/kg

**Starch**:

**Acute oral toxicity**: LD50 (Rat): > 5,000 mg/kg

**Acute dermal toxicity**: LD50 (Rabbit): > 2,000 mg/kg

**Magnesium stearate**:

**Acute oral toxicity**: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 423
  Assessment: The substance or mixture has no acute oral toxicity
  Remarks: Based on data from similar materials

**Acute dermal toxicity**: LD50 (Rabbit): > 2,000 mg/kg
  Remarks: Based on data from similar materials

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

**Components**:

**Carbidopa**:

Species: Rabbit
Result: No skin irritation

**Magnesium stearate**:

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

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

**Components**:

**Carbidopa**:

Species: Rabbit
Result: Mild eye irritation

**Starch**:

Species: Rabbit
Result: No eye irritation

**Magnesium stearate**:

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials
Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

Levodopa:
Species: Guinea pig
Result: Not a skin sensitizer.

Carbidopa:
Remarks: No data available

Starch:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Magnesium stearate:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Remarks: Based on data from similar materials

Germ cell mutagenicity
Not classified based on available information.

Components:

Levodopa:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosomal aberration
Test system: mouse lymphoma cells
Result: equivocal

Test Type: Micronucleus test
Test system: Chinese hamster lung cells
Result: positive

Test Type: sister chromatid exchange assay
Test system: Chinese hamster lung cells
Result: positive

Carbidopa:
SAFETY DATA SHEET

Carbidopa / Levodopa Formulation

Genotoxicity in vitro:
- **Test Type:** Bacterial reverse mutation assay (AMES)
  - **Result:** positive
- **Test Type:** In vitro mammalian cell gene mutation test
  - **Result:** positive

Genotoxicity in vivo:
- **Test Type:** Micronucleus test
  - **Species:** Mouse
  - **Application Route:** Oral
  - **Result:** negative

**Cellulose:**
- **Genotoxicity in vitro:**
  - **Test Type:** Bacterial reverse mutation assay (AMES)
    - **Result:** negative
  - **Test Type:** In vitro mammalian cell gene mutation test
    - **Result:** negative

- **Genotoxicity in vivo:**
  - **Test Type:** Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
    - **Species:** Mouse
    - **Application Route:** Ingestion
    - **Result:** negative

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

**Magnesium stearate:**
- **Genotoxicity in vitro:**
  - **Test Type:** In vitro mammalian cell gene mutation test
    - **Result:** negative
  - **Remarks:** Based on data from similar materials
  - **Test Type:** Chromosome aberration test in vitro
    - **Method:** OECD Test Guideline 473
    - **Result:** negative
    - **Remarks:** Based on data from similar materials
  - **Test Type:** Bacterial reverse mutation assay (AMES)
    - **Result:** negative
    - **Remarks:** Based on data from similar materials

**Carcinogenicity**
- Not classified based on available information.

**Components:**

**Levodopa:**
- **Species:** Rat
- **Application Route:** Oral
- **Exposure time:** 2 Years
- **Result:** negative
Carbidopa / Levodopa Formulation

<table>
<thead>
<tr>
<th>Carbidopa:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species            : Rat</td>
</tr>
<tr>
<td>Application Route  : Oral</td>
</tr>
<tr>
<td>Exposure time      : 96 weeks</td>
</tr>
<tr>
<td>: 135 mg/kg body weight</td>
</tr>
<tr>
<td>Result             : negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cellulose:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species             : Rat</td>
</tr>
<tr>
<td>Application Route   : Ingestion</td>
</tr>
<tr>
<td>Exposure time       : 72 weeks</td>
</tr>
<tr>
<td>Result              : negative</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**
Suspected of damaging the unborn child.

### Components:

**Levodopa:**

**Effects on fertility**
- Test Type: Fertility
  - Species: Rat
  - Application Route: Oral
  - Fertility: NOAEL: 100 mg/kg body weight
  - Result: Animal testing did not show any effects on fertility.

**Effects on fetal development**
- Test Type: Development
  - Species: Rabbit
  - Application Route: Oral
  - Developmental Toxicity: LOAEL: 125 mg/kg body weight
  - Symptoms: Skeletal malformations., Visceral malformations.
  - Result: positive

  - Test Type: Development
    - Species: Rat
    - Application Route: Oral
    - Developmental Toxicity: LOAEL: 10 mg/kg body weight

  - Test Type: Development
    - Species: Mouse
    - Application Route: Oral
    - Developmental Toxicity: LOAEL: 500 mg/kg body weight
    - Symptoms: Effects on fetal development.
    - Result: positive

**Reproductive toxicity - Assessment**
- Some evidence of adverse effects on development, based on animal experiments.

**Carbidopa:**

**Effects on fertility**
- Test Type: Fertility
  - Species: Rat
  - Application Route: Oral
Fertility: NOAEL: 120 mg/kg body weight
Symptoms: Reduced body weight
Result: Animal testing did not show any effects on fertility.

 Effects on fetal development:
Test Type: Development
Species: Mouse
Application Route: Oral
Developmental Toxicity: NOAEL: 120 mg/kg body weight
Result: No teratogenic effects.

Test Type: Development
Species: Rabbit
Application Route: Oral
Developmental Toxicity: NOAEL: 120 mg/kg body weight
Result: No teratogenic effects.

Cellulose:
Effects on fertility:
Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development:
Test Type: Fertility/early embryonic development
Species: Rat
Application Route: Ingestion
Result: negative

Magnesium stearate:
Effects on fertility:
Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development:
Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

STOT-single exposure
Not classified based on available information.

STOT-repeated exposure
Causes damage to organs (Central nervous system) through prolonged or repeated exposure if swallowed.

Components:

Levodopa:
Routes of exposure: Oral
SAFETY DATA SHEET

Carbidopa / Levodopa Formulation

Target Organs: Central nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.

Reversed dose toxicity

Components:

Levodopa:
Species: Rat
LOAEL: 100 mg/kg
Application Route: Oral
Exposure time: 106 Weeks
Target Organs: Central nervous system
Symptoms: Salivation

Species: Monkey
LOAEL: 100 mg/kg
Application Route: Oral
Exposure time: 22 Weeks
Target Organs: Central nervous system

Carbidopa:
Species: Rat
LOAEL: 25 mg/kg
Application Route: Oral
Exposure time: 96 Weeks
Remarks: No significant adverse effects were reported

Species: Monkey
NOAEL: 135 mg/kg
Application Route: Oral
Exposure time: 1 y
Remarks: No significant adverse effects were reported

Species: Dog
NOAEL: 5 mg/kg
LOAEL: 15 mg/kg
Application Route: Oral
Exposure time: 238 d
Symptoms: Diarrhea, Vomiting, Tremors

Cellulose:
Species: Rat
NOAEL: >= 9,000 mg/kg
Application Route: Ingestion
Exposure time: 90 Days

Starch:
Species: Rat
NOAEL: >= 2,000 mg/kg
Application Route: Skin contact
**SAFETY DATA SHEET**

**Carbidopa / Levodopa 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>4.5</td>
<td>03/23/2020</td>
<td>50110-00015</td>
<td>09/13/2019</td>
<td>01/23/2015</td>
</tr>
</tbody>
</table>

- **Exposure time**: 28 Days
- **Method**: OECD Test Guideline 410

**Magnesium stearate**:
- **Species**: Rat
- **NOAEL**: > 100 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days
- **Remarks**: Based on data from similar materials

**Aspiration toxicity**
Not classified based on available information.

**Experience with human exposure**

**Components**:

**Levodopa**:
- **Ingestion**: Symptoms: Nausea, central nervous system effects, Drowsiness

**Carbidopa**:
- **Ingestion**: Symptoms: involuntary movement

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components**:

**Levodopa**:
- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Daphnia magna (Water flea)): 16 mg/l
  Exposure time: 48 h

**Carbidopa**:
- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Daphnia magna (Water flea)): 35.3 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

**Cellulose**:
- **Toxicity to fish**: LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l
  Exposure time: 48 h
  Remarks: Based on data from similar materials

**Magnesium stearate**:
- **Toxicity to fish**: LC50 (Leuciscus idus (Golden orfe)): > 100 mg/l
  Exposure time: 48 h
  Method: DIN 38412
  Remarks: Based on data from similar materials
- **Toxicity to daphnia and other aquatic invertebrates**: EL50 (Daphnia magna (Water flea)): > 1 mg/l
  Exposure time: 47 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials
No toxicity at the limit of solubility.

Toxicity to algae/aquatic plants:
- EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
  Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials
No toxicity at the limit of solubility.

- NOELR (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
  Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to microorganisms:
- EC10 (Pseudomonas putida): > 100 mg/l
  Exposure time: 16 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Persistence and degradability

Components:

Cellulose:
Biodegradability : Result: Readily biodegradable.

Magnesium stearate:
Biodegradability : Result: Not biodegradable.
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Levodopa:
Partition coefficient: n-octanol/water : log Pow: -2.39

Magnesium stearate:
Partition coefficient: n-octanol/water : log Pow: > 4

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.
- 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

SECTION 15. REGULATORY INFORMATION

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

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
- ACGIH: USA. ACGIH Threshold Limit Values (TLV)
- CA BC OEL: Canada. British Columbia OEL
- CA QC OEL: Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
- ACGIH / TWA: 8-hour, time-weighted average
- CA AB OEL / TWA: 8-hour Occupational exposure limit
- CA BC OEL / TWA: 8-hour time weighted average
- CA QC OEL / TWAEV: Time-weighted average exposure value

Revision Date: 03/23/2020

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.