

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	ARREST Hi-Mineral
Product code:	A006417
Recommended use:	For the control of levamisole or benzimidazole resistant roundworms. Also for the control of tapeworms, lungworms and adult fluke in sheep.
Company details:	Boehringer Ingelheim Animal Health New Zealand Limited
Address:	Level 3, Boehringer Ingelheim Building 2 Osterley Way Manukau City Auckland 2104 New Zealand
Telephone number:	Phone: +64 9 980 1600 Fax: +64 9 980 1601
Emergency telephone number:	Boehringer Ingelheim Freephone: 0800 800 822 National Poisons Centre : 0800 764 766 (0800 POISON) Fire Service, Ambulance : Dial 111
Date of preparation:	3 April 2006

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Liquid

Product components:

<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
Albendazole	54965-21-8	23.8
Levamisole HCl	16595-80-5	37.5
Copper sulphate pentahydrate	7758-99-8	8.30
Cobalt sulphate heptahydrate	10026-24-1	1.20
Sodium selenate	13410-01-0	1.25
Other		to 1L

SECTION 3: HAZARDS IDENTIFICATION

Hazard classifications:	6.1E, 6.3B, 6.5B, 6.6B, 6.8A, 6.9B, 9.1A, 9.2C
Priority and secondary identifiers:	WARNING KEEP OUT OF REACH OF CHILDREN WARNING Dangerous to the environment
Risk and safety phrases:	6.1E May be harmful if swallowed. Handle with care. 6.3B May cause mild skin irritation. Avoid skin contact. 6.5B Repeated exposure may cause skin allergy. Avoid skin contact. 6.6B Albendazole, Levamisole HCl and Selenium possibly may cause damage to genetic material. Handle with care. 6.8A Albendazole may affect development and/or reproduction. Handle with care. 6.9B Albendazole and Levamisole HCl (blood and haematopoietic system) possibly may cause organ damage. Handle with care. 9.1A Very toxic to aquatic organisms. Avoid contamination of any water supply with product or empty container. 9.2C Harmful to the soil environment. Avoid release to the environment.

SECTION 4: FIRST AID MEASURES

Necessary first aid measures:	For advice contact the National Poisons Centre on 0800 POISON (0800 764 766), or a doctor immediately. <u>Ingestion:</u> If swallowed seek medical attention. Do NOT induce vomiting. <u>Eyes:</u> If splashed in eyes wash out immediately with water. <u>Skin:</u> If skin or hair contact occurs remove contaminated clothing
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Workplace facilities:	and flush skin and hair with running water.
Required instructions:	<u>Inhalation:</u> Remove to fresh air. No special facilities required.
Notes for medical personnel:	Observe good work practices and avoid skin contact. Wash hands and exposed skin before meals and after use. Do not eat or drink while using. Launder protective clothing separately from other clothing, and before each reuse. Apply symptomatic therapy (eg. activated charcoal). Note the nature of the product (possible mutagen, reproductive/developmental toxin, sensitiser)

SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	Non flammable, Non combustible, Non explosive
Fire hazard properties:	Arrest Hi-Mineral is not classified as flammable and will not support combustion. Hazardous fumes when heated to decomposition.
Regulatory requirements:	Not applicable
Extinguishing media and methods:	Treat the fire as for the other materials present. Do not allow water to enter drains.
Hazchem code:	2X
Recommended protective clothing:	When fighting a major fire wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures:	Wear suitable protective clothing. Restrict access to contaminated area. Contain the spill and prevent further dispersion. Retrieve intact containers from site. Place damaged containers into containment devices. Absorb spills with inert material and place in waste containers. Wash the area with water and absorb with further inert material. Collect spilled material and place in sealable containers for subsequent disposal. Prevent contamination of water courses or sewers. Dispose of waste safely.
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SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:	Apply with well-maintained and calibrated equipment. Handle with care.
Regulatory requirements:	N/A
Handling practices:	N/A
Approved handlers:	Not required
Conditions for safe storage:	Store in a cool place below 30°C. Keep out of reach of children.
Store site requirements:	This substance is subject to a requirement for an emergency management plan, secondary containment and signage whenever it is held in quantities of 100L or more. See Hazardous Substances (Emergency management) regulations 25 to 42.
Packaging:	Packaging Schedule 3 (UN Packing Group III) for quantities >1L (Hazardous Substances Packaging Regulations 2001).

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Workplace exposure standards:	Selenium compounds, as Se TWA 0.1mg/m ³ Copper fume TWA 0.2mg/m ³ Copper dusts & mists, as Cu TWA 1mg/m ³ Cobalt metal dust and fume, as Co TWA 0.05mg/m ³ Dusts 10mg/m ³
Application in the workplace:	Prevent exposure by using engineering controls, personal protective equipment and work practices that prevent skin contact.

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Exposure standards outside the workplace:	EEL: Copper (Cu ²⁺) 0.0013mg/L water
Engineering controls:	Ensure that ventilation maintains dust levels below WES.
Personal protection:	Clothing should consist of overalls with long sleeves and impervious gloves.
References:	N/A.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specify product data:	<u>Formulation type:</u> Suspension <u>Appearance:</u> Blue liquid <u>Specific gravity:</u> ~1.0g / mL <u>Boiling Point:</u> ca. 100° C <u>Vapour Pressure:</u> NA <u>Solubility in Water:</u> Albendazole insoluble, formulated as a suspension
Required specifications:	N/A
Further specifications:	N/A
Specific advice:	N/A

SECTION 10: STABILITY AND REACTIVITY

Stability of the substance:	Stable under normal conditions of use and storage.
Conditions to avoid:	No specific conditions to avoid.
Material to avoid:	No specific materials to avoid.
Hazardous decomposition products:	No hazardous products are expected, except when heated to decomposition.
Hazardous polymerization:	Components are not expected to form hazardous polymers.
Specific data:	N/A

SECTION 11: TOXICOLOGICAL INFORMATION

Data and interpretation:	<u>Arrest Hi Mineral:</u> May be harmful if swallowed. May cause mild skin irritation. Repeated exposure may cause skin allergy. Danger of serious damage to health by prolonged exposure if swallowed. Albendazole, Levamisole HCl and Selenium possibly may cause damage to genetic material. Albendazole may affect development and/or reproduction. Albendazole and Levamisole HCl (blood and haematopoietic system) possibly may cause organ damage.
Summaries data:	<u>Albendazole:</u> Benzimidazoles prevent tubulin polymerisation or spindle movement and their administration can result in aneuploidy. They are weak mutagens. Albendazole has low to moderate acute oral toxicity [LD ₅₀ (oral, rabbit) 500-1250mg/kg; LD ₅₀ (oral, rat) 1320-2400mg/kg; LD ₅₀ (oral, mice) >3000 mg/kg]. Identified as a potential skin sensitiser by a positive result in a guinea pig maximisation test. In repeated oral dose studies toxic effects included reduced weight gain, reduced erythrocyte and leucocyte counts, decreased testes and uterine weights, slight increases in relative liver and kidney weights, and sternal bone marrow hypocellularity (lowest NOAEL 5mg/kg/day). Teratogenicity (visceral, craniofacial and bone defects) has been demonstrated in animal studies (lowest NOEL was 5 mg/kg/day). <u>Levamisole HCL:</u> Levamisole is a broad-spectrum anthelmintic with a long history of use in cattle and sheep. It has moderate to high acute toxicity [LD ₅₀ (oral, rats & mice) = 200-500 mg/kg]. A potential mutagen [levamisole induced chromosome gaps and breaks in human lymphocytes in vitro and in vivo and levamisole

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hydrochloride induced an increase in the mitotic index, numerical chromosomal changes (aneuploidy, polyploidy) and structural chromosomal changes]. Haemolytic anaemic was the main toxic effect demonstrated in repeated dose animal studies (LOAEL 1.25mg/kg/day). In humans, levamisole has been associated with various non-specific effects (nausea, vomiting, rashes). Levamisole has induced leucopenia and agranulocytosis (idiosyncratic) at low doses.

Sodium selenate: Sodium selenate is acutely toxic [LD₅₀ (oral) 25mg/kg]. Dusts are toxic if inhaled and irritant to eyes. Acute poisoning exhibits as dyspnea, spasms and death from respiratory failure. Selenium poisoning in humans has been described and gastrointestinal and neurological symptoms predominated. Potential mutagen. Repeated oral dose testing in laboratory species identified a lowest NOAEL of 0.37mg/kg/day (liver toxicity).

Cobalt sulphate: Cobalt sulphate is an acute oral toxin [LD₅₀ (oral, sheep) 330mg/kg]. Cobalt is a known skin and respiratory sensitizer. Cobalt sulphate irritates skin, eyes and the respiratory tract. Cobalt sulphate may cause cancer by long term inhalation exposure. In repeated dose studies, cobalt salts have been implicated in cardiac disease (LOAEL 0.02mg/kg/d) and cobalt sulphate dust caused pulmonary toxicity when inhaled (LOAEL 0.003mg/L/d).

Copper sulphate: Copper sulphate is a mild skin sensitizer. It is irritating to eyes, skin and the respiratory tract. Not likely to be toxic at levels used in drenches [LD₅₀ (oral, rat) 960mg/kg]. Repeated oral dose studies identified nephrotoxicity (NOAEL 25mg/kg) as a critical early target organ effect.

SECTION 12: ENVIRONMENTAL INFORMATION

Potential environmental interactions:

Very toxic to aquatic organisms. Harmful to the soil environment.

Data organisation :

Albendazole: Albendazole may be toxic to terrestrial vertebrates based on LD₅₀ data [LD₅₀ (oral, rabbit) 500-1250mg/kg]. Not toxic to fish or honey bees. The potential for bioaccumulation is low and benzimidazoles are degraded in soil and probably also in water.

Levamisole HCl: Levamisole is potentially toxic to terrestrial vertebrates based on LD₅₀ data [LD₅₀ (oral, rats & mice) = 200-500mg/kg]. Not toxic to fish or honey bees. Levamisole does not bioaccumulate in biological systems. In soil, levamisole has a half-life of five to seventy five days depending on sunlight, soil type and climatic conditions. Levamisole binds strongly to soil particles and organic matter. It does not leach in soils and is readily degraded by hydrolysis and microbial action.

Sodium selenate: Very toxic to fish [LC₅₀ (96hr, Flathead minnow) 690ug/L], to crustacea [LC₅₀ (48hr, *Grammarus pseudolimnaeus*) 83ug/L] and algae [EC₅₀ (96hr, green algae) 0.2mg/L]. Toxic to plants [EC20 (22d) 0.1mg/kg soil]. Toxic to terrestrial vertebrates based on an acute oral LD₅₀(rats) of 25 mg/kg. Selenium is bioaccumulative and persists.

Cobalt sulphate: Very toxic to aquatic organisms. Not readily biodegradable, cobalt persists. Toxic to terrestrial vertebrates based on an acute oral LD₅₀ (sheep) of 330mg/kg.

Copper sulphate: Very toxic to aquatic organisms [LC₅₀ (96hr, Rainbow trout) 0.032mg/L; EC₅₀ (48hr, *Daphnia magna*) 0.18mg/L]. Not readily biodegradable, copper persists. Toxic to terrestrial vertebrates based on an acute oral LD₅₀ (rat) of 960mg/kg.

Environmental risk and safety phrases:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Selenium 0.05%)

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SECTION 13: DISPOSAL CONSIDERATIONS

Disposal information :

Preferably dispose of the product by use. Otherwise dispose of product and packaging at an approved landfill or other approved facility. Burn empty container in an appropriate incinerator, if circumstances such as wind direction permit. Otherwise crush or puncture and bury in a suitable landfill. Do NOT use container for any other purpose.

SECTION 14: TRANSPORT INFORMATION

Relevant information:

Dangerous Goods for transport.
UN Number: 3082
Dangerous Goods Class: 9

Other requirements:

The maximum quantity per package of this substance allowed for carriage on public transport is 1L.

N/A

SECTION 15: REGULATORY INFORMATION

Regulatory status:

Registered pursuant to the ACVM Act 1997, No. A006417
See www.foodsafety.govt.nz for registration conditions

Approved pursuant to the HSNO Act, Approval Code HSR001938
See www.epa.govt.nz for approval conditions

HSNO and ACVM controls:

SDS is required for quantities greater than or equal to 0.1L
Refer to Section 3

List exposure limits:

No exposure limits have been specifically assigned for this product.

SECTION 16: OTHER INFORMATION

Additional information:

For product information visit the Boehringer Ingelheim website
www.boehringer-ingelheim.co.nz

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