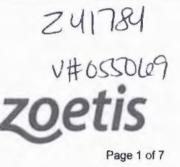
180

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

Product Identifier

Material Name: Spirovac L5 (Leptospira canicola-grippotyphosa-hardjo-icterhaemorrhagiae-pomona Bacterin)

Trade Name: Chemical Family: Spirovac L5 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 Zoetis Belgium S.A. Mercuriusstraat 20 1930 Zaventem Belgium

Emergency telephone number: International CHEMTREC (24 hours): +1-703-527-3887

2. HAZARDS IDENTIFICATION

Appearance: Opaque light brown to gray liquid Classification of the Substance or Mixture GHS - Classification Not classified as hazardous

EU Classification:

EU Indication of danger: Not classified

Label Elements Signal Word: Not Classified Non-hazardous in accordance with international standards for workplace safety. Hazard Statements: **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. Australian Hazard Classification Non-Hazardous Substance. Non-Dangerous Goods. (NOHSC): This document has been prepared in accordance with standards for workplace safety, which Note: 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.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	EU EINECS/ELINCS List	EU Classification	GHS Classification	%
Merthiolate (as mercury)	54-64-8	200-210-4	T+; R26/27/28 R33 N; R50/53	Acute Tox. 2 (H330) Acute Tox. 2 (H310) Acute Tox. 1 (H300) STOT RE 2 (H373) Aq. Acute 1 (H400) Aq. Chronic 1 (H410)	##

Ingredient	CAS Number	EU EINECS/ELINCS List	EU Classification	GHS Classification	%
_eptospira canicola	NOT ASSIGNED	Not Listed	Not Listed	Not Listed	*
eptospira grippotyphosa	NOT ASSIGNED	Not Listed	Not Listed	Not Listed	*
eptospira hardjo	NOT ASSIGNED	Not Listed	Not Listed	Not Listed	*
eptospira icterohaemorrhagiae	NOT ASSIGNED	Not Listed	Not Listed	Not Listed	*
_eptospira pomona	NOT ASSIGNED	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.
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 Effe	ects. Both Acute and Delayed
Symptoms and Effects of Exposure: Medical Conditions Aggravated by Exposure:	For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information. None known

Indication of the Immediate Medical Attention and Special Treatment Needed

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None

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Notes t	o Phy	vsician	:
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5. FIRE-FIGHTING MEASURES

Extinguishing Media:

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Extinguish fires with CO2, extinguishing powder, foam, or water.

Special Hazards Arising from the Substance or Mixture

Hazardous Combustion Formation of toxic gases is possible during heating or fire. Products:

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 / Contain the source of spill if it is safe to do so. Collect spill with absorbent material. Clean spill area thoroughly.

Additional Consideration for Large Spills:

for 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

Use with adequate ventilation. Use appropriate personal protective equipment. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks, and flame. Avoid accidental injection.

Conditions for Safe Storage, Inclu	ding any Incompatibilities
Storage Conditions:	Store under refrigeration in closed container.
Storage Temperature:	2-7°C (35 to 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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

No Occupational Exposure Limit (OEL) or Short Term Exposure Limit (STEL) has been identified.

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).

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Light brown to gray

No data available.

Mixture

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Hands:	Wear impervious gloves if skin contact is possible.
Eyes:	Safety glasses or goggles
Skin:	Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:

Odor Threshold:

Molecular Weight:

Physical State: Odor: Molecular Formula:

Solubility:

pH:

Liquid No data available. Mixture

Solvent Solubility: No data available Water Solubility: No data available Aqueous solution Water 7.0 +/- 1.5 Melting/Freezing Point (°C): No data available Boiling Point (°C): No data available. Partition Coefficient: (Method, pH, Endpoint, Value) No data available

Decomposition Temperature (°C): No data available. Evaporation Rate (Gram/s): No data available Vapor Pressure (kPa): No data available Vapor Density (g/ml): No data available **Relative Density:** No data available **Specific Gravity:** 1.01-1.03 Viscosity: No data available

Flammablity:

Autoignition Temperature (Solid) (°C): Flammability (Solids): Flash Point (Liquid) (°C): Upper Explosive Limits (Liquid) (% by Vol.): Lower Explosive Limits (Liquid) (% by Vol.): **Polymerization:**

No data available No data available Non-flammable No data available No data available 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. This material can be denatured or inactivated by a variety of organic solvents, salts or heavy **Incompatible Materials:** metals. Hazardous Decomposition None expected under normal conditions. Products:

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11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects General Information:

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

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

Merthiolate (as mercury)

Υ.

Rat Oral LD50 75 mg/kg Rat Subcutaneous LD50 98mg/kg

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

Merthiolate (as mercury) Eye Irritation Rabbit Mild

Carcinogen Status:

None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

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. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater. 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).
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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: None required 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.

Leptospira canicola	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
EU EINECS/ELINCS List	Not Listed
Leptospira grippotyphosa	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
EU EINECS/ELINCS List	Not Listed
Leptospira hardjo	
CERCLA/SARA 313 Emission reporting	Not Listed
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

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15. REGULATORY INFORMATION

California Proposition 65 Inventory - United States TSCA - Sect. 8(b) Australia (AICS): EU EINECS/ELINCS List Not Listed Present Present 200-210-4

16. OTHER INFORMATION

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

H300 - Fatal if swallowed

H310 - Fatal in contact with skin H330 - Fatal if inhaled

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

T+ - Very toxic

N - Dangerous for the environment

R33 - Danger of cumulative effects.

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

Data Sources:

Reasons for Revision:

raw material suppliers, or from the published literature. Updated Section 1 - Identification of the Substance/Preparation and the Company/Undertaking. Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 5 - Fire Fighting Measures. Updated Section 7 - Handling and Storage. Updated Section 8 - Exposure Controls / Personal Protection. Updated Section 11 -Toxicology Information.

The data contained in this MSDS may have been gathered from confidential internal sources,

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