

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

**SECTION 1. IDENTIFICATION**

Product name : Fenbendazole Premix Formulation

**Manufacturer or supplier's details**

Company name of supplier : Merck & Co., Inc

Address : 2000 Galloping Hill Road  
Kenilworth - New Jersey - USA 1685

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 : Veterinary product

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Combustible dust

Reproductive toxicity : Category 2

Specific target organ  
systemic toxicity - repeated  
exposure (Oral) : Category 2 (Liver, lymph node, Stomach, Nervous system)

**GHS label elements**

Hazard pictograms :



Signal Word : Warning

Hazard Statements : If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air.  
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.  
H373 May cause damage to organs (Liver, lymph node, Stomach, Nervous system) through prolonged or repeated exposure if swallowed.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

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.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Hazardous ingredients**

| Chemical name     | CAS-No.    | Concentration (% w/w) |
|-------------------|------------|-----------------------|
| Calcium carbonate | 471-34-1   | >= 30 - < 50          |
| Fenbendazole      | 43210-67-9 | >= 20 - < 30          |
| Paraffin oil      | 8012-95-1  | >= 10 - < 20          |

**SECTION 4. FIRST AID MEASURES**

|                         |                                                                                                                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General advice          | : In the case of accident or if you feel unwell, seek medical advice immediately.<br>When symptoms persist or in all cases of doubt seek medical advice.                                                                |
| If inhaled              | : If inhaled, remove to fresh air.<br>Get medical attention.                                                                                                                                                            |
| In case of skin contact | : In case of contact, immediately flush skin with soap and plenty of water.<br>Remove contaminated clothing and shoes.<br>Get medical attention.<br>Wash clothing before reuse.<br>Thoroughly clean shoes before reuse. |
| In case of eye contact  | : If in eyes, rinse well with water.<br>Get medical attention if irritation develops and persists.                                                                                                                      |
| If swallowed            | : If swallowed, DO NOT induce vomiting.<br>Get medical attention.                                                                                                                                                       |

## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

|                                                             |   |                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                             |   | Rinse mouth thoroughly with water.                                                                                                                                                                                                                                                                                          |
| Most important symptoms and effects, both acute and delayed | : | <p>Suspected of damaging fertility. Suspected of damaging the unborn child.</p> <p>May cause damage to organs through prolonged or repeated exposure if swallowed.</p> <p>Contact with dust can cause mechanical irritation or drying of the skin.</p> <p>Dust contact with the eyes can lead to mechanical irritation.</p> |
| 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.                                                                                                                                                                 |
| Notes to physician                                          | : | Treat symptomatically and supportively.                                                                                                                                                                                                                                                                                     |

### SECTION 5. FIRE-FIGHTING MEASURES

|                                                |   |                                                                                                                                                                                                                                                                    |
|------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable extinguishing media                   | : | <p>Water spray</p> <p>Alcohol-resistant foam</p> <p>Carbon dioxide (CO<sub>2</sub>)</p> <p>Dry chemical</p>                                                                                                                                                        |
| Unsuitable extinguishing media                 | : | None known.                                                                                                                                                                                                                                                        |
| Specific hazards during fire fighting          | : | Exposure to combustion products may be a hazard to health.                                                                                                                                                                                                         |
| Hazardous combustion products                  | : | <p>Carbon oxides</p> <p>Metal oxides</p>                                                                                                                                                                                                                           |
| Specific extinguishing methods                 | : | <p>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.</p> <p>Use water spray to cool unopened containers.</p> <p>Remove undamaged containers from fire area if it is safe to do so.</p> <p>Evacuate area.</p> |
| Special protective equipment for fire-fighters | : | <p>In the event of fire, wear self-contained breathing apparatus.</p> <p>Use personal protective equipment.</p>                                                                                                                                                    |

### SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |   |                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : | <p>Use personal protective equipment.</p> <p>Follow safe handling advice and personal protective equipment recommendations.</p>                                                                                                                                    |
| Environmental precautions                                           | : | <p>Discharge into the environment must be avoided.</p> <p>Prevent further leakage or spillage if safe to do so.</p> <p>Retain and dispose of contaminated wash water.</p> <p>Local authorities should be advised if significant spillages cannot be contained.</p> |

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

Methods and materials for containment and cleaning up : 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 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

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters**

| Ingredients       | CAS-No.  | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|-------------------|----------|-------------------------------|------------------------------------------------|-----------|
| Calcium carbonate | 471-34-1 | TWA (Res-                     | 5 mg/m <sup>3</sup>                            | NIOSH REL |

## Fenbendazole Premix Formulation

Version 2.0      Revision Date: 11/03/2017      SDS Number: 1503392-00003      Date of last issue: 05/02/2017  
 Date of first issue: 03/31/2017

|              |            |                               |                                                  |           |
|--------------|------------|-------------------------------|--------------------------------------------------|-----------|
|              |            | pirable)                      | (Calcium car-<br>bonate)                         |           |
|              |            | TWA (total)                   | 10 mg/m <sup>3</sup><br>(Calcium car-<br>bonate) | NIOSH REL |
| Fenbendazole | 43210-67-9 | TWA                           | 100 µg/m <sup>3</sup> (OEB<br>2)                 | Merck     |
| Paraffin oil | 8012-95-1  | TWA (Mist)                    | 5 mg/m <sup>3</sup>                              | OSHA Z-1  |
|              |            | TWA (Inhal-<br>able fraction) | 5 mg/m <sup>3</sup>                              | ACGIH     |
|              |            | TWA (Mist)                    | 5 mg/m <sup>3</sup>                              | NIOSH REL |
|              |            | ST (Mist)                     | 10 mg/m <sup>3</sup>                             | NIOSH REL |

**Engineering measures** : Ensure adequate ventilation, especially in confined areas.  
 Minimize workplace exposure concentrations.  
 Apply measures to prevent dust explosions.  
 Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

**Personal protective equipment**

**Respiratory protection** : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

**Hand protection**

**Material** : Chemical-resistant gloves

**Remarks** : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

**Eye protection** : Wear the following personal protective equipment:  
 Safety goggles

**Skin and body protection** : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

potential.  
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                                                  |   |                                                                                 |
|--------------------------------------------------|---|---------------------------------------------------------------------------------|
| Appearance                                       | : | powder                                                                          |
| Color                                            | : | light brown                                                                     |
| Odor                                             | : | characteristic                                                                  |
| 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                                      | : | Not applicable                                                                  |
| 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                                                               |
| Density                                          | : | No data available                                                               |
| Solubility(ies)<br>Water solubility              | : | No data available                                                               |
| Partition coefficient: n-octanol/water           | : | No data available                                                               |
| Autoignition temperature                         | : | No data available                                                               |

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

|                           |   |                                                          |
|---------------------------|---|----------------------------------------------------------|
| Decomposition temperature | : | No data available                                        |
| Viscosity                 |   |                                                          |
| Viscosity, kinematic      | : | No data available                                        |
| Explosive properties      | : | Not explosive                                            |
| Oxidizing properties      | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight          | : | No data available                                        |
| Particle size             | : | No data available                                        |

**SECTION 10. STABILITY AND REACTIVITY**

|                                    |   |                                                                                       |
|------------------------------------|---|---------------------------------------------------------------------------------------|
| Reactivity                         | : | Not classified as a reactivity hazard.                                                |
| Chemical stability                 | : | Stable under normal conditions.                                                       |
| Possibility of hazardous reactions | : | Dust can form an explosive mixture in air.<br>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.

**Ingredients:****Calcium carbonate:**

|                           |   |                                                                                                                                                                          |
|---------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute oral toxicity       | : | LD50 (Rat): > 2,000 mg/kg<br>Method: OECD Test Guideline 420<br>Assessment: The substance or mixture has no acute oral toxicity                                          |
| Acute inhalation toxicity | : | LC50 (Rat): > 3 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: OECD Test Guideline 403<br>Assessment: The substance or mixture has no acute inhala- |

## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

tion toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

**Fenbendazole:**

Acute oral toxicity : LD50 (Rat): > 10,000 mg/kg  
LD50 (Mouse): > 10,000 mg/kg

**Paraffin oil:**

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

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Ingredients:****Calcium carbonate:**

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

**Fenbendazole:**

Species: Rabbit  
Result: No skin irritation

**Paraffin oil:**

Species: Rabbit  
Result: No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Ingredients:****Calcium carbonate:**

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

**Fenbendazole:**

Species: Rabbit  
Result: No eye irritation

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

---

**Paraffin oil:**

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.

**Ingredients:****Calcium carbonate:**

Test Type: Local lymph node assay (LLNA)  
Routes of exposure: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Ingredients:****Calcium carbonate:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

**Fenbendazole:**

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

Test Type: DNA Repair  
Result: negative

Test Type: Chromosomal aberration  
Result: negative

Test Type: in vitro test  
Test system: mouse lymphoma cells  
Metabolic activation: Metabolic activation  
Result: equivocal

**Carcinogenicity**

Not classified based on available information.

**Ingredients:****Fenbendazole:**

Species: Mouse  
Application Route: oral (feed)

## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

Exposure time: 2 Years  
NOAEL: 405 mg/kg body weight  
Result: negative

Species: Rat  
Application Route: Oral  
Exposure time: 2 Years  
NOAEL: 5 mg/kg body weight  
Result: negative  
Target Organs: Lymph nodes, Liver

**IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA**

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Suspected of damaging fertility. Suspected of damaging the unborn child.

**Ingredients:****Calcium carbonate:**

|                              |   |                                                                                                                                                                                                                     |
|------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effects on fertility         | : | Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test<br>Species: Rat<br>Application Route: Ingestion<br>Method: OECD Test Guideline 422<br>Result: negative |
| Effects on fetal development | : | Test Type: Embryo-fetal development<br>Species: Rat<br>Application Route: Ingestion<br>Method: OECD Test Guideline 414<br>Result: negative                                                                          |

**Fenbendazole:**

|                              |   |                                                                                                                                                                                                                                              |
|------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effects on fertility         | : | Test Type: Three-generation reproduction toxicity study<br>Species: Rat<br>Application Route: oral (feed)<br>General Toxicity Parent: NOAEL: 15 mg/kg body weight<br>Fertility: LOAEL: 45 mg/kg body weight<br>Result: Effects on fertility. |
| Effects on fetal development | : | Test Type: Development<br>Species: Dog, female<br>Application Route: Oral<br>Developmental Toxicity: LOAEL: 100 mg/kg body weight<br>Result: Embryotoxic effects and adverse effects on the                                                  |

## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

offspring were detected., No teratogenic effects.

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: NOAEL: 25 mg/kg body weight  
Result: Fetotoxicity.

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: LOAEL: 63 mg/kg body weight

Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Oral  
Developmental Toxicity: NOAEL: 120 mg/kg body weight  
Result: No effects on fetal development.

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

May cause damage to organs (Liver, lymph node, Stomach, Nervous system) through prolonged or repeated exposure if swallowed.

**Ingredients:****Fenbendazole:**

Routes of exposure: Ingestion  
Target Organs: Liver, lymph node, Stomach, Nervous system  
Assessment: May cause damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Ingredients:****Calcium carbonate:**

Species: Rat  
NOAEL: 1,000 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days  
Method: OECD Test Guideline 422

**Fenbendazole:**

Species: Rat  
LOAEL: 500 mg/kg  
Application Route: Oral  
Exposure time: 2 Weeks

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

---

Target Organs: Kidney, Liver

Species: Rat

NOAEL: > 2,500 mg/kg

Application Route: Oral

Exposure time: 30 Days

Remarks: No significant adverse effects were reported

Species: Rat

LOAEL: 1,600 mg/kg

Application Route: Oral

Exposure time: 90 Days

Target Organs: Central nervous system

Symptoms: Tremors

Species: Dog

NOAEL: 4 mg/kg

LOAEL: 8 mg/kg

Exposure time: 6 Months

Target Organs: Stomach, lymph node, Nervous system

**Paraffin oil:**

Species: Rat, female

LOAEL: 161 mg/kg

Application Route: Ingestion

Exposure time: 90 Days

**Aspiration toxicity**

Not classified based on available information.

**Ingredients:****Fenbendazole:**

No aspiration toxicity classification

**Paraffin oil:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Experience with human exposure****Ingredients:****Fenbendazole:**

Ingestion : Symptoms: Rapid respiration, Salivation, anorexia, Diarrhea

## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Ingredients:

##### Calcium carbonate:

|                                                     |   |                                                                                                                  |
|-----------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202          |
| Toxicity to algae                                   | : | NOEC (Desmodesmus subspicatus (green algae)): 14 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201  |
| Toxicity to microorganisms                          | : | EC50: > 1,000 mg/l<br>Exposure time: 3 h<br>Method: OECD Test Guideline 209                                      |

##### Fenbendazole:

|                                                                        |   |                                                                                                                                   |
|------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                                       | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 7.5 mg/l<br>Exposure time: 96 h<br>Remarks: No toxicity at the limit of solubility. |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Daphnia magna (Water flea)): 0.008 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202                           |
| M-Factor (Acute aquatic toxicity)                                      | : | 100                                                                                                                               |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 0.0015 mg/l<br>Exposure time: 21 Days<br>Method: OECD Test Guideline 211                       |
| M-Factor (Chronic aquatic toxicity)                                    | : | 10                                                                                                                                |

##### Paraffin oil:

|                                                     |   |                                                                                                                                                                           |
|-----------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | : | LL50 (Scophthalmus maximus (turbot)): > 1,028 mg/l<br>Exposure time: 96 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : | EL50 (Acartia tonsa): > 3,193 mg/l<br>Exposure time: 48 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials                 |

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

**Toxicity to algae** : EL50 (Skeletonema costatum (marine diatom)): > 3,200 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Remarks: Based on data from similar materials

NOELR (Skeletonema costatum (marine diatom)): 993 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Remarks: Based on data from similar materials

**Persistence and degradability****Ingredients:****Paraffin oil:**

**Biodegradability** : Result: Readily biodegradable.  
Biodegradation: 82 %  
Exposure time: 24 d  
Method: OECD Test Guideline 301F  
Remarks: Based on data from similar materials

**Bioaccumulative potential****Ingredients:****Fenbendazole:**

**Bioaccumulation** : Species: Lepomis macrochirus (Bluegill sunfish)  
Bioconcentration factor (BCF): 240

Partition coefficient: n-octanol/water : log Pow: 2.3

**Mobility in soil****Ingredients:****Fenbendazole:**

Distribution among environmental compartments : log Koc: 4.37

**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.

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

|                      |                                                                        |
|----------------------|------------------------------------------------------------------------|
| UN number            | : UN 3077                                                              |
| Proper shipping name | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.<br>(Fenbendazole) |
| Class                | : 9                                                                    |
| Packing group        | : III                                                                  |
| Labels               | : 9                                                                    |

**IATA-DGR**

|                                          |                                                                        |
|------------------------------------------|------------------------------------------------------------------------|
| UN/ID No.                                | : UN 3077                                                              |
| Proper shipping name                     | : Environmentally hazardous substance, solid, n.o.s.<br>(Fenbendazole) |
| Class                                    | : 9                                                                    |
| Packing group                            | : III                                                                  |
| Labels                                   | : Miscellaneous                                                        |
| Packing instruction (cargo aircraft)     | : 956                                                                  |
| Packing instruction (passenger aircraft) | : 956                                                                  |
| Environmentally hazardous                | : yes                                                                  |

**IMDG-Code**

|                      |                                                                        |
|----------------------|------------------------------------------------------------------------|
| UN number            | : UN 3077                                                              |
| Proper shipping name | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.<br>(Fenbendazole) |
| Class                | : 9                                                                    |
| Packing group        | : III                                                                  |
| Labels               | : 9                                                                    |
| EmS Code             | : F-A, S-F                                                             |
| Marine pollutant     | : yes                                                                  |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****49 CFR**

|                      |                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UN/ID/NA number      | : UN 3077                                                                                                                                                                                                                                               |
| Proper shipping name | : Environmentally hazardous substance, solid, n.o.s.<br>(Fenbendazole)                                                                                                                                                                                  |
| Class                | : 9                                                                                                                                                                                                                                                     |
| Packing group        | : III                                                                                                                                                                                                                                                   |
| Labels               | : CLASS 9                                                                                                                                                                                                                                               |
| ERG Code             | : 171                                                                                                                                                                                                                                                   |
| Marine pollutant     | : yes(Fenbendazole)                                                                                                                                                                                                                                     |
| Remarks              | : Above applies only to containers over 119 gallons or 450 liters., Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO. |

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

**SECTION 15. REGULATORY INFORMATION****EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

|                             |   |                                                                                                           |
|-----------------------------|---|-----------------------------------------------------------------------------------------------------------|
| <b>SARA 311/312 Hazards</b> | : | Combustible dust<br>Reproductive toxicity<br>Specific target organ toxicity (single or repeated exposure) |
|-----------------------------|---|-----------------------------------------------------------------------------------------------------------|

|                 |   |                                                                                                                                                                                   |
|-----------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SARA 313</b> | : | This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. |
|-----------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**US State Regulations****Pennsylvania Right To Know**

|                   |            |
|-------------------|------------|
| Calcium carbonate | 471-34-1   |
| Fenbendazole      | 43210-67-9 |
| Paraffin oil      | 8012-95-1  |

**California Prop. 65**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**California List of Hazardous Substances**

|              |           |
|--------------|-----------|
| Paraffin oil | 8012-95-1 |
|--------------|-----------|

**California Permissible Exposure Limits for Chemical Contaminants**

|                   |           |
|-------------------|-----------|
| Calcium carbonate | 471-34-1  |
| Paraffin oil      | 8012-95-1 |

**The ingredients of this product are reported in the following inventories:**

|       |   |                |
|-------|---|----------------|
| AICS  | : | not determined |
| DSL   | : | not determined |
| IECSC | : | not determined |

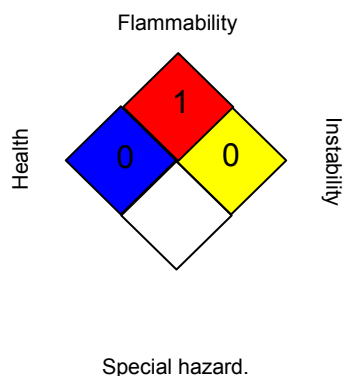
## Fenbendazole Premix Formulation

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

### SECTION 16. OTHER INFORMATION

#### Further information

##### NFPA:



##### HMIS® IV:

|                 |   |   |
|-----------------|---|---|
| HEALTH          | * | 2 |
| FLAMMABILITY    |   | 3 |
| PHYSICAL HAZARD |   | 0 |

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

#### Full text of other abbreviations

|                 |   |                                                                                           |
|-----------------|---|-------------------------------------------------------------------------------------------|
| ACGIH           | : | USA. ACGIH Threshold Limit Values (TLV)                                                   |
| NIOSH REL       | : | USA. NIOSH Recommended Exposure Limits                                                    |
| OSHA Z-1        | : | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants          |
| ACGIH / TWA     | : | 8-hour, time-weighted average                                                             |
| NIOSH REL / TWA | : | Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek |
| NIOSH REL / ST  | : | STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday    |
| OSHA Z-1 / TWA  | : | 8-hour time weighted average                                                              |

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of

**Fenbendazole Premix Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 05/02/2017  |
| 2.0     | 11/03/2017     | 1503392-00003 | Date of first issue: 03/31/2017 |

---

Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 11/03/2017

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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.

US / Z8