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

Product Identifier
Material Name: Bovine Rhinotracheitis-Virus Diarrhea-Parainfluenza3-Respiratory Syncytial Virus Vaccine, Modified Live & Killed Virus-Leptospira Canicola-Grippotyphosa-Hardjo-Ichterohaemorrhagiae-Pomona Bacterin
Trade Name: CattleMaster GOLD FP 5 L5
Chemical Family: Mixture

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Intended Use: Veterinary Vaccine

Details of the Supplier of the Safety Data Sheet
Zoetis Inc.
100 Campus Drive, P.O. Box 651
Florham Park, New Jersey 07932 (USA)
Rocky Mountain Poison Control Center Phone: 1-866-531-8896
Product Support/Technical Services Phone: 1-800-366-5288

Emergency telephone number: CHEMTREC (24 hours): 1-800-424-9300
Contact E-Mail: VMIPSrecords@zoetis.com

2. HAZARDS IDENTIFICATION

Appearance: Freeze-dried preparation plus a liquid adjuvanted preparation

Classification of the Substance or Mixture
GHS - Classification
Acute Oral Toxicity: Category 5

EU Classification:
EU Indication of danger: Not classified

Label Elements
Signal Word: Warning
Hazard Statements: H303 - May be harmful if swallowed
Precautionary Statements: P312 - Call a POISON CENTRE/doctor/physician if you feel unwell

Other Hazards
Short Term: In the event of accidental injection, an allergic reaction may occur. If an allergic reaction occurs, the worker should be removed to the nearest emergency room and the appropriate therapy instituted. Saponins have little toxicity for humans when ingested but have hemolytic effects when injected intravenously.

Australian Hazard Classification (NOHSC):
Note: This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous</th>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EU EINECS/ELINCS List</th>
<th>EU Classification</th>
<th>GHS Classification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quil-A saponin</td>
<td>66594-14-7</td>
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<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
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<tr>
<td>Cholesterol</td>
<td>57-88-5</td>
<td>200-353-2</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Merthiolate (as mercury)</td>
<td>54-64-8</td>
<td>200-210-4</td>
<td>T+; R26/27/28 R33 N; R50/53</td>
<td>Acute Tox. 2 (H330) Acute Tox. 1 (H310) Acute Tox. 2 (H300) STOT RE 2 (H373) Aq. Acute 1 (H400) Aq. Chronic 1 (H410)</td>
<td>#</td>
<td></td>
</tr>
</tbody>
</table>

Gentamicin | 1403-66-3 | 215-765-8 | Not Listed | Not Listed | Not Listed | ## |

| Additional Information: | * Proprietary
## Trace
Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety. |

For the full text of the R phrases and CLP/GHS abbreviations mentioned in this Section, see Section 16

### 4. FIRST AID MEASURES

**Description of First Aid Measures**

**Eye Contact:** Immediately flush eyes with water for at least 15 minutes. If irritation occurs or persists, get medical attention.
SAFETY DATA SHEET

Material Name: Bovine Rhinotracheitis-Virus Diarrhea-Parainfluenza3-Respiratory Syncytial Virus Vaccine, Modified Live & Killed Virus-Leptospira Canicola-Grippotyphosa-Hardjo-Ichterohaemorrhagiae-Pomona Bacterin

Revision date: 26-Nov-2013

Skin Contact: Wash skin with soap and water. If irritation occurs or persists, get medical attention.

Ingestion: Get medical attention. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms and Effects of Exposure: No data available
Medical Conditions Aggravated by Exposure: None known

Indication of the Immediate Medical Attention and Special Treatment Needed

Notes to Physician: The viruses contained in this vaccine are generally not considered to cause disease in humans.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: As for primary cause of fire.

Special Hazards Arising from the Substance or Mixture

Hazardous Combustion Products: Not known

Fire / Explosion Hazards: Fine particles (such as dust and mists) may fuel fires/explosions.

Advice for Fire-Fighters
Wear approved positive pressure, self-contained breathing apparatus and full protective turn out gear. Dike and collect water used to fight fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

Environmental Precautions
Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

Methods and Material for Containment and Cleaning Up

Measures for Cleaning / Collecting: Contain the source of spill if it is safe to do so. Collect spilled material by a method that controls dust generation. A damp cloth or a filtered vacuum should be used to clean spills of dry solids. Clean spill area thoroughly.

Additional Consideration for Large Spills: Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Keep away from heat, sparks, and flame. Minimize dust generation. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing dust, vapor or mist. Avoid accidental injection. Use appropriate personal protective equipment.
Conditions for Safe Storage, Including any Incompatibilities

**Storage Conditions:** Store under refrigeration in closed container. Keep container tightly closed when not in use.

**Storage Temperature:** 2-7°C (35 - 45°F)

**Incompatible Materials:** This material can be denatured or inactivated by a variety of organic solvents, salts or heavy metals.

**Specific end use(s):** No data available

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### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Control Parameters

**Gentamicin**

**Bulgaria OEL - TWA** 0.1 mg/m³

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

**Gentamicin**

**Zoetis OEB** OEB 2 (control exposure to the range of 100ug/m³ to < 1000ug/m³)

#### Exposure Controls

**Engineering Controls:** Engineering controls should be used as the primary means to control exposures. General room ventilation is adequate unless the process generates dust, mist or fumes.

**Personal Protective Equipment:** Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

- **Hands:** Wear impervious gloves if skin contact is possible.
- **Eyes:** Wear safety glasses or goggles if eye contact is possible.
- **Skin:** Wear protective clothing when working with large quantities. Wash hands and arms thoroughly after handling this material.

**Respiratory protection:** If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Physical State:** Freeze-dried preparation plus Liquid
- **Odor:** No data available.
- **Molecular Formula:** Mixture
- **Solvent Solubility:** No data available
- **Water Solubility:** No data available
- **Solubility:** Soluble: Water (based on components)
- **pH:** 7.0 +/- 1.5
- **Melting/Freezing Point (°C):** No data available
- **Boiling Point (°C):** >100
- **Partition Coefficient: (Method, pH, Endpoint, Value)** No data available
- **Decomposition Temperature (°C):** No data available.
- **Evaporation Rate (Gram/s):** No data available

---
SAFETY DATA SHEET

Material Name: Bovine Rhinotracheitis-Virus Diarrhea-Parainfluenza3-Respiratory Syncytial Virus Vaccine, Modified Live & Killed Virus-Leptospira Canicola-Grippotyphosa-Hardjo-Ichterohaemorrhagiae-Pomona Bacterin

Revised date: 26-Nov-2013
Version: 2.0

Vapor Pressure (kPa): No data available
Vapor Density (g/ml): No data available
Relative Density: No data available
Specific Gravity: 1.0 +/-0.2
Viscosity: No data available

Flammability:
  Autoignition Temperature (Solid) (°C): No data available
  Flammability (Solids): No data available
  Flash Point (Liquid) (°C): No data available
  Upper Explosive Limits (Liquid) (% by Vol.): No data available
  Lower Explosive Limits (Liquid) (% by Vol.): No data available
Polymerization: Will not occur

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable
Possibility of Hazardous Reactions
  Oxidizing Properties: No data available
  Conditions to Avoid: Store at 2°-7°C. Prolonged exposure to higher temperatures may adversely affect potency. Do not freeze.
  Incompatible Materials: This material can be denatured or inactivated by a variety of organic solvents, salts or heavy metals.
  Hazardous Decomposition Products: None expected under normal conditions.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects
General Information: Toxicological properties of the formulation have not been investigated. The information included in this section describes the potential hazards of the individual ingredients. The antigens included in this product are non-infectious. All have been prepared from killed or inactivated preparations of microorganisms.

Acute Toxicity: (Species, Route, End Point, Dose)

Merthiolate (as mercury)
  Rat Oral LD50 75 mg/kg
  Rat Subcutaneous LD50 98mg/kg

Gentamicin
  Rat Oral LD50 6600 mg/kg
  Rat Subcutaneous LD50 710mg/kg
  Mouse IM LD50 167 mg/kg
  Rat IM LD50 463 mg/kg

Quil-A saponin
  Rat IV LD50 670 µg/kg
SAFETY DATA SHEET

Material Name: Bovine Rhinotracheitis-Virus Diarrhea-
Parainfluenza3-Respiratory Syncytial Virus Vaccine, Modified
Live & Killed Virus-Leptospira Canicola-Grippotyphosa-
Hardjo-Ichterohaemorrhagiae-Pomona Bacterin
Revision date: 26-Nov-2013

11. TOXICOLOGICAL INFORMATION

Irritation / Sensitization: (Study Type, Species, Severity)

Merthiolate (as mercury)
Eye Irritation  Rabbit  Mild

Gentamicin
Eye Irritation  Rabbit  Non-irritating
Skin Irritation / Sensitization  This product contains merthiolate which is considered to be a skin sensitizer.

Reproduction & Developmental Toxicity: (Study Type, Species, Route, Dose, End Point, Effect(s))

Gentamicin
Embryo / Fetal Development  Rat  Intramuscular  75 mg/kg/day  LOAEL  Developmental toxicity
Reproductive Effects  Not considered to be a reproductive hazard.

Carcinogen Status:  None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA. See below

Cholesterol
IARC:  Group 3 (Not Classifiable)

12. ECOLOGICAL INFORMATION

Environmental Overview:  The environmental characteristics of this material have not been fully evaluated. This product contains trace quantities of mercury, releases to the environment should be avoided.

Toxicity:  No data available

Persistence and Degradability:  No data available

Bio-accumulative Potential:  No data available

Mobility in Soil:  No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods:  Dispose of waste in accordance with all applicable laws and regulations. This product contains trace quantities of mercury and may qualify as a RCRA Hazardous Waste. Status should be confirmed using the EPA Toxicity Characteristic Leaching Procedure (TCLP).

14. TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.
Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

## 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

### Canada - WHMIS: Classifications

**WHMIS hazard class:**
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

### Quil-A saponin

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<tr>
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<th>CERCLA/SARA 313 Emission reporting</th>
<th>California Proposition 65</th>
<th>Australia (AICS):</th>
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### Cholesterol

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<th>Inventory - United States TSCA - Sect. 8(b)</th>
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### Bovine Parainfluenza3

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### Leptospira canicola

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### Leptospira grippotyphosa

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### Leptospira hardjo

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</tbody>
</table>
15. REGULATORY INFORMATION

- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Leptospira icterohaemorrhagiae**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Leptospira pomona**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Merthiolate (as mercury)**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **Inventory - United States TSCA - Sect. 8(b)**: Present
- **Australia (AICS)**: Present
- **EU EINECS/ELINCS List**: 200-210-4

**Bovine Respiratory Syncytial Virus**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Bovine Rhinotracheitis**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Bovine Virus Diarrhea**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **EU EINECS/ELINCS List**: Not Listed

**Gentamicin**
- **CERCLA/SARA 313 Emission reporting**: Not Listed
- **California Proposition 65**: Not Listed
- **Australia (AICS)**: Present
- **Standard for the Uniform Scheduling for Drugs and Poisons**: Schedule 4
- **EU EINECS/ELINCS List**: 215-765-8

16. OTHER INFORMATION

Text of R phrases and GHS Classification abbreviations mentioned in Section 3
SAFETY DATA SHEET

Material Name: Bovine Rhinotracheitis-Virus Diarrhea-Parainfluenza3-Respiratory Syncytial Virus Vaccine, Modified Live & Killed Virus-Leptospira Canicola-Grippotyphosa-Hardjo-Ichterohaemorrhagiae-Pomona Bacterin

Revision date: 26-Nov-2013

H330 - Fatal if inhaled
H310 - Fatal in contact with skin
H300 - Fatal if swallowed
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

R33 - Danger of cumulative effects.
R26/27/28 - Very toxic by inhalation, in contact with skin and if swallowed.
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Data Sources: The data contained in this MSDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.

Reasons for Revision: Updated Section 1 - Identification of the Substance/Preparation and the Company/Undertaking. Updated Section 2 - Hazard Identification. Updated Section 4 - First Aid Measures. Updated Section 5 - Fire Fighting Measures. Updated Section 7 - Handling and Storage. Updated Section 8 - Exposure Controls / Personal Protection. Updated Section 11 - Toxicology Information. Updated Section 15 - Regulatory Information.

Prepared by: Toxicology and Hazard Communication Zoetis Global Risk Management

Zoetis 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 warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet