MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Pfizer Inc
Animal Health Group
812 Springdale Drive
Exton, PA 19341

Emergency telephone 1-800-228-5635
Hours of operation 24 Hours
Telephone 1-800-877-6250

Product name DURASECT II
Therapeutic use Long-acting livestock pour-on
Description White viscous liquid

SECTION 2 - COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS number</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin*</td>
<td>52645-53-1</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Pyrethrin*</td>
<td>8003-34-7</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Piperonyl butoxide*</td>
<td>51-03-6</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Pemulen TR-2</td>
<td>27756-15-6</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Foraperle 303</td>
<td>Not assigned</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Strong ammonia solution, NF*</td>
<td>7664-41-7</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Isopropanol*</td>
<td>67-63-0</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Deionized water</td>
<td>7732-18-5</td>
<td>Proprietary</td>
</tr>
</tbody>
</table>

*Hazardous

SECTION 3 - HAZARDS IDENTIFICATION

Signal word WARNING!

Statements of hazard HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN. MAY CAUSE LIVER AND CENTRAL NERVOUS SYSTEM EFFECTS.

MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

DANGEROUS FOR THE ENVIRONMENT.

Eye effects

Short term May cause eye irritation.

Skin effects

Short term May be absorbed through the skin in toxic amounts.
SECTION 3 - HAZARDS IDENTIFICATION

Long term
Prolonged or repeated contact may cause defatting dermatitis (dryness and cracking of the skin).

Inhalation effects

Short term
Inhalation of isopropanol vapors can cause respiratory tract irritation. Signs and symptoms include sore throat, cough, shortness of breath and headache. Excessive exposure may result in headache, drowsiness and loss of coordination, followed by lowered blood pressure, lowered body temperature, coma and, potentially, death by respiratory arrest.

Long term
Health effects noted in Statement of Hazards (above) may occur with repeated exposures to high concentrations.

Ingestion effects

Short term
Harmful if swallowed. Signs and symptoms of isopropanol overexposure may include sore throat, cough, abdominal pain, diarrhea, abdominal cramps, stomach ache, vomiting and CNS and respiratory depression.

Long term
Health effects noted in Statement of Hazards (above) may occur with repeated ingestion of large amounts.

SECTION 4 - FIRST AID MEASURES

Eyes
Immediately flush eyes with water for at least 15 minutes. Get medical attention.

Skin
Wash skin with soap and plenty of water. Remove contaminated clothing and shoes. Wash clothing and thoroughly clean shoes before reuse. If irritation occurs or persists, get medical attention.

Inhalation
Remove to fresh air. If not breathing, start basic life support. Get medical attention immediately.

Ingestion
If swallowed, get medical attention immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

General hazard
Toxic or corrosive emissions may be given off in a fire. See Hazardous combustion products, below, and Hazardous decomposition products in Section 10 - STABILITY AND REACTIVITY.

Fire fighting instructions
Wear approved positive pressure, self-contained breathing apparatus and full protective turn out gear. Use caution in approaching fire.

Extinguishing media
Use carbon dioxide, dry chemical, or water spray.
SECTION 5 - FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Hazardous combustion products</th>
<th>Emits toxic fumes of carbon monoxide, carbon dioxide and oxides of nitrogen.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>None to boiling (83°C)</td>
</tr>
<tr>
<td>Autoignition</td>
<td>Not known</td>
</tr>
<tr>
<td>Minimum explosive concentration for dust/vapor</td>
<td>Not known</td>
</tr>
<tr>
<td>Flammability limits</td>
<td>Not known</td>
</tr>
</tbody>
</table>

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Small spill
Contain the source of the spill or leak. Absorb spills with non-combustible absorbent material and transfer into a labeled container for disposal. Clean spill area thoroughly. Prevent discharge to drains.

Large spill
Review Sections 3, 8 and 12 before proceeding with clean up. Use appropriate containment to avoid environmental contamination. Dike or pump spilled material into a labeled recovery container or absorb with non-combustible material. Put saturated absorbent material into a labeled container. Close container and move it to a secure holding area. Prevent discharge to drains.

SECTION 7 - HANDLING AND STORAGE

General handling
Keep away from heat. Use with adequate ventilation. Do not get in eyes. Avoid prolonged or repeated contact with skin and clothing. Avoid breathing vapor. When handling, use proper personal protective equipment as specified in Section 8. Wash thoroughly after handling.

Storage conditions
Keep container sealed when not in use. Do not store near food or feed.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Exposure limits</th>
<th>Ingredient</th>
<th>Issued by</th>
<th>Type</th>
<th>OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pyrethrinfo</td>
<td>OSHA</td>
<td>TWA-8 Hr</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>TWA-8 Hr</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Strong ammonia solution, NF</td>
<td>OSHA</td>
<td>TWA-8 Hr</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>24 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>TWA-8 Hr</td>
<td>17 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Isopropanol</td>
<td>OSHA</td>
<td>TWA-8 Hr</td>
<td>400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>TWA-8 Hr</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>
SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure information
See exposure limits for component(s) listed above.

Ventilation
General room ventilation is adequate unless the process generates airborne mist or vapor.

Eye protection
Safety glasses or goggles

Skin protection
Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.

Hand protection
Rubber gloves are recommended if there is a potential for contact.

Respiratory protection
Under normal conditions of use, respiratory protection is not expected to be necessary. Whenever air contamination (mist, vapor, or odor) is generated, respiratory protection is recommended as a precaution to minimize exposure.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical form
Viscous liquid

Color
White

Molecular weight
Not applicable (N/A)

Molecular formula
Not applicable (N/A)

pH
5.5 - 5.6

Boiling point
83°C

Melting point
Not applicable (N/A)

Vapor pressure
Not applicable (N/A)

Water solubility
No data available

Solvent solubility
No data available

SECTION 10 - STABILITY AND REACTIVITY

Reactivity
Stable

Conditions to avoid
None known

Incompatibilities
Oxidizers

Hazardous decomposition products
No data available; see Section 5 - Hazardous combustion products

Hazardous polymerization
Will not occur
SECTION 10 - STABILITY AND REACTIVITY

Oxidizing properties  No data available
Explosive properties  No data available

SECTION 11 - TOXICOLOGY INFORMATION

**Acute toxicity**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Route</th>
<th>Species</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durasect II</td>
<td>LD₅₀</td>
<td>Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
</tr>
<tr>
<td>Durasect II</td>
<td>LD₅₀</td>
<td>Dermal</td>
<td>Rabbit</td>
<td>&gt;2000 mg/kg</td>
</tr>
</tbody>
</table>

**Eye**

A 0.1 mL application of undiluted Durasect II was placed into the everted lower lid of the right eye of rabbits. Corneal opacity and iritis were observed on the day after dosing but subsided by 48 hours after dosing.

**Skin**

The acute dermal LD₅₀ of Durasect II is reported to be greater than 2000 mg/kg in rabbits. Application of the undiluted Durasect II to the intact skin of rabbits in the amount of 0.5mL for 4-hours under semiocclusive dressing produced slight irritation. Durasect II was not a dermal sensitizer in guinea pigs when tested by the closed patch technique.

**Inhalation**

The acute LC₅₀ for isopropanol in rats is reported to be 16,000 ppm for 8-hours.

**Ingestion**

The acute oral LD₅₀ of Durasect II is reported to be greater than 5000 mg/kg in rats.

**Mutagenicity**

Permethrin did not induce mutation in either bacteria or cultured Chinese hamster V79 cells with and without metabolic activation. It did not induce mutation or aneuploidy in D. melanogaster, nor did it inhibit gap-junctional intercellular communication in Chinese hamster V79 cells in vitro.

No evidence of mutagenicity of piperonyl butoxide was observed in the following in vitro assays: the Ames test using S. typhimurium strains, rec-assay (differential killing assay using B. subtilis strains), and chromosomal aberrations assay in cultured Chinese hamster cells and rat bone marrow. It did not induce dominant lethal mutation in mice in vivo when administered at doses of 200 or 1000 mg/kg by intraperitoneal injection.

No evidence of mutagenicity of isopropanol was reported in the Ames test using S. typhimurium strains and in the HGPRT assay in Chinese hamster cells. It did not induce micronuclei in mouse bone marrow after intraperitoneal injection of up to 2500 mg/kg. Isopropanol did not induce sister chromatid exchanges in vitro.

**Subchronic effects**

There are no subchronic data available for this mixture.
SECTION 11 - TOXICOLOGY INFORMATION  ... continued

Chronic effects/carcinogenicity

Long-term oral chronic toxicity and carcinogenicity studies of permethrin were conducted in mice at a dose of 250, 1000 or 2500 mg/kg for 98 weeks and in rats at a dose of 500, 1000 or 2500 mg/kg for 104 weeks. In male mice, a marginal increase in the incidence of pulmonary adenomas was observed. No increased tumor incidence was observed in treated rats. The IARC working group concluded that permethrin is not classifiable as to its carcinogenicity to humans (Group 3).

Long-term oral chronic toxicity and carcinogenicity studies of piperonyl butoxide were conducted in mice at a dose of 1036 or 2804 mg/kg for 112 weeks and in rats at a dose of 5000 or 10,000 mg/kg for 107 weeks. No statistically significant incidence of tumors was observed in mice or rats. The IARC working group concluded that piperonyl butoxide is not classifiable as to its carcinogenicity to humans (Group 3).

No skin tumors were reported in mice due to isopropanol application three times weekly for one year. Isopropanol was not carcinogenic in mice exposed by inhalation to an airborne level of 7700 mg/m3 for 3 to 7 hr/day, days week for 5 to 8 months. It was not carcinogenic in mice exposed to airborne level up to 5000 ppm for 6 hours/day, 5 days/week for 18 months. It was also not carcinogenic by subcutaneous injection in mice given 0.025 mL once/week for 20 to 40 weeks. The IARC working group concluded that isopropanol is not classifiable as to its carcinogenicity to humans (Group 3).

OSHA carcinogen  No
NTP carcinogen  Not classified
IARC carcinogen  3

Reproductive effects

In a three generation reproduction study, rats received permethrin in the diet at a dose of 5, 30 or 180 mg/kg/day. Permethrin had no effect on general behavior or condition, food intake, body weight gain, or pregnancy rate of the dams, or on parturition, sex ratio, or pup weight. The No Observed Effect Level (NOEL) in this study was 180 mg/kg/day. In a second reproduction study in rats, permethrin was given in the diet at a dose level of 20 or 100 mg/kg/day for 3-generations. There was no effect on mortality, mating, pregnancy, or fertility. This study indicates that dietary permethrin had no adverse effect on reproduction in the rat.

In a reproduction study in rats, piperonyl butoxide (80% pure) was given in the diet at a dose of 100, 1000, 10,000 or 25,000 mg/kg for three generations. None of the females at the highest dose level (25,000 mg/kg) were fertile. There were marked reductions in the incidence of pregnancies, in number of litters per dam, in the general condition of offspring and in the average weight of weanlings of dams fed 10,000
SECTION 11 - TOXICOLOGY INFORMATION  ... continued

**Reproductive effects**

mg/kg. No adverse effect on reproduction was observed in three generations of progeny fed diets containing piperonyl butoxide at a dose up to 1000 mg/kg.

No adverse effects on fertility or birth defects were reported in rats given 2.5% isopropanol in drinking water for two generations. Rats given isopropanol at 0.18 mg/kg/day orally for 6 months showed decreased fertility; the offspring of pregnant rats given 0.018 to 1008 mg/kg had embryotoxicity and birth defects. The No Adverse Effect Level (NOEL) in this study was 0.015 mg/kg. No adverse effects were reported in rats in a two-generation study and in rats and rabbits in a neurodevelopmental toxicity studies exposed to isopropanol as high as 1200 mg/kg/day.

**Teratogenicity**

No teratogenic effects were reported among the offspring of mice fed 15, 50 or 150 mg/kg/day of permethrin from day 7 to 12 of pregnancy. The frequency of malformations was not increased among the offspring of rats or rabbits fed permethrin during pregnancy at a dose of 22.5, 71 or 225 mg/kg/day or 600, 1200 or 1800 mg/kg/day, respectively.

No evidence of teratogenicity was reported in rats given piperonyl butoxide by gavage at doses up to 500 mg/kg on days 6 to 15 of gestation. It was also negative in a second teratogenicity study at a dose of 3000 mg/kg. In mice, piperonyl butoxide at a dose level of 1385 or 1800 mg/kg by gavage on day 9 produced oligodactyly in fetus.

Rats were exposed by inhalation for 7 hours daily on day 1 to 19 to isopropanol at a dose level of 3500, 7000 or 10,000 ppm. At the low dose (3500 ppm), no adverse effects were reported. At the higher doses malformations, resorptions and fetal deaths were increased. The defects seen were primarily skeletal.

**Target organs**

Liver, Central Nervous System

SECTION 12 - ECOLOGICAL INFORMATION

**Environmental overview**

In the environment, this substance is expected to bind tightly to soil and sediment and not persist. High acute toxicity to aquatic organisms is expected. Mobility, persistence, and degradability: This substance is expected to bind tightly to soil and sediment and degrade rapidly when exposed to sunlight. Bioaccumulation and toxicity: High acute toxicity to aquatic organisms is expected. This substance has a potential to bioaccumulate (BCF = 480). Long term adverse effects to aquatic organisms are possible.

**Aquatic toxicity**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Species</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DURASECT II</td>
<td>LC50</td>
<td>Brook trout</td>
<td>3.2 mcg/L (96 hr)</td>
</tr>
</tbody>
</table>
SECTION 13 - DISPOSAL INFORMATION

**Disposal procedure**
Do not dispose of even small amounts in the sanitary sewer, stormwater sewer, lakes, streams, or ponds. Incineration is the recommended method of disposal for this material. Federal, State, or Local environmental regulations and Site conditions may affect proper disposal options.

SECTION 14 - TRANSPORTATION INFORMATION

**General shipping instructions**
Not regulated

SECTION 15 - REGULATORY INFORMATION

| **TSCA status** | No |
| **SARA section 302** | No |
| **SARA section 313** | No |
| **California proposition 65** | No |
| **EU Labelling** | Dangerous for the Environment; (N) |
| **Risk phrases** | R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| **Safety phrases** | S57 - Use appropriate container to avoid environmental contamination. |

SECTION 16 - OTHER

**Disclaimer**
Pfizer Inc believes that the information contained in this Material Safety Data Sheet is accurate, and while it is provided in good faith, it is without a warranty of any kind, expressed or implied.