PRODUCT NAME: Ivomec Eprinex Pour-On for Beef and Dairy Cattle

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER: MERCK AGVE DIVISION
P.O. BOX 2000
RAHWAY, N.J. 07065

EMERGENCY TELEPHONE NUMBER: 1-800-672-6372 - Human Health Adverse Experience
1-800-325-2577 - Animal Health Adverse Experience

LABEL NAME: 'Ivomec' 'Eprinex' Pour-On for beef and dairy Cattle

CHEMICAL NAME: Active Ingredient: Component Bla (90% or greater): (4"Ri)-4"- (acetylamino)-5-0-demethyl-4"- deoxyavermectin Ala;
Component Blb (10% or less): (4"Ri)-4"- (acetylamino)-5-0- demethyl-25-de(1-methylpropyl)-4"-deoxy-25- (1- methylethy1) avermectin Ala

SYNONYMS:
COMMON: Eprinomectin 0.5% Pour-On for Cattle
CHEMICAL: Active ingredient: Component Bla: 4"- epicatestamido-4"-deoxyavermectin Bla
Component Blb: 4"-epicatestamido-4"-deoxyavermectin Blb

MATERIAL STATISTICAL NUMBER: Not applicable

MATERIAL PRODUCT NUMBER: 30250 - 250 mL; 30251 - 1 Litre: Squeeze-measure-pour bottles from high density polyurethane with polypropylene tamper-evident caps. 30252 - 2.5 L; 30253 - 5.0 L: HDPE collapsible backpacks have tamper-evident high-density polyethylene caps.

INTENDED USE: Veterinary antiparasitic drug

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component
CAS Number
Chemical Name
Molecular Weight
Molecular Percent

Eprinomectin (Bla) 113305-88-1
C50H75O14N
914
99.5

Non-hazardous
Not avail.

EC LABEL: N, R50

3. HAZARDS IDENTIFICATION

APPEARANCE: Clear, slightly yellow-colored solution
EMERGENCY OVERVIEW: CAUTION!
Components may be harmful to humans if swallowed. Contents are very toxic to aquatic organisms.

POTENTIAL HEALTH EFFECTS: None expected when used as directed. Accidental ingestion may cause tremors, dilated pupils and incoordination. Repeated or prolonged exposure may cause nerve damage based upon animal studies.

4. FIRST-AID MEASURES

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops.

INHALATION: If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention if symptoms appear.

INGESTION: If ingested, call a physician or Poison Control Center immediately. Drink one or two glasses of water and induce vomiting by gently touching the back of the throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.

NOTE TO PHYSICIANS: Eprinomectin is a second generation avermectin used as an anti-parasitic agent in cattle. It inhibits transmission of nerve impulses in susceptible parasites, thereby causing paralysis and death. Toxicity following accidental human ingestion can be minimized by inducing vomiting within one half hour of exposure. Since eprinomectin is believed to bind to glutamate-gated chloride ion channels, it is probably wise to avoid drugs that also interact with other ligand-gates chloride channels, including those that enhance GABA activity in patients with potentially toxic ivermectin exposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT (DEG C/DEG F): 116 deg C (240 deg F)
FLASH POINT TEST METHOD: Pensky-Martens C.C.
FLAMMABLE LIMITS:
LEL (%): Not available
UEL (%): Not available

AUTOIGNITION TEMPERATURE (DEG C/DEG F): Not available
OXIDIZING PROPERTIES: Not available

COUMBSTIBILITY INFORMATION: Not available
DUST EXPLOSIVITY INFORMATION: Not applicable
SHOCK SENSITIVITY: Not available

FIRE AND EXPLOSION HAZARDS: Not available

EXTINGUISHING MEDIA: Use Carbon dioxide, foam or dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: Eprinomectin is very toxic to certain aquatic organisms. Contain all runoff water. See spill procedures section. All exposed personnel and equipment should be decontaminated at the site. Use full protective clothing and self-contained breathing apparatus.

HAZARDOUS DECOMPOSITION PRODUCTS RESULTING FROM A FIRE: Carbon monoxide, carbon dioxide and oxides of nitrogen and sulfur may be released in a fire.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Emergency personnel involved in spill cleanup should wear full protective clothing (cap, waterproof coveralls and jacket, and rubber boots). Wear goggles and impervious rubber gloves (neoprene/nitrile/polyvinyl chloride) when handling spilled material.

ENVIRONMENTAL PRECAUTIONS: Eprinomectin is very toxic to certain aquatic species. Avoid contact of spilled material with soil. Do not allow any water potentially contaminated with eprinomectin including storm water, runoff, from spills and fire fighting activities and contaminated wastewater to enter any waterway, drain or sewer. See Section 12 for Ecological Information.
STABILITY AND REACTIVITY

VOLATILE COMPONENTS (% W/W): Not available

VAPOR PRESSURE (mmHG @ DEG C/DEG F): Not available

SPECIFIC GRAVITY (WATER = 1): 0.91-0.92

SOLUBILITY IN WATER: Insoluble in water. Soluble in 90% is a potential for direct eye contact.

APPEARANCE: Clear, slightly yellow-colored solution

ODOR/THRESHOLD LEVEL (ppm): Practically odorless

pH: Not available

BOILING POINT/RANGE (DEG C/DEG F): Not available

MELTING POINT/RANGE (DEG C/DEG F): Not applicable

SOLUBILITY IN WATER: Insoluble in water. Soluble in 90% alcohol.

PARTITION COEFFICIENT (Kow): Not available

SPECIFIC GRAVITY (WATER = 1): 0.91-0.92

VAPOUR DENSITY (AIR = 1): Not available

VAPOUR PRESSURE (mmHg @ DEG C/DEG F): Not available

VOLATILE COMPONENTS (% W/W): Not available

STABILITY: When stored under normal conditions this product is expected to be stable for 24 months. Any deterioration poses no safety concern.

METHODS FOR CLEANING UP: If emergency personnel are<br>unavailable, absorb small spills on vermiculite or other<br>suitable absorbing material and place in a sealed<br>container for disposal. Dike large spills and transfer to<br>an appropriate container for disposal. Avoid contact of<br>spilled material with soil. Do not allow any water<br>potentially contaminated with eprinomectin including<br>storm water, runoff from spills or fire fighting<br>activities and contaminated wastewater to enter any<br>waterway, drain or sewer. Residual surface material<br>should be removed with towels moistened with methanol.

Inoculate spill materials and residues at temperatures greater than 600 deg C. See Section 13 for<br>Waste Disposal Information.

For additional assistance in the U.S., CHEMTREC provides a<br>toll-free Hotline for chemical emergencies regarding<br>spills, leaks, exposure or accidents: 1-800-424-9300

HANDLING: Avoid direct contact with eyes and skin.

STORING: Store bottle in carton to protect from light and<br>avoid prolonged storage above 40 deg C (104 deg F).

OTHER: Keep this and all chemicals out of the reach of<br>children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA ACGIH

Component Permissible Exposure Limit Threshold Limit Value Merck Exposure Control Limit

Eprinomectin Not established established (8hr-TWA) Not established (ECL) Not established (PEL)

ENGINEERING CONTROLS:

VENTILATION: Not necessary for normal use. For manufacturing, local exhaust ventilation is recommended if aerosols are present.

PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE: Normal Use: None required. Manufacturing: Safety glasses are recommended if there is a potential for direct eye contact.

HAND/ARM PROTECTION: Normal Use: None required.

Manufacturing: Latex gloves or gloves of equal or greater protection are recommended.

RESPIRATORY PROTECTION: Normal Use: None required.

Manufacturing: Respiratory protection is recommended if the potential for exposure to aerosols exists.

ADDITIONAL PROTECTIVE EQUIPMENT: Appropriate clothing should be worn to avoid direct contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, slightly yellow-colored solution

ODOR/THRESHOLD LEVEL (ppm): Practically odorless

pH: Not available

BOILING POINT/RANGE (DEG C/DEG F): Not available

MELTING POINT/RANGE (DEG C/DEG F): Not applicable

SOLUBILITY IN WATER: Insoluble in water. Soluble in 90% alcohol.

PARTITION COEFFICIENT (Kow): Not available

SPECIFIC GRAVITY (WATER = 1): 0.91-0.92

VAPOUR DENSITY (AIR = 1): Not available

VAPOUR PRESSURE (mmHg @ DEG C/DEG F): Not available

VOLATILE COMPONENTS (% W/W): Not available

10. STABILITY AND REACTIVITY

STABILITY: When stored under normal conditions this product is expected to be stable for 24 months. Any deterioration poses no safety concern.

CONDITIONS TO AVOID: Avoid prolonged exposure to excessive heat (above 40 deg C) and direct sunlight.

INCOMPATIBILITIES: Plastic packing materials such as polyester, low density polyethylene (high pressure) (LDPE), and PVC should not be used.

HAZARDOUS POLYMERIZATIONS: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: If involved in a fire carbon monoxide, carbon dioxide and oxides of nitrogen and sulfur may be released.

11. TOXICOLOGICAL INFORMATION

PRIMARY ROUTE(S) OF ENTRY:

INGESTION: Unlikely with normal use

SKIN CONTACT: Unlikely with normal use

TOXICITY DATA

FOR FORMULATION

TEST SPECIES ROUTE RESULT

LD50 Mouse Oral Greater than 5,000 mg/kg

Irritation Rabbit Ocular Practically non-irritating

Skin Sensitization (Buehler)/Guinea Pig Dermal/Dermal Not a skin sensitizer

1-Month Mini-swine Dermal Mildly irritating due to vehicle

FOR EPRINOMECTIN

LD50 Rat Oral 55 mg/kg

LD50 Mouse Oral 70 mg/kg

Irritation Rabbit Ocular Practically non-irritating

Skin Sensitization (Maximization) Intradermal/Not a skin sensitizer

/Guinea Pig

EFFECTS OF ACUTE EXPOSURE:

EYE CONTACT: The formulation was practically non-irritating to the eyes of rabbits without ocular wash and non-irritating when followed by ocular water wash.

SKIN CONTACT: Both the vehicle and formulation were mildly irritating in a 1-month dermal study in miniswine. The formulation and active ingredient were negative in guinea pig skin sensitization assays.

INHALATION: No data available for the formulation of the active ingredient.

INGESTION: The formulation was practically non-toxic orally in mice (LD50 is greater than 5 g/kg). Eprinomectin was toxic by ingestion to mice and rats (LD50 is 55-70 mg/kg). Signs of toxicity included ataxia (incoordination), tremors and death.

EFFECTS OF CHRONIC EXPOSURE: No data available for the formulation.

In repeat-dose studies in rats and dogs, eprinomectin produced neurotoxic effects (tremors, incoordination, dilated pupils, central and peripheral nerve degeneration), bile thickening and adverse effects on the ovaries. The lowest no-effect level was 0.8 mg/kg/day. There was no evidence of developmental toxicity at maternally toxic dosages. Decreased fertility and pup tremors were reported in multi-generation reproduction studies. Genotoxicity studies were negative.

CARCINOGEN DESIGNATION: Not listed as a carcinogen by OSHA, NTP, or IARC.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Not available.

Waste Disposal Information. For additional assistance in the U.S., CHEMTREC provides a toll-free Hotline for chemical emergencies regarding spills, leaks, exposure or accidents: 1-800-424-9300.

Eprinomectin   Not             Not           25 ug/M3                                                   (Buehler)/Guinea Pig Dermal/Dermal     Not a skin sensitizer

Component           (PEL)         (TLV)          (ECL)          ALD50  Mouse          Oral              70 mg/kg

OSHA          ACGIH                         -----------------------------------------------------------

EFFECTS OF CHRONIC EXPOSURE: No data available for the formulation.

In repeat-dose studies in rats and dogs, eprinomectin produced neurotoxic effects (tremors, incoordination, dilated pupils, central and peripheral nerve degeneration), bile thickening and adverse effects on the ovaries. The lowest no-effect level was 0.8 mg/kg/day. There was no evidence of developmental toxicity at maternally toxic dosages. Decreased fertility and pup tremors were reported in multi-generation reproduction studies. Genotoxicity studies were negative.

CARCINOGEN DESIGNATION: Not listed as a carcinogen by OSHA, NTP, or IARC.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Not available.
12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE: Avermectins are not biologically lipophilic. Bioaccumulation studies indicate that the avermectins have bioconcentration factors less than 100. Eprinomectin is practically insoluble in water (3.5 mg/L) and highly hydrophobic based upon its octanol/water coefficient (Log Kow = 5.4). It degrades rapidly in sunlight (t1/2-0.29 days in summer and 1.1 days in winter). The soil binding constant (Koc) is greater than or equal to 3000. Based upon the lowest Kd (adsorption distribution coefficient) derived experimentally, equal or greater than 98% of eprinomectin is expected to partition to soil in a 1:1 soil to water mixture. Therefore, it is not likely to be readily available to aquatic organisms. Approximately fifty percent of soil-bound eprinomectin is degraded aerobically in 64 days at 22 deg C. Due to its low vapor pressure and strong affinity for soil, eprinomectin is not expected to partition to air.

ENVIRONMENTAL EFFECTS: Eprinomectin is very toxic to certain aquatic organisms and toxic to other species.

\[ \text{LC50 - Daphnia magna, 48 hours} = 0.45 \text{ ppb (0.00045 mg/L)} \]
\[ \text{EC50 - Rainbow trout, 96 hours} = 1.2 \text{ ppm (1.2 mg/L)} \]
\[ \text{EC50 - Bluegill sunfish, 96 hours} = 0.37 \text{ ppm (0.37 mg/L)} \]

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION: Eprinomectin is very toxic to certain aquatic species. Avoid contact of spilled material with soil. Do not allow any water potentially contaminated with eprinomectin including storm water, runoff from spills and fire fighting activities and contaminated wastewater to enter any waterway, drain and sewer. Residual surface material should be removed with towels moistened with methanol. Incinerate all spill materials and residues at temperatures greater than 600 deg C.

14. TRANSPORT INFORMATION

SHIPPING DESCRIPTION:
U.S. DOT: Not regulated
IATA/ICAO: Not regulated
IMI: Not regulated
ADR-RID: Not available

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: Not available
INTERNATIONAL REGULATIONS: Not available
STATE REGULATIONS: Not available

16. OTHER INFORMATION

DATE PREPARED: June 1996
LAST REVISION DATE: November 1996
MSDS COORDINATOR: 1-908-423-7926
Merck & Co, Inc.
One Merck Drive
P.O. Box 100, WS2F-48
Whitehouse Station, NJ 08889-0100
U.S.A.

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