SAFETY DATA SHEETS

This SDS packet was issued with item:

078360767

N/A

Identity: VIRBAC KNOCKOUTTM E. S. AREA TREATMENT

WITH NYLAR® PYRIPROXYFEN INSECT GROWTH REGULATOR

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Section I

Supplier Information

Name: VIRBAC CORP (Virbac AH Inc., Allerderm®)

Addr: P. O. BOX 162059 City: FORT WORTH State: TX 76161 Emergency Telephone Number Contact the POISON CONTROL CENTER Telephone Number for Information 800/628-7003

Date Prepared: 03/04/97

Revised company name 09-16-03

Other Information

EPA Reg. No. 499-404-2382

Section II - Hazardous Ingredients*/Identity Information

Hazardaya Campananta	TWA	STEL	OSHA PEL	CAS#	%	
Hazardous Components (Spec. Chem. Ident.; Commo		SIEL	OSHA PEL	CAS #	(opt.)	
2-(1-METHYL-2-(4-PHENOXYPHENOXY)ETHOXY)PYRIDINE						
,	not established	not established	not established	95737-68-1	0.100	
PYRETHRINS	not established	not established	not established	8003-34-7	0.050	
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE						
	not established	not established	not established	113-48-4	0.400	
PERMETHRIN	not established	not established	not established	52645-53-1	0.400	
RELATED COMPOUNDS	not established	not established	not established		0.035	
SOLVENTS & PROPELLANTS	3				41.0	
PROPELLANT BLEND	1000 ppm	500 ppm	400 ppm	75-28-5		
PETROLEUM DISTILLANT	1000 ppm	not established	not established	8002-05-9		

Section III - Physical/Chemical Characteristics

Boiling Point Specific Gravity ($H_2O = 1$) not applicable 0.97 Vapor Pressure (psig @70°F) Percent Volatile by Volume 46 psig @ 70°F 41% Vapor Density (AIR = 1) Evaporation Rate (Butyl Acetate = 1) not applicable not applicable Solubility in Water pН Will dissipate 7.1

Appearance and Odor

Sprays as a mist with characteristic insecticide/solvent odor.

Other Information

NYLAR® - Registered trademark of McLaughlin Gormley King Co.

THE STANDARD MANAGEMENT OF ADEA THEATMENT

Identity: VIRBAC KNOCKOUT™ E. S. AREA TREATMENT

WITH NYLAR® PYRIPROXYFEN INSECT GROWTH REGULATOR Page 2 of 4

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Flammable Limits

Flame extension >18" (CSMA Flame Projection Test) LEL 4.0% UEL 18.0%

Extinguishing Media: CO₂, Dry Chemical, Foam

Special Firefighting Procedures

None required.

Unusual Fire and Explosion Hazards

Contents under pressure. Exposure to temperatures above 130°F may cause bursting.

Other Information

Coation V. Docativity Data

Section V - Reactivity Data

Stability --> STABLE Indefinite when used according to label directions.

Incompatability (Materials to Avoid)
None Known

Hazardous Polymerization --> WILL NOT OCCUR

Hazardous Decomposition or Byproducts

Thermal decomposition in open flame will result in carbon monoxide and carbon dioxide.

Conditions to Avoid: Do not spray into open flame or onto very hot surfaces.

Other Information

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Section VI - Health Hazard Data

Routes of Entry: Inhalation? Yes Skin? Yes Ingestion? No

Health Hazards (Acute and Chronic)

Product may cause substantial eye irritation.

Prolonged or repeated exposure may cause irritation and reddening of the skin.

Ingestion and inhalation is unlikely due to the product being pressurized and producing particles large enough not be respirable.

Carcinogenicity:

NTP? No IARC Monographs? No OSHA Regulated? No AGIH? No

Signs and Symptoms of Exposure

Medical Conditions Generally Aggravated by Exposure

None Known

Emergency and First Aid Procedures

EYE CONTACT – Immediately flush with plenty of water. Seek medical attention if irritation persists.

SKIN CONTACT – Remove contaminated clothing and wash exposed skin areas with plenty of soap and water. Seek medical attention if irritation persists.

INHALATION - Remove patient to fresh air. Apply artificial respiration if indicated. Seek medical attention.

INGESTION - Call a physician or Poison Control Center immediately. Gastric lavage is indicated. Do not induce vomiting. Vomiting may cause aspiration pneumonia.

Other Information

If poisoning symptoms occur, remove person from area where pesticide is present. Call a physician

Section VII - Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled

If container begins to leak (through puncture, etc.) allow it to discharge completely in a well ventilated area, then dispose of in a safe place. In case of spillage on skin, wash thoroughly with soap and water. Consult physician immediately if illness occurs.

This product is subject to reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Waste Disposal Method

Aerosol cylinder is not refillable. Do not attempt to recharge. When cylinder is exhausted, discard in a safe place. Do not throw into fire.

Precautions to be Taken in Handling or Storage

Keep out of reach of children.

Contents under pressure. Do not puncture. Do not store near heat or open flame. Exposure to temperatures above 130°F may cause bursting.

Do not contact treated surfaces until spray has dried.

Other Precautions

Wash thoroughly after handling. Do not remain in treated area.

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Section VIII - Control Measures

Respiratory Protection (Specify Type)

No respiratory protection needed when used according to label directions.

Ventilation

Local Exhaust Special

Use only in a well-ventilated area

Mechanical (General) Other

Protective Gloves Eye Protection

Other Protective Clothing or Equipment

Work/Hygienic Practices

Wash hands after handling material.

Good practice requires that gross amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking.

Other Information

Section IX - Additional Information

REGULATORY REQUIREMENTS: This product contains NO toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

Obtained by Global Safety Management, Inc. (www.globalsafetynet.com)



VIRBAC KNOCKOUT[™] E.S. Area Treatment Product Code: 612216

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATIONS AND OF THE COMPANY UNDERTAKING

Product Name VIRBAC KNOCKOUT™ E.S. Area Treatment

Product Description Kills Adult Fleas and Ticks and Controls Pre-Adult Fleas (Larvae)

Manufacturer/Supplier Virbac AH, Inc.
Address P.O. Box 162059

Fort Worth, Texas 76161

Phone Number (800) 338-3659 for Technical Support

Chemtrec Number (24 hour) (800) 424-9300

Emergency Number: (800) 338-3659 for Human and Animal Medical Emergencies

MSDS Revision Date: March 1, 2011
Supersedes MSDS Dated: September 24, 2010

Material Safety Data Sheet in compliance with OSHA's Hazcom Standard (29 CFR 1910.1200)

2. HAZARDS IDENTIFICATION

Emergency Overview CAUTION:

EXTREMELY FLAMMABLE.

KEEP OUT OF REACH OF CHILDREN.

KEEP OUT OF REACH OF DOMESTIC ANIMALS.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

HARMFUL IF ABSORBED THROUGH SKIN.

Do not breathe vapors/mists.

Avoid contact with the skin, eyes and clothing.

Wash thoroughly after handling.

Aerosol container contains flammable gas under pressure

Routes of Entry for solids and liquids

Eye and skin contact, ingestion and inhalation.

Routes of Entry for gases:

Inhalation and eye and skin contact

Acute toxicity

Relatively nontoxic after single ingestion. Slightly toxic after short-term skin contact.

Relatively nontoxic after short-term inhalation.

Irritation / corrosion

Causes substantial but temporary eye injury.

May cause slight irritation to the skin.

Sensitization

Skin sensitizing effects were not observed in animal studies.

Potential Environmental Effects

Aquatic Toxicity: Acutely toxic for fish.

Terrestrial Toxicity: Acutely toxic to birds.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name Pyriproxyfen	CAS Number 95737-68-1	Concentration 0.1%
Pyrethrins	8003-34-7	0.05%
n-Octyl bicycloheptene dicarboximide	113-48-4	0.4%
Permethrin	52645-53-1	0.435%
Distillantes (petroleum), hydrotreated light	64742-47-8	< 10.0%
Hydrocarbons, C3 – C4	68512-91-4	
Proprietary ingredients		

4. FIRST AID MEASURES

General

First aid providers should wear personal protective equipment (PPE) to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center, doctor or the National Pesticide Information Center Hotline at 1-800-858-7378 for treatment advice. Have the product container or label with you when calling a poison control center or doctor of going for treatment.

Eves

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

Skin

Rinse skin immediately with plenty of water for 15 - 20 minutes.

Ingestion

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water, if able to swallow.

Inhalation

Remove the affected individual to fresh air and keep the person calm.

Advice to Physicians

Treat according to symptoms (decontamination, vital functions), no known specific antidote. Aspiration of this product during induced emesis can result in lung injury. If evacuation of stomach contents is considered necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation.

5. FIRE - FIGHTING MEASURES

Autoignition

NFPA 30 B Flammability: Level 1 aerosol

Based on the water content the product does not ignite.

Extinguishing Media

Foam, dry extinguishing media, carbon dioxide

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5. **FIRE - FIGHTING MEASURES**

Hazards During Fire Fighting

Carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, hydrogen chloride, halogenated hydrocarbons, hydrocarbons

Aerosol container contains flammable gas under pressure. Pressure inside container is increased with heated, and may cause explosion. If product is heated above decomposition temperature, toxic vapors will be released. The substances / group of substances mentioned can be released in case of fire.

Protective Equipment for Fire-Fighting

Wear full protective clothing and self-contained breathing apparatus.

Further information

Evacuate area of all unnecessary personnel.

Contain contaminated water / fire fighting water.

Do not allow to enter drains or waterways.

ACCIDENTAL RELEASE MEASURES 6.

Personal Precautions

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downward. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental Precautions

Do not discharge into the subsoil / soil. Do not discharge into drains / surface waters / groundwater. Contain contaminated water / fire fighting water. A spill of or in excess of the reportable quantity requires notification to state, local, and national emergency authorities. This product is regulated by CERCLA ('Superfund').

Cleanup

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance / product should be recovered and applied according to label rates whenever possible. If application of spilled substance / product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

HANDLING AND STORAGE 7.

HANDLING

General Advice

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERICAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No Smoking. Keep container tightly sealed. Protect against heat. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used be as soon as possible. Provide means for controlling leaks and spills. Follow label warnings even after container is emptied. The substance / product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance / product. Avoid contact with the skin, eyes and clothing. Avoid inhalations of dusts / mists / vapors. Wear suitable personal protective clothing and equipment.

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VIRBAC KNOCKOUT[™] E.S. Area Treatment

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7. HANDLING AND STORAGE

Protection Against Fire and Explosion

Aerosol container contains flammable gas under pressure. The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme heat. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

STORAGE

General Advice

Protect containers form physical damage. Store in a cool, fry well-ventilated area. Avoid all sources of ignition: heat, sparks, open flame.

Storage Incompatibility

General advice: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Storage Stability

May be kept indefinitely if stored properly. If an expiry date is mentioned on the packaging / label this takes priority over the statements on storage duration in this safety data sheet.

Temperature Tolerance

Protect from temperature above: 130°F Explosive at or above indicated temperature.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with Workplace Control Parameter

Pyrethrins OSHA PEL 5 mg/m3
ACGIH TWA value 5 mg/m3
Propane OSHA PEL 1,000 ppm 1,800 mg/m3
ACGIH TWA value 1,000 ppm

7.000 pj

Distillates (petroleum),

Hydrotreated light ACGIH TWA value 200 mg/m3

;Non-aerosol (total hydrocarbon vapor)

Application restricted to conditions in which there are

negligible aerosol exposures.

Skin Designation Non-aerosol (total hydrocarbon

vapor);

The substance can be absorbed through the skin.

Advise on System Design

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment (PPE).

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VIRBAC KNOCKOUT [™] E.S. Area Treatment

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection

Wear respiratory protective if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour / particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respiratory is effective, or where the levels are unknown or immediately Dangerous to Life of Health (IDLH); use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) will escape provisions.

Hand Protection

Chemical resistant protective gloves. Protective glove selection must be based on the user's assessment of the workplace hazards.

Body Protection

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General Safety and Hygiene Measures

Wear long sleeved work shirt and log work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment (PPE) should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Aerosol

Odor Characteristic, Solvent-like

pH 7.1 (10 g/l)
Information on: Distillates (petroleum), hydrotreated light:
Boiling Point 231°C (1.031 hPa)

Information on: Water

Boiling Temperature 100°C

Density 0.97 g/cm3 (approx. 20°C)

Viscosity, dynamic No data available

Solubility in Water Dispersible

10. STABILITY AND REACTIVITY

Conditions to Avoid

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge.

Substances to Avoid

No substances known that should be avoided.

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VIRBAC KNOCKOUT[™] E.S. Area Treatment

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10. STABILITY AND REACTIVITY

Hazardous Reactions

The product is chemically stable.

Decomposition Products

No hazardous decomposition products if stored and handled as prescribed / indicated. Prolonged thermal loading can result in products of degradation being given off.

Thermal Decomposition

Possible thermal decomposition products:

Carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, hydrogen chloride, halogenated hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapors may be released. To avoid thermal decomposition, do not overheat.

Corrosion to Metals

Corrosive effects to metal are not anticipated.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral LD50: (rat) > 5,000 mg/kg. Inhalation LC50: (rat) > 5.12 mg/l Dermal LD50: (rabbit) >2,000 mg/kg

Irritation / Corrosive

Skin: (rabbit) moderately irritating. Prolonged contact with the product can result in skin irritation.

Eye: (rabbit) moderately to severely irritating.

Sensitization

Skin: (guinea pig) Skin sensitizing effects were not observed in animal studies.

Genetic Toxicity

Information on: Pyriproxyfen
No mutagenic effects reported
Information on: Pyrethrum
No mutagenic effects reported

Information on: n-Octyl bicycloheptene discarboximide

Results form a number of mutagenicity studies with microorganisms and mammalian cell culture are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Information on: Permethrin

In the majority of studies performed with microorganisms and in mammalian cell culture, a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo tests.

Information on: Distillates (petroleum), hydrotreated light

In the majority of tests performed (bacterial / microorganisms / cell cultures) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays. Literature data.

Carcinogenicity

Information on: Pyriproxyfen

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

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11. TOXICOLOGICAL INFORMATION

Information on: Pyrethrum

Not Likely to Be a Carcinogenic to Humans.

Information on: Permethrin

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect

was not observed.

Reproductive Toxicity

Information on: Pyriproxyfen
No reproductive toxic effects reported.

Information on: Pyrethrum

No reproductive toxic effects reported.

Information on: n-Octyl bicycloheptene dicarboximide

No reproductive toxic effects reported.

Information on: Permethrin

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect

was not observed. **Development**

Information on: Pyriproxyfen

No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Information on: Pyrethrum

No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Information on: n-Octyl bicycloheptene dicarboximide

No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Information on: Permethrin

This substance did not cause malformations in animal studies. When given in high doses

embryotoxicity was observed.

Information on: Distillates (petroleum), hydrotreated light

No indications of a developmental toxic / teratogenic effect were seen in animal studies. Literature data.

12. ECOLOGICAL INFORMATION

FISH

Information on: Pyriproxyfen

Acute: Flow through. Oncorhynchus mykiss / LC 50 (96h): > 0.325 mg/l.

Information on: Pyrethrum

Acute: Oncorhynchus mykiss / LC 50 (96h): 0.0051 mg/l. Information on: n-Octyl bicycloheptene dicarboximide Acute: Oncorhynchus mykiss / LC 50 (96h): 1.4 mg/l.

Information on: Permethrin

Acute: Oncorhynchus mykiss / LC 50 (96h): 0.006 – 0.0028 mg/l.

Brachydanio rerio / LC50 (96 h): 0.022 mg/l.

Information on: Distillates (petroleum), hydrotreated light

Brachydanio rerio / LC50 (96 h): 7.3 mg/l.

The product has not been tested. The statement has been derived from products of similar structure

and composition. Literature data.

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12. ECOLOGICAL INFORMATION

Aquatic Invertebrates

Information on: Pyrethrum

Acute: Daphnia magna / EC50 (48 h): 0.0116 mg/l. Information on: n-Octyl bicycloheptene dicarboximide Acute: Daphnia magna / LC50 (48 h): 2.3 mg/l.

Information on: Permethrin

Acute: Daphnia magna / LC50 (24 h): 0.0.24 mg/l. Information on: Distillates (petroleum), hydrotreated light Acute: Daphnia magna / EL50 (48 h): 1.4 - 21 mg/l.

The product has not been tested. The statement has been derived from products of similar structure

and composition. Literature data.

Aquatic Plants

Information on: Distillates (petroleum), hydrotreated light

Toxicity to aquatic plants: algae / EC 50 (72 h): 3.7 – 8.3 mg/l. Literature data.

13. DISPOSAL CONSIDERATIONS

Waste disposal substances.

Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal.

Do not cut, puncture, crush, or incinerate empty aerosol containers. Consult state or local disposal authorities for approved alternate procedures such as container recycling. Empty aerosol cans may meet the definition of RCRA D003. Consult local and/or regional EPA for further guidance.

14. TRANSPORT INFORMATION

Land Transport: USDOT

Hazard Class: 2.1

ID Number: UN 1950

Hazard Label: 2.1

Proper Shipping Name. AEROSOLS

Sea Transport: IMDG

Hazard Class: 2.1

ID Number: UN 1950

Marine Pollutant: NO

Proper Shipping Name. AEROSOLS

Air Transport: IATA / ICAO

Hazard Class: 2.1 ID Number: UN 1950

Marine Pollutant: 2.1

Proper Shipping Name. AEROSOLS

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15. REGULATORY INFORMATION

Federal Regulations Regulation Status:

Chemical TSCA, US blocked / not listed **Crop Protection** TSCA, US released / exempt

EPCRA 311 / 312 (Hazard Categories): Acute; Fire; Sudden release of pressure

CERCLA RQ **CAS Number** Chemical Name 1 lbs 8003-34-7 **Pyrethrins**

State Regulations

State RTK CAS Number **Chemical Name** MA, NJ, PA **Pyrethrins** 8003-34-7 Permethrin MA 52645-53-1

16. **OTHER INFORMATION**

Recommended use: Insecticide

Abbreviations:

ACGIH: American Conference of Governmental Industrial Hygienists

BOD: Biological Oxygen Demand

Chemical Abstracts Service Number CAS#:

Department of Transportation DOT Effective Concentration 50% EC50

FIFRA Federal Insecticide, Fungicide and Rodenticide Act

IARC: International Agency for Research on Cancer International Air Transportation Association IATA **ICAO** International Civil Aviation Organization IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

N/A: Denotes no applicable information found or available

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

Resource Conservation and Recovery Act RCRA:

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

TSCA: Toxic Substance Control Act TWA: Time Weighed Average

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16. OTHER INFORMATION

For further Information call: (800) 338-3659 Prepared By: Virbac Corp.

VIRBAC KNOCKOUT is a trademark of Virbac Corporation.

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