

SAFETY DATA SHEETS

This SDS packet was issued with item:

078914073

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

078654768 078654776 078654784 078654792 078917091

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

078905631 078917092 078917093 078917094



PRODUCT SAFETY DATA SHEET

NOROMECTIN PLUS INJECTION

1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND OF COMPANY / UNDERTAKING

Product Name	Noromectin Plus Injection (USA)
Supplier	Norbrook Laboratories Ltd, Station Works, Newry, Co.Down, N.Ireland, BT35 6JP.
Supplier	Norbrook, Inc. 9733 Loiret Blvd Lenexa, KS 66219 Phone: 913 599 5777 Fax: 913 599 5766

2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Preparation	:	Preparation
Active Ingredients	:	22, 23-Dihydroavermectin B ₁ (Ivermectin) Clorsulon
Description	:	Anthelmintic Endectocide (Chemical Group 3-AV)
Chemical Family	:	Avermectins / Benzenesulfonamides

3. HAZARDS IDENTIFICATION

Physical and Chemical Hazards	:	Not classified as dangerous under EEC Directives 67/548/EEC, 88/379/EEC or 99/45/EC.
Environmental Hazards	:	Ivermectin is harmful to aquatic life. Surface waters or ditches should not be contaminated with product or used containers.
Adverse Human Health Effects	:	None known

4. FIRST AID MEASURES

Inhalation	:	Remove to fresh air. If any signs or symptoms occur or persist seek medical advice.
Skin Contact	:	Wash thoroughly with soap and water. Remove contaminated clothing and wash before reuse.
Eyes Contact	:	Immediately flush eyes with copious amounts of water for at least 15 minutes. If irritation persists, seek medical attention.
Ingestion	:	Do not induce vomiting. Seek medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Use carbon dioxide, dry chemical or alcohol-resistant foam spray extinguishers. Use water spray to cool fire-exposed containers. A fine water mist may be used to smother or to disperse vapours.
Fire and explosion hazards:	None

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	:	Provide good ventilation. Prevent skin and eye contact.
Environmental Precautions	:	Keep away from drains, surface-water, ground-water and soil.
Method for Clean-up	:	Absorb small spills on spill pillows, sand, sawdust or other suitable absorbing material.

7. HANDLING AND STORAGE

Handling	:	Avoid contact with eyes, skin and clothing. Do not breathe vapours or mist. Do not ingest. Do not smoke or eat while handling the product. Wash thoroughly after handling. The containers should be stored in their original boxes when not in use.
Storage	:	Store in closed containers in a cool, dry, well-ventilated area away from oxidisers, heat, sparks and open flame. Protect containers from physical damage and light. Keep container closed when not in use. Before opening large containers, release any pressure build-up by loosening closure slowly. Do not transfer contents to unlabelled containers. Do not store in aluminium containers. Use only with adequate ventilation. Keep out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component - Occupational Exposure Standard

Ivermectin	Not Established
Clorsulon	Not Established

For pure ivermectin :

LD50 (Oral, mouse)	25 mg/kg
LD50 (Oral, rat)	50 mg/kg
LD50 (Dermal, rat)	> 660 mg/kg

For pure clorsulon :

LD50 (Oral, mouse)	>10000 mg/kg
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Protective Equipment	:	Wear vinyl, nitrile or rubber gloves, a waterproof bib-apron and suitable eye protection when applying the product.
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9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Clear, pale yellow to yellow
Odour	:	None

10. STABILITY AND REACTIVITY

Stability	:	Stable under normal conditions of storage and use.
Conditions to avoid	:	None known
Materials to avoid	:	Polyethylene glycol is incompatible with some colours. Strong acids and strong oxidising agents may evolve formaldehyde from the glycerol formal component.

11. TOXICOLOGICAL INFORMATION

Exposure Effects (Acute)

Eye Contact	:	Direct contact of the solution with eyes can cause irritation.
Skin Contact	:	Ivermectin is non-irritating in animal studies. Prolonged or repeated contact with Noromectin Plus may cause irritation and/or drying and cracking of the skin.
Inhalation	:	None known.
Ingestion	:	Oral toxicity of the Noromectin Plus solution is low. Pure ivermectin is considered highly toxic in acute animal studies. If overexposed to ivermectin, symptoms may include decreased activity, slow rate of breathing, dilation of the pupils, muscle tremors and inco-ordination.

Exposure Effects (Chronic)

Unknown for the product mixture. When this product is used according to the directions, prolonged exposure of man is not expected. Ivermectin has tested negative in several mutagenicity studies.

12. ECOLOGICAL INFORMATION

Data on the ecological implications for Noromectin Plus Injection is not yet available.

13. DISPOSAL CONSIDERATIONS

Product/Residues	:	Ivermectin is extremely dangerous to aquatic life. Do not discharge the material into surface or waste water. For disposal, use an incinerator licensed for chemical waste.
Package	:	Dispose of waste containers using regular disposal methods in accordance with local and national environmental regulations.

14. TRANSPORT INFORMATION

Land, Sea & Air Transport

ADR/RID No., IMO/IMDG code, IATA/ICAO Class UN No. : Not applicable

15. REGULATORY INFORMATION

Labelling Information

Safety Phrases	:	S2	Keep out of reach of children
		S7	Keep container tightly closed

16. OTHER INFORMATION

ML : 2000/01

For Animal Treatment Only.

ANADA 200-436, approved by FDA

Revision Date : 20/03/07
Revision No : 01
Printing Date : 23/03/2007

Suppliers data sheets and various chemicals and pharmaceuticals databases were used to compile this sheet.

The information contained in this PSDS is believed to be accurate and represents the best information available at the time of preparation. However Norbrook Laboratories Limited makes no warranty, express or implied, with respect to such information and assumes no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes, and Norbrook Laboratories Limited will not be held liable for any damage resulting from the handling of or contact with the above product.



PRODUCT SAFETY DATA SHEET NOROMECTIN INJECTION (USA)

1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND OF COMPANY / UNDERTAKING

Product Name	Noromectin Injection (USA)
Supplier	Norbrook Laboratories Ltd, Station Works, Newry, Co.Down, N.Ireland, BT35 6JP.
Supplier	Norbrook, Inc. 9733 Loiret Blvd Lenexa, KS 66219 Phone: 913 599 5777 Fax: 913 599 5766

2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Preparation	:	Preparation
Active Ingredients	:	22, 23-Dihydroavermectin B ₁ (Ivermectin)
Description	:	Anthelmintic Endectocide (Chemical Group 3-AV)
Chemical Family	:	Avermectins

3. HAZARDS IDENTIFICATION

Physical and Chemical Hazards	:	Not classified as dangerous under EEC Directives 67/548/EEC, 88/379/EEC or 99/45/EC.
Environmental Hazards	:	Ivermectin is harmful to aquatic life. Surface waters or ditches should not be contaminated with product or used containers.
Adverse Human Health Effects	:	None known

4. FIRST AID MEASURES

Inhalation	:	Remove to fresh air. If any signs or symptoms occur or persist seek medical advice.
Skin Contact	:	Wash thoroughly with soap and water. Remove contaminated clothing and wash before reuse.
Eyes Contact	:	Immediately flush eyes with copious amounts of water for at least 15 minutes. If irritation persists, seek medical attention.
Ingestion	:	Do not induce vomiting. Seek medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Use carbon dioxide, dry chemical or alcohol-resistant foam spray extinguishers. Use water spray to cool fire-exposed containers. A fine water mist may be used to smother or to disperse vapours.
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Fire and explosion hazards: None

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions : Provide good ventilation. Prevent skin and eye contact.
 Environmental Precautions : Keep away from drains, surface-water, ground-water and soil.
 Method for Clean-up : Absorb small spills on spill pillows, sand, sawdust or other suitable absorbing material.

7. HANDLING AND STORAGE

Handling : Avoid contact with eyes, skin and clothing. Do not breathe vapours or mist. Do not ingest. Do not smoke or eat while handling the product. Wash thoroughly after handling. The containers should be stored in their original boxes when not in use.
 Storage : Store in closed containers in a cool, dry, well-ventilated area away from oxidisers, heat, sparks and open flame. Protect containers from physical damage and light.
 Keep container closed when not in use. Before opening large containers, release any pressure build-up by loosening closure slowly. Do not transfer contents to unlabelled containers. Do not store in aluminium containers. Use only with adequate ventilation. Keep out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component - Occupational Exposure Standard

Ivermectin Not Established

For pure ivermectin :

LD50 (Oral, mouse)	25 mg/kg
LD50 (Oral, rat)	50 mg/kg
LD50 (Dermal, rat)	> 660 mg/kg

Protective Equipment : Wear vinyl, nitrile or rubber gloves, a waterproof bib-apron and suitable eye protection when applying the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Liquid
 Colour : Clear, pale yellow
 Odour : None

10. STABILITY AND REACTIVITY

Stability : Stable under normal conditions of storage and use.
 Conditions to avoid : None known
 Materials to avoid : None known

11. TOXICOLOGICAL INFORMATION

Exposure Effects (Acute)

Eye Contact	:	Direct contact of the solution with eyes can cause irritation.
Skin Contact	:	Ivermectin is non-irritating in animal studies. Prolonged or repeated contact with Noromectin Injection may cause irritation and/or drying and cracking of the skin.
Inhalation	:	None known.
Ingestion	:	Oral toxicity of the Noromectin Injection solution is low. Pure ivermectin is considered highly toxic in acute animal studies. If overexposed to ivermectin, symptoms may include decreased activity, slow rate of breathing, dilation of the pupils, muscle tremors and inco-ordination.

Exposure Effects (Chronic)

Unknown for the product mixture. When this product is used according to the directions, prolonged exposure of man is not expected. Ivermectin has tested negative in several mutagenicity studies.

12. ECOLOGICAL INFORMATION

Data on the ecological implications for Noromectin Injection is not yet available.

13. DISPOSAL CONSIDERATIONS

Product/Residues	:	Ivermectin is extremely dangerous to aquatic life. Do not discharge the material into surface or waste water. For disposal, use an incinerator licensed for chemical waste.
Package	:	Dispose of waste containers using regular disposal methods in accordance with local and national environmental regulations.

14. TRANSPORT INFORMATION

Land, Sea & Air Transport

ADR/RID, IMO/IMDG, IATA/ICAO, UN No. : Not applicable

15. REGULATORY INFORMATION

Labelling Information

Safety Phrases	:	S2	Keep out of reach of children
		S7	Keep container tightly closed

16. OTHER INFORMATION

ML : 2000/01 For Animal Treatment Only.

ANADA 200-437, approved by FDA

Revision Date	:	20/03/07
Revision No	:	01
Printing Date	:	23/03/2007

Suppliers data sheets and various chemicals and pharmaceuticals databases were used to compile this sheet.

The information contained in this PSDS is believed to be accurate and represents the best information available at the time of preparation. However Norbrook Laboratories Limited makes no warranty, express or implied, with respect to such information and assumes no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes, and Norbrook Laboratories Limited will not be held liable for any damage resulting from the handling of or contact with the above product.

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Noromectin Injection For Cattle and Swine

Product Code: ANADA 200-437

1.2. Intended Use of the Product

Use of the Substance/Mixture: Noromectin® (ivermectin) Injection is an injectable parasiticide for cattle and swine, that effectively treats and controls the following internal and external parasites that may impair the health of cattle and swine: gastrointestinal roundworms (including inhibited *Ostertagia ostertagi* in cattle), lungworms, grubs, sucking lice, and mange mites of cattle; and gastrointestinal roundworms, lungworms, lice, and mange mites of swine.

1.3. Name, Address, and Telephone of the Responsible Party

Supplier

Norbrook, Inc.
 9401 Indian Creek Parkway – Ste. 680
 Overland Park, KS 66210
 Phone: 913 599 5777
 Fax: 913 599 5766

Manufacturer

Norbrook Laboratories Ltd,
 Station Works, Newry, Co.Down,
 N.Ireland, BT35 6JP.
 Telephone No. +44 (0)28 3026 4435
 Fax No. +44 (0)28 3026 1721
 E-Mail: enquiries@norbrook.co.uk

1.4. Emergency Telephone Number

Emergency Number : 913 599 5777

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US Classification

Acute Tox. 4 (Oral)	H302
Eye Irrit. 2A	H319
Repr. 2	H361
STOT SE 1	H370
STOT RE 1	H372
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H302 - Harmful if swallowed.
 H319 - Causes serious eye irritation.
 H361 - Suspected of damaging fertility or the unborn child.
 H370 - Causes damage to organs.
 H372 - Causes damage to organs through prolonged or repeated exposure.
 H402 - Harmful to aquatic life.
 H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements (GHS-US)

: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P260 - Do not breathe vapors, mist, or spray.
 P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves, protective clothing, and eye protection.
 P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.
 P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes.

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Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311 - If exposed: Call a poison center/doctor.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	%	GHS-US classification
1,2-Propylene glycol	(CAS No) 57-55-6	Proprietary	Not classified
1,3-Dioxolan-4-ylmethanol	(CAS No) 5464-28-8	Proprietary	Eye Irrit. 2A, H319
Ivermectin	(CAS No) 70288-86-7	Proprietary	Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Dermal), H311 Repr. 2, H361 STOT SE 1, H370 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret [29 CFR 1910.1200]

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

First-aid Measures Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Gently wash with plenty of soap and water followed by rinsing with water for at least 15 minutes. Call a POISON CENTER or doctor/physician if you feel unwell. Wash contaminated clothing before reuse.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Obtain medical attention if irritation persists.

First-aid Measures After Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Injuries: Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure. Suspected of damaging fertility or the unborn child. Please refer to the package insert for more detailed information.

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Causes skin irritation. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Symptoms/Injuries After Ingestion: Harmful if swallowed. Causes damage to organs.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

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4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Prevent fire-fighting water from entering environment.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use only as directed. Avoid all contact with skin, eyes, or clothing. Avoid breathing vapor, mist, or spray.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Avoid release to the environment.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Absorb and/or contain spill with inert material, then place in suitable container. Clean up spills immediately and dispose of waste safely.

6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Precautions for Safe Handling: Contaminated sharps should be handled with care and discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak proof on sides and bottoms, and appropriately labeled. Contact your local health department for referral to a syringe disposal program. special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Store locked up. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Products: Strong acids, strong bases, strong oxidizers.

Storage Temperature: 30 °C Max

7.3. Specific End Use(s)

Noromectin® (ivermectin) Injection is an injectable parasiticide for cattle and swine, that effectively treats and controls the following internal and external parasites that may impair the health of cattle and swine: gastrointestinal roundworms (including inhibited *Ostertagia ostertagi* in cattle), lungworms, grubs, sucking lice, and mange mites of cattle; and gastrointestinal roundworms, lungworms, lice, and mange mites of swine.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

1,2-Propylene glycol (57-55-6)

USA AIHA	WEEL TWA (mg/m ³)	10 mg/m ³
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8.2. Exposure Controls

Appropriate Engineering Controls

: Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Personal Protective Equipment

: Avoid all unnecessary exposure. Gloves. Safety glasses. Protective clothing. Inadequate ventilation: wear respiratory protection.



Materials for Protective Clothing

: Chemically resistant materials and fabrics.

Hand Protection

: Wear chemically resistant protective gloves.

Eye Protection

: Chemical safety goggles.

Skin and Body Protection

: Wear suitable protective clothing. Wash contaminated clothing before reuse.

Respiratory Protection

: In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Clear solution
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Solubility	: No data available
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available

9.2. Other Information

 No additional information available

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2. Chemical Stability:** Stable at standard temperature and pressure.
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, and incompatible materials.
- 10.5. Incompatible Materials:** Strong acids, strong bases, strong oxidizers.
- 10.6. Hazardous Decomposition Products:** Carbon oxides (CO, CO₂). Nitrogen oxides.

Noromectin Injection For Cattle and Swine

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity: Oral: Harmful if swallowed.

Noromectin Injection For Cattle and Swine	
ATE (Oral)	1,000.00 mg/kg body weight
1,2-Propylene glycol (57-55-6)	
LD50 Oral Rat	20 g/kg
LD50 Dermal Rabbit	20800 mg/kg
Ivermectin (70288-86-7)	
LD50 Oral Rat	10 mg/kg
ATE (Dermal)	300.00 mg/kg body weight

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Causes damage to organs.

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Causes skin irritation. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Symptoms/Injuries After Ingestion: Harmful if swallowed. Causes damage to organs.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

1,2-Propylene glycol (57-55-6)	
LC50 Fish 1	51600 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	10000 mg/l (Exposure time: 24 h - Species: Daphnia magna)
LC50 Fish 2	41 - 47 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 2	1000 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and Degradability No additional information available

12.3. Bioaccumulative Potential

1,2-Propylene glycol (57-55-6)	
BCF Fish 1	< 1
Log Pow	-0.92

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Sewage Disposal Recommendations: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.
Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: Contaminated sharps should be handled with care and discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak proof on sides and bottoms, and appropriately labeled. Contact your local health department for referral to a syringe disposal program.

Noromectin Injection For Cattle and Swine

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 14: TRANSPORT INFORMATION

- 14.1. In Accordance with DOT** Not regulated for transport
14.2. In Accordance with IMDG Not regulated for transport
14.3. In Accordance with IATA Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Noromectin Injection For Cattle and Swine	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
1,2-Propylene glycol (57-55-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	Y2 - Y2 - indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule

15.2. US State Regulations

1,2-Propylene glycol (57-55-6)	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date	: 06/16/2016
Other Information	: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases:

Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Repr. 2	Reproductive toxicity Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 1	Specific target organ toxicity (single exposure) Category 1
H300	Fatal if swallowed
H302	Harmful if swallowed
H311	Toxic in contact with skin
H319	Causes serious eye irritation
H361	Suspected of damaging fertility or the unborn child
H370	Causes damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

Section 1 - Identification of Chemical Product and Company

Norbrook NZ Ltd KPMG Centre, 18 Viaduct Harbour Ave Auckland, New Zealand	Freecall: 0800 224 022
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Chemical nature: Ivermectin is a macrocyclic lactone; Clorsulon is a benzenesulphonamide derivative.

Trade Name: **Noromectin Plus**

Product Use: Broad-spectrum antiparasitic injection.

Creation Date: **August, 2016**

This version issued: **August, 2016** and is valid for 5 years from this date.

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: T, Toxic. 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.

SUSMP Classification: S5

ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.

UN Number: None allocated

ERMA Number: HSR001840

Haz Classes: 6.1D, 6.6B, 6.8B, 6.8C, 6.9B, 9.1A, 9.2C, 9.3C, 9.4A

Group Standard: None established.



GHS Signal word: DANGER

HAZARD STATEMENT:

- H301: Toxic if swallowed.
- H360: May damage fertility or the unborn child.
- H362: May cause harm to breast-fed children.
- H401: Toxic to aquatic life.

PREVENTION

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe fumes, mists, vapours or spray.
- P262: Do not get in eyes, on skin, or on clothing.
- P263: Avoid contact during pregnancy or while nursing.
- P264: Wash contacted areas thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P281: Use personal protective equipment as required.

RESPONSE

- P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P308+P313: If exposed or concerned: Get medical advice.
- P370+P378: Not combustible. Use extinguishing media suited to burning materials.

STORAGE

- P410: Protect from sunlight.
- P411+P235: Store at temperatures not exceeding 25°C. Keep cool.

DISPOSAL

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

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Emergency Overview

Physical Description & Colour: Clear, pale yellow liquid.

Odour: Mild odour.

Major Health Hazards: may cause harm to unborn children, may cause harm to breastfed babies.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Ivermectin	70288-86-7	10g/L	not set	not set
Clorsulon	60200-06-8	100g/L	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

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.

Self Injection: Accidental self injection may lead to an inflammatory response. Medical advice should be sought on the management of deep injections, particularly those near a joint or associated with bruising. If possible the application of gentle squeezing pressure with absorbent material (e.g. facial tissues) at the injection site will swab up unabsorbed vaccine. Strong squeezing of the site should be avoided. The damaged area should be thoroughly cleansed and a topical antiseptic applied. Check your tetanus immunisation status.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Skin Contact: Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 5 minutes or until chemical is removed.

Eye Contact: 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.

Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

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. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Suitable extinguishing media are carbon dioxide, dry chemical, foam, water fog.

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

Flash point: Combustible liquid not meeting the AS 1940 definition of a Flammable Liquid.

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: Flammable Category 4 (GHS), C1 combustible (AS 1940)

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, except if spilled into waterways such as streams, lakes or dams. For minor spills, refer to product label for specific instructions. No special protective clothing is normally necessary because of this product.

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However it is good practice to wear latex gloves when handling injectables. 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. 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:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits **TWA (mg/m³)** **STEL (mg/m³)**

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 0.1mg/kg/day.

The ADI for Clorsulon is set at 0.02mg/kg/day. The corresponding NOEL is set at 2mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, June 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 vapours and mists are minimised.

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

Skin Protection: You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling this product. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: latex (gloves).

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Clear, pale yellow liquid.
Odour:	Mild odour.
Boiling Point:	Not available.
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	1.15
Water Solubility:	No data. Based in ingredients, this is likely to be soluble.
pH:	5.5-6.3
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water Distribution:	No data
Autoignition temp:	No data.

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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: 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: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Small quantities of nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Small quantities of oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: Polymerisation reactions are unlikely; they are not expected to occur.

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.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Ivermectin	$\geq 1\%$ Conc $< 3\%$: T; R61; R64; R25
Ivermectin: LD ₅₀ Oral, Mouse = 11.6mg/kg	LD ₅₀ Dermal, Rat = > 660 mg/kg
LD ₅₀ Dermal, Rabbit = 406mg/kg	

From plasma analyses in humans and in laboratory animals, after oral and/or parenteral administration of Ivermectin, the following half-lives have been calculated.

SPECIES	ROUTE	T _{1/2}
Human	Oral	10 - 12 hours
Rat	I.V.	1 day
Cattle	Oral	2.7 days
	S.C.	2.9 days
	Topical	15.9 days

Metabolism Ivermectin undergoes metabolism and is excreted mainly in the faeces. Ivermectin is little metabolised by mammals; 90% of the administered dose is excreted in the faeces and tissue residues are of the parent.

Elimination by route of exposure Ivermectin is excreted mainly in the faeces (unchanged), less than 1% appearing in the urine and less than 2% in breast milk. In animal studies, regardless of whether Ivermectin is administered parenterally or orally, only 0.5 to 2% of the dose is excreted in urine; the remainder (about 90%) appears in the faeces.

Clorsulon: LD₅₀ Oral, Rat $> 10,000$ mg/kg LD₅₀ Oral, Mouse = $> 10,000$ mg/kg

There is no evidence of carcinogenicity for Clorsulon

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 irritating, but is unlikely to cause anything more than mild transient discomfort.

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.

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Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

Long Term Exposure: No data for health effects associated with long term ingestion.

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 12 - Ecological Information

Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. Do not contaminate dams, rivers or streams with product or empty containers.

IVERMECTIN: Very toxic to certain aquatic species.

LC₅₀ - Daphnia magna, 48 hours = 0.025 ppb; NOEL Daphnia magna = 0.01 ppb;

LC₅₀ - Rainbow trout, 96 hours = 3.0 ppb;

LC₅₀ - Bluegill sunfish, 96 hours = 4.8 ppb.

ENVIRONMENTAL FATE (persistence, degradation, hydrolytic/photolytic stability, etc.): Ivermectin photodegrades rapidly in the environment and is metabolized in the soil. Water solubility is limited and it binds to soil very tightly. It does not bioconcentrate in fish and is not taken up from soil to plants. Both aquatic and terrestrial studies confirm rapid degradation of Ivermectin in the environment and lack of accumulation and persistence.

Section 13 - Disposal Considerations

Disposal: Dispose of empty container by wrapping with paper and putting in garbage. Discarded needles should immediately be placed in a designated and appropriately labelled sharps container.

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.

ERMA Number: HSR001840

Group Standard: None established.

- 6.1D: Substances that are acutely toxic – Harmful.
- 6.6B: Substances that are suspected human mutagens.
- 6.8B: Substances that are suspected human reproductive or developmental toxicants.
- 6.8C: Substances that produce toxic human reproductive or developmental effects on or via lactation.
- 6.9B: Substances that are harmful to human target organs or systems.
- 9.1A: Substances that are very ecotoxic in the aquatic environment.
- 9.2C: Substances that are harmful in the soil environment.
- 9.3C: Substances that are harmful to terrestrial vertebrates.
- 9.4A: Substances that are very ecotoxic to terrestrial invertebrates.

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 (7 th 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)

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R-Phrase

SUSMP

UN Number

Risk Phrase

Standard for the Uniform Scheduling of Medicines & Poisons

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.

Date of preparation: August, 2016.

SAFETY DATA SHEET