SECTION 1. IDENTIFICATION

Product name: Abamectin / Levamisole Hydrochloride / Cobalt EDTA / Sodium Selenate 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
Acute toxicity (Oral): Category 4
Respiratory sensitization: Sub-category 1B
Germ cell mutagenicity: Category 2
Carcinogenicity: Category 2
Reproductive toxicity: Category 2
Specific target organ toxicity - repeated exposure: Category 1 (Respiratory Tract, Thyroid, Heart, Blood)
Specific target organ toxicity - repeated exposure (Oral): Category 2 (Blood, Testis)

GHS label elements
Hazard pictograms:

Signal Word: Danger

Hazard Statements: H302 Harmful if swallowed.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
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.
P284 Wear respiratory protection.

**Response:**
P301 + P312 + P330 IF SWALLOWED: Call a doctor if you feel unwell. Rinse mouth.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical attention.
P342 + P311 If experiencing respiratory symptoms: Call a doctor.

**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>
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</thead>
<tbody>
<tr>
<td>Levamisole hydrochloride</td>
<td>No data available</td>
<td>16595-80-5</td>
<td>8.8</td>
</tr>
<tr>
<td>Cobalt disodium ethylenediaminetetraacetate</td>
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<td>15137-09-4</td>
<td>4.55</td>
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<td>Benzyl alcohol</td>
<td>Benzenemethanol</td>
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<td>Citric acid</td>
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</tr>
</tbody>
</table>
SAFETY DATA SHEET

Abamectin / Levamisole Hydrochloride / Cobalt EDTA / Sodium Selenate Formulation

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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 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. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Harmful if swallowed. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. Suspected of causing cancer. Suspected of damaging fertility. Suspected of damaging 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
**SAFETY DATA SHEET**

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**SECTION 6. ACCIDENTAL RELEASE 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  
Oxides of phosphorus  
Cobalt compounds  
Nitrogen oxides (NOx)  
Metal 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 7. HANDLING AND STORAGE**
Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSOAL PROTECTION section.

Local/Total ventilation: Use only with adequate ventilation.

Advice on safe handling: Do not breathe mist or vapors. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. 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. Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers. 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

SECTION 8. EXPOSURE CONTROLS/PERSOAL 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>
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<tbody>
<tr>
<td>Levamisole hydrochloride</td>
<td>16595-80-5</td>
<td>TWA</td>
<td>20 µg/m³ (OEB 3)</td>
<td>Internal</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Wipe limit 200 µg/100 cm²</td>
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<td>Sodium selenate</td>
<td>13410-01-0</td>
<td>TWA</td>
<td>0.2 mg/m³ (selenium)</td>
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<td></td>
<td></td>
<td>TWA EV</td>
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<td>CA QC OEL</td>
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<td></td>
<td>TWA</td>
<td>0.1 mg/m³ (selenium)</td>
<td>CA BC OEL</td>
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<td></td>
<td>TWA</td>
<td>0.2 mg/m³ (selenium)</td>
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<td>abamectin (combination of avermectin B1a and avermectin B1b) (ISO)</td>
<td>71751-41-2</td>
<td>TWA</td>
<td>15 µg/m³ (OEB 3)</td>
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<td></td>
<td>Wipe limit 150 µg/100 cm²</td>
<td>Internal</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

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Engineering measures:
Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless quick connections).
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

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: Combined particulates and organic vapor type

Hand protection:
Material: 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: suspension
Color: No data available
Odor: No data available
<table>
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<td>Initial boiling point and boiling range</td>
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<td>Flash point</td>
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<td>Evaporation rate</td>
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<td>Flammability (solid, gas)</td>
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<td>Decomposition temperature</td>
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<td>Molecular weight</td>
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<tr>
<td>Particle size</td>
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</table>

**SECTION 10. STABILITY AND REACTIVITY**
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
Method: Calculation method
Acute toxicity estimate: 939.39 mg/kg

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

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

Components:

Levamisole hydrochloride:
Acute oral toxicity
LD50 (Rat): 180 mg/kg
LD50 (Mouse): 223 mg/kg
LD50 (Rabbit): 458 mg/kg

Acute inhalation toxicity
Remarks: No data available

Acute dermal toxicity
Remarks: No data available

Cobalt disodium ethylenediaminetetraacetate:
Acute oral toxicity
LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

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

Citric acid:
Acute oral toxicity: LD50 (Mouse): 5,400 mg/kg

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

Sodium selenate:
Acute oral toxicity: LD50 (Rat): > 5 - 50 mg/kg
  Remarks: Based on data from similar materials

Acute inhalation toxicity: LC50 (Rat): > 0.052 - 0.51 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: OECD Test Guideline 403

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Acute oral toxicity: LD50 (Rat): 24 mg/kg
  LD50 (Mouse): 10 mg/kg
  LDLo (Monkey): 24 mg/kg
  Symptoms: Dilatation of the pupil

Acute inhalation toxicity: LC50 (Rat): 0.023 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist

Acute dermal toxicity: LD50 (Rat): 330 mg/kg
  LD50 (Rabbit): 2,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Components:
Levamisole hydrochloride:
  Remarks: No data available

Cobalt disodium ethylenediaminetetraacetate:
  Species: Rabbit
  Method: OECD Test Guideline 404
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Result: No skin irritation
Remarks: Based on data from similar materials

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

**Citric acid:**
- **Species:** Rabbit
- **Method:** OECD Test Guideline 404
- **Result:** No skin irritation

**Sodium selenate:**
- **Species:** reconstructed human epidermis (RhE)
- **Method:** OECD Test Guideline 431
- **Result:** Skin irritation

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**
- **Species:** Rabbit
- **Result:** No skin irritation

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

**Components:**

**Levamisole hydrochloride:**
- **Remarks:** No data available

**Cobalt disodium ethylenediaminetetraacetate:**
- **Species:** Rabbit
- **Result:** No eye irritation
- **Remarks:** Based on data from similar materials

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

**Citric acid:**
- **Species:** Rabbit
- **Result:** Irritation to eyes, reversing within 21 days
- **Method:** OECD Test Guideline 405
Sodium selenate:
Species: Bovine cornea
Method: OECD Test Guideline 437
Result: No eye irritation

Abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Species: Rabbit
Result: Mild eye irritation

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

Respiratory sensitization
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:
Levamisole hydrochloride:
Remarks: No data available

Cobalt disodium ethylenediaminetetraacetate:
Routes of exposure: Inhalation (dust/mist/fume)
Species: Humans
Result: Positive
Remarks: Based on data from similar materials
Assessment: Probability or evidence of low to moderate respiratory sensitization rate in humans

Benzyl alcohol:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Negative

Abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Test Type: Maximization Test
Routes of exposure: Skin contact
Result: Not a skin sensitizer.

Germ cell mutagenicity
Suspected of causing genetic defects.
Components:

**Levamisole hydrochloride:**
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative
- Test Type: Chromosome aberration test in vitro
  - Result: negative

**Cobalt disodium ethylenediaminetetraacetate:**
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  - Method: OECD Test Guideline 471
  - Result: negative
  - Remarks: Based on data from similar materials
- Test Type: In vitro mammalian cell gene mutation test
  - Method: OECD Test Guideline 476
  - Result: positive
  - Remarks: Based on data from similar materials
- Test Type: Chromosome aberration test in vitro
  - Method: OECD Test Guideline 473
  - Result: positive
  - Remarks: Based on data from similar materials

Genotoxicity in vivo:
- Test Type: Micronucleus test
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: positive
  - Remarks: Based on data from similar materials
  
  - Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
    - Species: Mouse
    - Application Route: Ingestion
    - Result: positive
    - Remarks: Based on data from similar materials
  
  - Test Type: Rodent dominant lethal test (germ cell) (in vivo)
    - Species: Mouse
    - Application Route: Ingestion
    - Result: positive
    - Remarks: Based on data from similar materials

Germ cell mutagenicity - Assessment:
- Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.
  - Remarks: Based on data from similar materials

**Benzyl alcohol:**
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative
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Genotoxicity in vivo:
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: negative

Citric acid:
- Genotoxicity in vitro:
  - Test Type: Bacterial reverse mutation assay (AMES)
    - Result: negative
  - Test Type: in vitro micronucleus test
    - Result: positive
  - Test Type: Bacterial reverse mutation assay (AMES)
    - Result: negative

Genotoxicity in vivo:
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
- Genotoxicity in vitro:
  - Test Type: Bacterial reverse mutation assay (AMES)
    - Result: negative
  - Test Type: In vitro mammalian cell gene mutation test
    - Test system: Chinese hamster lung cells
    - Result: negative
  - Test Type: Alkaline elution assay
    - Result: negative

Genotoxicity in vivo:
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: negative

Carcinogenicity
 Suspected of causing cancer.
Components:

**Levamisole hydrochloride:**
- **Species:** Mouse
- **Application Route:** Oral
- **Exposure time:** 2 Years
- **NOAEL:** 80 mg/kg body weight
- **Remarks:** No significant adverse effects were reported

**Cobalt disodium ethylenediaminetetraacetate:**
- **Species:** Rat
  - **Application Route:** Inhalation (dust/mist/fume)
  - **Exposure time:** 105 weeks
  - **Result:** Positive
  - **Remarks:** Based on data from similar materials

  - **Species:** Mouse
    - **Application Route:** Inhalation (dust/mist/fume)
    - **Exposure time:** 105 weeks
    - **Result:** Positive
    - **Remarks:** Based on data from similar materials

  - **Carcinogenicity - Assessment:** Limited evidence of carcinogenicity in animal studies
    - **Remarks:** Based on data from similar materials

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

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**
- **Species:** Rat
  - **Application Route:** Oral
  - **Exposure time:** 105 weeks
  - **Result:** Negative

- **Species:** Mouse
  - **Application Route:** Oral
  - **Exposure time:** 93 weeks
  - **Result:** Negative

**Reproductive toxicity**
Suspected of damaging fertility. Suspected of damaging the unborn child.
Components:

**Levamisole hydrochloride:**

Effects on fertility:
- Test Type: Three-generation reproduction toxicity study
- Species: Rat
- Application Route: Oral
- Result: No significant adverse effects were reported

Effects on fetal development:
- Test Type: Embryo-fetal development
- Species: Rat
- Application Route: Oral
- Developmental Toxicity: NOAEL: 20 mg/kg body weight
- Result: Fetotoxicity.

- Test Type: Embryo-fetal development
  - Species: Rabbit
  - Application Route: Oral
  - Developmental Toxicity: LOAEL: 40 mg/kg body weight
  - Result: Fetotoxicity.

**Cobalt disodium ethylenediaminetetraacetate:**

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

**Cobalt disodium ethylenediaminetetraacetate:**

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

- Test Type: Fertility/early embryonic development
  - Species: Mouse
  - Application Route: Ingestion
  - Result: positive
  - Remarks: Based on data from similar materials

- Test Type: Fertility/early embryonic development
  - Species: Mouse
  - Application Route: inhalation (dust/mist/fume)
  - Result: positive
  - Remarks: Based on data from similar materials

- Test Type: Fertility/early embryonic development
  - Species: Rat
  - Application Route: inhalation (dust/mist/fume)
  - Result: positive
  - Remarks: Based on data from similar materials

Effects on fetal development:
- Test Type: Embryo-fetal development
  - Species: Rat
  - Application Route: Ingestion
  - Method: OECD Test Guideline 414
  - Result: negative
### Reproductive toxicity - Assessment

Remarks: Based on data from similar materials

#### 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

#### Citric acid:

**Effects on fetal development**
- **Test Type:** One-generation reproduction toxicity study
- **Species:** Rat
- **Application Route:** Ingestion
- **Result:** negative

#### Sodium selenate:

**Effects on fertility**
- **Test Type:** Two-generation reproduction toxicity study
- **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
- **Remarks:** Based on data from similar materials

#### abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

**Effects on fertility**
- **Test Type:** Fertility
- **Species:** Rat, male
- **Application Route:** Oral
- **Result:** Effects on fertility.

- **Test Type:** Two-generation reproduction toxicity study
  - **Species:** Rat
  - **Application Route:** Oral
  - **Early Embryonic Development:** NOAEL: 0.12 mg/kg body weight
  - **Result:** Fetotoxicity.

**Effects on fetal development**
- **Test Type:** Embryo-fetal development
Species: Mouse
Application Route: Oral
General Toxicity Maternal: NOAEL: 0.05 mg/kg body weight
Developmental Toxicity: NOAEL: 0.2 mg/kg body weight
Result: Cleft palate
Remarks: Adverse developmental effects were observed

Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Oral
Developmental Toxicity: LOAEL: 2 mg/kg body weight
Result: Cleft palat, Teratogenic effects., Reduced embryonic survival
Remarks: Adverse developmental effects were observed

Test Type: Development
Species: Rat
Application Route: Oral
Developmental Toxicity: LOAEL: 1.6 mg/kg body weight
Result: Teratogenic effects.

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.

Components:

Citric acid:
Assessment : May cause respiratory irritation.

STOT-repeated exposure
Causes damage to organs (Respiratory Tract, Thyroid, Heart, Blood) through prolonged or repeated exposure.
May cause damage to organs (Blood, Testis) through prolonged or repeated exposure if swallowed.

Components:

Levamisole hydrochloride:
Target Organs : Blood, Testis
Assessment : May cause damage to organs through prolonged or repeated exposure.

Cobalt disodium ethylenediaminetetraacetate:
Routes of exposure : Inhalation (dust/mist/fume)
Target Organs : Respiratory Tract
Assessment : Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.
SAFETY DATA SHEET

Abamectin / Levamisole Hydrochloride / Cobalt EDTA / Sodium Selenate Formulation

Version 1.1  Revision Date: 04/04/2023  SDS Number: 10813899-00002  Date of last issue: 07/12/2022
Date of first issue: 07/12/2022

Remarks:
Based on data from similar materials

Routes of exposure:
Ingestion

Target Organs:
Thyroid, Heart, Blood

Assessment:
Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Remarks:
Based on data from similar materials

**Sodium selenate:**

Routes of exposure:
Ingestion

Assessment:
Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Routes of exposure:
Ingestion

Target Organs:
Central nervous system

Assessment:
Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity**

**Components:**

**Levamisole hydrochloride:**

Species:
Rat

NOAEL:
2.5 mg/kg

Application Route:
Oral

Exposure time:
18 Months

Target Organs:
Testis

Species:
Dog

LOAEL:
20 mg/kg

Application Route:
Oral

Exposure time:
18 Months

Target Organs:
Blood

Species:
Dog

LOAEL:
40 mg/kg

Application Route:
Oral

Exposure time:
3 Months

**Cobalt disodium ethylenediaminetetraacetate:**

Species:
Rat

LOAEL:
> 10 mg/kg

Application Route:
Ingestion

Exposure time:
90 Days

Remarks:
Based on data from similar materials

Species:
Rat

LOAEL:
< 0.01 mg/l

Application Route:
inhalation (dust/mist/fume)
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Exposure time: 13 Weeks
Method: OECD Test Guideline 413
Remarks: Based on data from similar materials

Species: Mouse
LOAEL: < 0.01 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 13 Weeks
Method: OECD Test Guideline 413
Remarks: Based on data from similar materials

Species: Mouse
LOAEL: < 0.01 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 13 Weeks
Method: OECD Test Guideline 413
Remarks: Based on data from similar materials

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

Species: Rat
NOAEL: 4,000 mg/kg
LOAEL: 8,000 mg/kg
Application Route: Ingestion
Exposure time: 10 Days

Species: Rat
NOAEL: 0.4 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks

Species: Rat
NOAEL: 1.5 mg/kg
Application Route: Oral
Exposure time: 24 Months
Target Organs: Central nervous system
Symptoms: Tremors, ataxia

Species: Mouse
NOAEL: 4.0 mg/kg
Application Route: Oral
Exposure time: 24 Months
Target Organs: Central nervous system
Symptoms: Tremors, ataxia

Species: Dog
NOAEL: 0.25 mg/kg
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 53 Weeks

Species: Dog
NOAEL: 0.25 mg/kg
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 53 Weeks
Target Organs: Central nervous system
Symptoms: Tremors, weight loss
Remarks: mortality observed
Species: Monkey
NOAEL: 1.0 mg/kg
Application Route: Oral
Exposure time: 14 Weeks
Target Organs: Central nervous system

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

Levamisole hydrochloride:
Ingestion: Symptoms: Nausea, Vomiting, Headache, Dizziness, hypotension

Cobalt disodium ethylenediaminetetraacetate:
Inhalation: Target Organs: Respiratory system
Remarks: Based on data from similar materials
Ingestion: Target Organs: Blood
Remarks: Based on data from similar materials
Target Organs: Heart
Target Organs: Thyroid

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Ingestion: Symptoms: May cause, Tremors, Diarrhea, central nervous system effects, Salivation, tearing

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Levamisole hydrochloride:
Toxicity to fish: LC50 (Oryzias latipes (Japanese medaka)): 37.3 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 64 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Cobalt disodium ethylenediaminetetraacetate:
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials
### Toxicity to algae/aquatic plants

**ErC50 (Raphidocelis subcapitata (freshwater green alga)): > 100 mg/l**  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

### Toxicity to fish (Chronic toxicity)

**EC10 (Danio rerio (zebra fish)): > 1 mg/l**  
Exposure time: 34 d  
Remarks: Based on data from similar materials

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

**EC10 (Hyalella azteca (Amphipod)): > 0.01 - 0.1 mg/l**  
Exposure time: 28 d  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials

#### Benzyl alcohol:

**Toxicity to fish**  
**LC50 (Pimephales promelas (fathead minnow)): 460 mg/l**  
Exposure time: 96 h

**Toxicity to daphnia and other aquatic invertebrates**  
**EC50 (Daphnia magna (Water flea)): 230 mg/l**  
Exposure time: 48 h  
Method: OECD Test Guideline 202

**Toxicity to algae/aquatic plants**  
**EC50 (Pseudokirchneriella subcapitata (green algae)): 770 mg/l**  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
NOEC (Pseudokirchneriella subcapitata (green algae)): 310 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**  
**NOEC (Daphnia magna (Water flea)): 51 mg/l**  
Exposure time: 21 d  
Method: OECD Test Guideline 211

#### Citric acid:

**Toxicity to fish**  
**LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l**  
Exposure time: 96 h

**Toxicity to daphnia and other aquatic invertebrates**  
**EC50 (Daphnia magna (Water flea)): 1,535 mg/l**  
Exposure time: 24 h

#### Sodium selenate:

**Toxicity to fish**  
**LC50 (Pimephales promelas (fathead minnow)): > 1 - 10 mg/l**  
Exposure time: 96 h  
Remarks: Based on data from similar materials

**Toxicity to daphnia and other**  
**EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l**
aquatic invertebrates: Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
- ErC50 (Chlamydomonas reinhardtii (green algae)): 245 µg/l Exposure time: 96 h
- NOEC (Chlamydomonas reinhardtii (green algae)): 197 µg/l Exposure time: 96 h

Toxicity to fish (Chronic toxicity):
- NOEC (Lepomis macrochirus (Bluegill sunfish)): > 0.01 - 0.1 mg/l Exposure time: 258 d
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: > 0.1 - 1 mg/l Exposure time: 28 d
Remarks: Based on data from similar materials

Toxicity to microorganisms:
- EC10 (activated sludge): 590 mg/l Exposure time: 3 h
Method: OECD Test Guideline 209

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Toxicity to fish:
- LC50 (Oncorhynchus mykiss (rainbow trout)): 3.2 µg/l Exposure time: 96 h
- LC50 (Lepomis macrochirus (Bluegill sunfish)): 9.6 µg/l Exposure time: 96 h
- LC50 (Ictalurus punctatus (channel catfish)): 24 µg/l Exposure time: 96 h
- LC50 (Cyprinus carpio (Carp)): 42 µg/l Exposure time: 96 h
- LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Americamysis): 0.022 µg/l Exposure time: 96 h
- EC50 (Daphnia magna (Water flea)): 0.34 µg/l Exposure time: 48 h

Toxicity to algae/aquatic plants:
- EC50 (Pseudokirchneriella subcapitata (green algae)): 100 mg/l Exposure time: 72 h

Toxicity to fish (Chronic toxicity):
- NOEC (Pimephales promelas (fathead minnow)): 0.52 µg/l Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC (Daphnia magna (Water flea)): 0.03 µg/l Exposure time: 21 d
ic toxicity)

NOEC (Mysidopsis bahia (opossum shrimp)): 0.0035 µg/l
Exposure time: 28 d

Toxicity to microorganisms:
EC50: > 1,000 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition

Persistence and degradability

Components:

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

Citric acid:
Biodegradability:
Result: Readily biodegradable.
Biodegradation: 97 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Stability in water: Hydrolysis: 50 % (< 12 h)

Bioaccumulative potential

Components:

Cobalt disodium ethylenediaminetetraacetate:
Partition coefficient: n-octanol/water: log Pow: -3.86
Remarks: Calculation

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

Citric acid:
Partition coefficient: n-octanol/water: log Pow: -1.72

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Bioaccumulation: Bioconcentration factor (BCF): 52

Partition coefficient: n-octanol/water: log Pow: 4
Mobility in soil

**Components:**

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Distribution among environmental compartments: log Koc: > 3.6

**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**

UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (abamectin (combination of avermectin B1a and avermectin B1b) (ISO), Cobalt disodium ethylenediaminetetraacetate)

Class: 9
Packing group: III
Labels: 9

**IATA-DGR**

UN/ID No.: UN 3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (abamectin (combination of avermectin B1a and avermectin B1b) (ISO), Cobalt disodium ethylenediaminetetraacetate)

Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 964
Packing instruction (passenger aircraft): 964
Environmentally hazardous: yes

**IMDG-Code**

UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (abamectin (combination of avermectin B1a and avermectin B1b) (ISO), Cobalt disodium ethylenediaminetetraacetate)
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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

TDG
UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO), Cobalt disodium ethylenediaminetetraacetate)

Class: 9
Packing group: III
Labels: 9
ERG Code: 171
Marine pollutant: yes (abamectin (combination of avermectin B1a and avermectin B1b) (ISO), Cobalt disodium ethylenediaminetetraacetate)

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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
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CA QC OEL / TWAEV: Time-weighted average exposure value

ALIC - 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 Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EMx - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); Erx - Concentration associated with x% response; ErG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDS - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet:


Revision Date: 04/04/2023
Date format: mm/dd/yyyy

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.

CA / Z8