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

<table>
<thead>
<tr>
<th>Product Name</th>
<th>SUPRELORIN® F (deslorelin acetate) 4.7 mg Implant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Description</td>
<td>Veterinary implant containing deslorelin acetate 4.7 mg</td>
</tr>
<tr>
<td>Manufacturer/Supplier</td>
<td>Virbac AH, Inc.</td>
</tr>
<tr>
<td>Address</td>
<td>P.O. Box 162059 Fort Worth, Texas 76161</td>
</tr>
<tr>
<td>Phone Number</td>
<td>(855) 647-3747 for Technical Support</td>
</tr>
<tr>
<td>Chemtrec Number (24 hour)</td>
<td>(800) 424-9300</td>
</tr>
<tr>
<td>Emergency Numbers:</td>
<td>(800) 338-3568 for Human and Animal Medical Emergencies</td>
</tr>
<tr>
<td>MSDS Revision Date:</td>
<td>July 16, 2012</td>
</tr>
<tr>
<td>Supersedes MSDS Dated:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

2. HAZARDS IDENTIFICATION

**Emergency Overview**

HAZARDOUS!
May impair fertility.
Harmful in contact with skin.
Avoid contact with skin.
Keep out of reach of children.
Read entire label before use.

**Routes of Entry**

Eye contact - Skin contact - Inhalation

**Carcinogenic Status**

No carcinogenicity studies have been conducted with deslorelin.

**Target Organs**

Eyes - Skin

**Health Effects - Eyes**

Contact with eyes may cause slight irritation.

**Health Effects - Skin**

Contact with skin may cause slight irritation.

**Health Effects - Ingestion**

Ingestion of large quantities of this material may cause gastrointestinal effects such as nausea, vomiting, diarrhea, and abdominal cramps.

**Health Effects - Inhalation**

In males, single doses (micrograms) may lead to an increase in testosterone.
In males, chronic exposure (micrograms) may lead to decreased libido, decreased erections, hot flushes, breast swelling or tenderness, and decreased testicular size.
In females, single doses (micrograms) may cause irregular menses.
In females, chronic exposure (micrograms) may lead to decreased libido, hot flushes, irregular menses or anovulation, mood changes, vaginal dryness, headaches, and breast atrophy or enlargement.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deslorelin Acetate</td>
<td>57773-65-6</td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**Eyes**
Immediately flood the eye with plenty of water for at least 15-20 minutes, holding the eye open. Obtain medical attention if irritation persists.

**Skin**
Thoroughly wash skin immediately with water and soap. Rinse with water for at least 15 minutes. Obtain medical attention if irritation persists.

**Ingestion**
Call a poison control center or doctor immediately for treatment advice. Do NOT induce vomiting. Do not give anything by mouth to an unconscious person.

**Inhalation**
Remove person to fresh air. Seek medical attention if symptoms persist.

**Advice to Physicians**
Treat symptomatically.

5. FIRE - FIGHTING MEASURES

**Extinguishing Media**
Use foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.

**Unusual Fire and Explosion Hazards**
Can release hazardous vapors during a fire.

**Protective Equipment for Fire-Fighting**
Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Wear appropriate protective clothing. Wipe up and transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Store at 2°C to 8°C (refrigerate, do not freeze).
Store in a cool dry place. Keep away from children.
Wash hands after dispensing and before eating, drinking or smoking. Avoid breathing vapors.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Standards**
Not established

**Engineering Control Measures**
No specific measures necessary.

**Respiratory Protection**
Not required under normal conditions of use.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Hand Protection
Protective gloves.

Eye Protection
Not required under normal conditions of use.

Body Protection
Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Color</td>
<td>Opaque, white to pale yellow cylinder</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point (°C)</td>
<td>Approximately 60°C</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Explosion Limits (%)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>Approximately 0.95</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Solubility in Organic Solvents</td>
<td>Insoluble in methanol, ethanol, acetone but soluble in other organic solvents such as dichloromethane and hexane.</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to Avoid
Do not store above 40°C.

Materials to Avoid
Strong oxidizers

Hazardous Polymerization
Will not occur.

Hazardous Decomposition Products
Oxides of carbon and nitrogen formed upon combustion.

11. TOXICOLOGICAL INFORMATION

See product packaging for additional information.

Limited toxicological information is available for deslorelin. The LHRH (luteinising hormone releasing-hormone or GnRH) agonist buserelin is identical in structure to deslorelin, except for the presence of a tertiary butylated D-serine residue at the 6 position in place of the D-tryptophan in deslorelin. The pharmacological activity of deslorelin and buserelin are similar.

Acute Pharmacological Effects
Deslorelin is a LHRH agonist and has actions similar to LHRH (GnRH) which is the key mediator in the neuroregulation of the secretion of the gonadotropins, luteinising hormone (LH) and follicle stimulating hormone (FSH). LHRH can modify sexual behavior and function by regulating plasma gonadotropins and sex steroid levels.
11. **TOXICOLOGICAL INFORMATION**

**Acute Pharmacological Effects**
Deslorelin is absorbed by inhalation or skin absorption. Deslorelin is poorly absorbed from the GI tract. In dogs a single dose of 100 µg/kg was effective in increasing the plasma LH levels but a single oral dose of 100 µg/kg had no effect on plasma LH levels.

**Acute Toxicity**
Conventional single dose toxicity studies have not been conducted with deslorelin and no published information is available on other LHRH analogues.

**Serious Eye damage/Eye Irritation**
No relevant studies identified.

**Respiratory or Skin Sensitization**
No relevant studies identified.

**Carcinogenicity**
Not considered carcinogenic by NTP, IARC, and OSHA.

**Germ Cell Mutagenicity**
No relevant studies identified.

**Toxicity to Reproduction**
No relevant studies identified.

12. **ECOLOGICAL INFORMATION**

**Mobility**
No relevant studies identified.

**Persistence/Degradability**
No relevant studies identified.

**Bio-accumulation**
No relevant studies identified.

**Ecotoxicity**
Not recognized as an environmental pollutant.

13. **DISPOSAL CONSIDERATIONS**

Slurry the implant in surfactant and hot water to melt the implant and release deslorelin content. Then slurry overnight in household bleach to dissolve and deactive deslorelin. Dispose of solution in accordance with all applicable local and national regulations. Alternatively incinerate implants.

14. **TRANSPORT INFORMATION**

Contact supplier for transport information.

15. **REGULATORY INFORMATION**

**US REGULATIONS (Federal, State) and INTERNATIONAL CHEMICAL REGISTRATION LAWS**

**TSCA Listing**
This product contains ingredients that are listed on or exempt from listing on the EPA Toxic Substance Control Act Chemical Substance (TSCA) Inventory.

**DSL (Canadian) Listing**
This product contains ingredients that have not been verified for listing on the Domestic Substance List (DSL).
15. REGULATORY INFORMATION

WHMIS Classification
This product is not a controlled substance under WHMIS.
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

MA Right To Know Law
This product contains the following chemicals on the Massachusetts Right to Know Law: None

PA Right To Know Law
This product contains the following chemicals on the Pennsylvania Hazardous Substance List: None

NJ Right To Know Law
This product contains the following chemicals on the New Jersey Workplace Hazardous Substance List: None

California Proposition 65
This product contains the following chemicals which the State of California has found to cause cancer, birth defects or other reproductive harm: None

SARA Title III Sect. 311/312 Categorization
None

SARA Title III Sect. 313
This product contains the following chemicals that are listed in Section 313 at or above de minimis concentrations: None

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Flammability - 0
NFPA Code for Health - 1
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – 0

HMIS Ratings
HMIS Code for Flammability - 0
HMIS Code for Health - 1
HMIS Code for Reactivity - 0
HMIS Code for Personal Protection - See Section 8

Abbreviations
ACGIH: American Conference of Governmental Industrial Hygienists
BOD: Biological Oxygen Demand
CAS#: Chemical Abstracts Service Number
FIFRA: Federal Insecticide, Fungicide and Rodenticide Act
IARC: International Agency for Research on Cancer
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
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act
16. OTHER INFORMATION

For further Information call: (800) 338-3659

SUPRELORIN is a registered trademark of Peptech Animal Health Pty. Limited.

The information and recommendations presented in this MSDS are based on sources believed to be accurate. Virbac AH, Inc. assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the material for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use or disposal of the material is in accordance with applicable Federal, State, and local laws and regulations.