Section 1 - Identification of The Material and Supplier

Norbrook Laboratories Australia Pty Ltd
Unit 7/1 Trade Park Drive
Tullamarine, Vic 3043 AUSTRALIA

Chemical nature: Ivermectin is a fermentation product.
Trade Name: Noromectin Premix for Pigs
APVMA Code: 55455
Product Use: For the treatment and control of gastrointestinal roundworms, kidney worms, lungworms, lice and mange mites in pigs.
Creation Date: September, 2009
This version issued: August, 2014 and is valid for 5 years from this date.

Section 2 - Hazards Identification

Statement of Hazardous Nature
This product is classified as: Xn, Harmful. N, Dangerous to the environment. Hazardous according to the criteria of SWA.
Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

Risk Phrases: R22, R52, R61. Harmful if swallowed. Harmful to aquatic organisms. May cause harm to the unborn child.

Safety Phrases: S20, S22, S36, S61. When using, do not eat or drink. Do not breathe dust. Wear suitable protective clothing. Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

SUSMP Classification: S4
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.
UN Number: None allocated

GHS Signal word: DANGER.
HAZARD STATEMENT:
H302: Harmful if swallowed.
H360: May damage fertility or the unborn child.
H402: Harmful to aquatic life.

PREVENTION
P102: Keep out of reach of children.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash contacted areas thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P281: Use personal protective equipment as required.

RESPONSE
P337: If eye irritation persists: seek medical attention.
P352: Wash with plenty of soap and water.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P308+P333: If exposed or concerned: Get medical advice.
P370+P378: In case of fire, use carbon dioxide, dry chemical, foam, water fog.

STORAGE
P410: Protect from sunlight.
P402+P404: Store in a dry place. Store in a closed container.
P403+P235: Store in a well-ventilated place. Keep cool.

DISPOSAL
P501: Dispose of contents and containers as specified on the registered label.

SAFETY DATA SHEET
Issued by: Norbrook Laboratories Australia Pty Ltd Freecall: 1800 665 866 (office hours)
Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)
Emergency Overview

Physical Description & Colour: Free flowing yellow to light brown meal with no aggregation present.
Odour: Virtually odourless.

Major Health Hazards: may cause harm to unborn children, harmful if swallowed. This is an antibiotic preparation. Any person with a history of allergies to this class of substances should avoid all contact with this product as it may cause sensitisation. This is a physiologically active product and so contact should be minimised, especially if the user is taking a form of medication, as interactions can sometimes give unexpected and undesired results.

Potential Health Effects

Inhalation:
Short Term Exposure: Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.
Long Term Exposure: No data for health effects associated with long term inhalation.

Skin Contact:
Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.
Long Term Exposure: No data for health effects associated with long term skin exposure.

Eye Contact:
Short Term Exposure: This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.
Long Term Exposure: No data for health effects associated with long term eye exposure.

Ingestion:
Short Term Exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful, but symptoms are not available. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.
Long Term Exposure: may cause harm to unborn children.

Carcinogen Status:
SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Conc.,%</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivermectin</td>
<td>70288-86-7</td>
<td>6mg/g</td>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>Other non hazardous ingredients</td>
<td>secret</td>
<td>to 100</td>
<td>not set</td>
<td>not set</td>
</tr>
</tbody>
</table>

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:
You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
Skin Contact: Gently brush away excess solids. Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.
Eye Contact: Quickly and gently brush particles from eyes. No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.
**Section 5 - Fire Fighting Measures**

**Fire and Explosion Hazards:** There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Fire decomposition products from this product are not expected to be hazardous or harmful.

**Extinguishing Media:** Not Combustible. Use extinguishing media suited to burning materials.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade.

- **Flash point:** Does not burn.
- **Upper Flammability Limit:** Does not burn.
- **Lower Flammability Limit:** Does not burn.
- **Autoignition temperature:** Not applicable - does not burn.
- **Flammability Class:** Does not burn.

**Section 6 - Accidental Release Measures**

**Accidental release:** This product is sold in small packages, and the accidental release from one of these is not usually a cause for concern. For minor spills, clean up, rinsing to sewer and put empty container in garbage. Although no special protective clothing is normally necessary because of occasional minor contact with this product, it is good practice to wear impermeable gloves when handling chemical products. In the event of a major spill, prevent spillage from entering drains or water courses and call emergency services.

**Section 7 - Handling and Storage**

**Handling:** Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

**Storage:** This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Check packaging - there may be further storage instructions on the label.

**Section 8 - Exposure Controls and Personal Protection**

The following Australian Standards will provide general advice regarding safety clothing and equipment:


**SWA Exposure Limits**

<table>
<thead>
<tr>
<th>SWA Exposure Limits</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
</table>

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Ivermectin is set at 0.001mg/kg/day. The corresponding NOEL is set at 0.1 mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Taken from Australian ADI List, March 2014.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

**Ventilation:** No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.

**Eye Protection:** Eye protection such as protective glasses or goggles is recommended when this product is being used.

**Skin Protection:** The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

**Protective Material Types:** We suggest that protective clothing be made from the following materials: rubber, PVC.

**Respirator:** If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask. Safety deluge showers should, if practical, be provided near to where this product is being used.
Section 9 - Physical and Chemical Properties:

### Physical Description & colour:
Free flowing yellow to light brown meal with no aggregation present.

### Odour:
Virtually odourless.

### Boiling Point:
Not available.

### Freezing/Melting Point:
No specific data. Solid at normal temperatures.

### Volatiles:
No specific data. Expected to be low at 100°C.

### Vapour Pressure:
Negligible at normal ambient temperatures.

### Vapour Density:
No data.

### Specific Gravity:
No data.

### Water Solubility:
Insoluble.

### pH:
No data.

### Volatility:
Negligible at normal ambient temperatures.

### Odour Threshold:
No data.

### Evaporation Rate:
No data.

### Coeff Oil/water Distribution:
No data

### Autoignition temp:
Not applicable - does not burn.

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Section 10 - Stability and Reactivity

**Reactivity:** This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

**Conditions to Avoid:** Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

**Incompatibilities:** strong acids, strong bases, strong oxidising agents.

**Fire Decomposition:** Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Hydrogen chloride gas, other compounds of chlorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

**Polymerisation:** This product will not undergo polymerisation reactions.

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Section 11 - Toxicological Information

**Local Effects:**

**Target Organs:** There is no data to hand indicating any particular target organs.

Ivermectin is a SWA Class 2 Reproductive risk, may cause harm to the unborn child.

<table>
<thead>
<tr>
<th>Test</th>
<th>Species</th>
<th>Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD₅₀</td>
<td>Mouse</td>
<td>Oral</td>
<td>25 mg/kg</td>
</tr>
<tr>
<td>LD₅₀</td>
<td>Rat</td>
<td>Oral</td>
<td>50 mg/kg</td>
</tr>
<tr>
<td>LD₅₀</td>
<td>Rat (Infant)</td>
<td>Oral</td>
<td>2 to 3 mg/kg</td>
</tr>
<tr>
<td>LD₅₀</td>
<td>Rat</td>
<td>Inhalation</td>
<td>(<em>See notes below)</em></td>
</tr>
<tr>
<td>LC₅₀</td>
<td>Rat</td>
<td>Dermal</td>
<td>&gt; 660 mg/kg</td>
</tr>
<tr>
<td>LC₅₀</td>
<td>Rabbit</td>
<td>Dermal</td>
<td>406 mg/kg</td>
</tr>
<tr>
<td>LC₅₀</td>
<td>Dog</td>
<td>Oral</td>
<td>About 80 mg/kg</td>
</tr>
<tr>
<td>LC₅₀</td>
<td>Rhesus Monkey</td>
<td>Oral</td>
<td>&gt; 24 mg/kg</td>
</tr>
</tbody>
</table>

* Maximum attainable concentration of 5.11 mg/L produced transient irritation of mucous membranes, but no deaths or other signs of toxicity after 1 hour exposure.

**Swallowed** The acute oral toxicity studies of Ivermectin have shown clear differences among species in sensitivity to Ivermectin toxicity. Rodents are uniquely sensitive compared to the other species in which the compound has been tested. Therefore, it is inappropriate to base human risk assessment on the response in mice. Ivermectin is used at a therapeutic dose of 200μg/kg in a variety of species, including humans.

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Classification of Hazardous Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivermectin</td>
<td>&gt;=0.5%Conc&lt;1%: T; R61; R22</td>
</tr>
</tbody>
</table>

Section 12 - Ecological Information

This product is harmful to aquatic organisms. Insufficient data to be sure of status.

Section 13 - Disposal Considerations

Disposal: Dispose of small quantities and empty containers by wrapping with paper and putting in garbage. For larger quantities, if recycling or reclaiming is not possible, use a commercial waste disposal service.

Section 14 - Transport Information

ADG Code: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredient: Ivermectin is mentioned in the SUSMP.

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

- **ADG Code**: Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)
- **AICS**: Australian Inventory of Chemical Substances
- **SWA**: Safe Work Australia, formerly ASCC and NOHSC
- **CAS number**: Chemical Abstracts Service Registry Number
- **Hazchem Code**: Emergency action code of numbers and letters that provide information to emergency services especially firefighters
- **IARC**: International Agency for Research on Cancer
- **NOS**: Not otherwise specified
- **NTP**: National Toxicology Program (USA)
- **R-Phrase**: Risk Phrase
- **SUSMP**: Standard for the Uniform Scheduling of Medicines & Poisons
- **UN Number**: United Nations Number

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS.

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document “Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice” (December 2011)

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http://www.kilford.com.au/ Phone (02)9251 4532