SAFETY DATA SHEET

1. Identification

Product identifier
Poulvac E. Coli

Other means of identification
Synonyms
POULVAC® * Escherichia Coli Vaccine, Live Culture

Recommended use
Veterinary vaccine

Recommended restrictions
Not for human use

Manufacturer/Importer/Supplier/Distributor information

Company Name (USA)
Zoetis Inc.
10 Sylvan Way
Parsippany, New Jersey 07054 (USA)

Rocky Mountain Poison and Drug Center
1-866-531-8896

Product Support/Technical Services
1-800-366-5288

Emergency telephone numbers
CHEMTREC (24 hours): 1-800-424-9300

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

Company Name (CA)
Zoetis Canada Inc.
16740 Trans-Canada Highway
Kirkland, Quebec, H9H 4M7

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

Contact E-Mail
productsupport@zoetis.com

Product Support
1-800-461-0917

Supplier
Not available.

2. Hazard(s) identification

Physical hazards
Not classified.

Health hazards
Not classified.

Environmental hazards
Not classified.

Label elements

Hazard symbol
None.

Signal word
None.

Hazard statement
The mixture does not meet the criteria for classification.

Precautionary statement

Prevention
Observe good industrial hygiene practices.

Response
Wash hands after handling.

Storage
Store away from incompatible materials.

Disposal
Dispose of waste and residues in accordance with local authority requirements.

Other hazards
None known.

Supplemental information
May cause hypersensitivity reactions in susceptible individuals. Direct contact with eyes may cause temporary irritation. May cause skin irritation.

3. Composition/information on ingredients

Mixtures

Material name: Poulvac E. Coli

756 Version #: 01 Issue date: 02-June-2017
### Chemicals

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Hydrogen Sulfate</td>
<td></td>
<td>7783-20-2</td>
<td>&lt;3</td>
</tr>
<tr>
<td>Potassium phosphate</td>
<td></td>
<td>7778-77-0</td>
<td>&lt;3</td>
</tr>
<tr>
<td>Escherichia coli, live</td>
<td>Not assigned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sucrose</td>
<td></td>
<td>57-50-1</td>
<td></td>
</tr>
</tbody>
</table>

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Call a physician or poison control centre immediately. Do not induce vomiting without advice from poison control center.

**Most important symptoms/effects, acute and delayed**
Direct contact with eyes may cause temporary irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Allergic reactions are possible. Dermatitis. Rash. Coughing.

**Indication of immediate medical attention and special treatment needed**
Treat symptomatically.

### 5. Fire-fighting measures

**Suitable extinguishing media**

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Use water spray to cool unopened containers.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation. Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Avoid the generation of dusts during clean-up. Avoid inhalation of dust from the spilled material. Avoid breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

**Methods and materials for containment and cleaning up**
Ensure adequate ventilation.

**Large Spills**
Stop the flow of material, if this is without risk. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

**Small Spills**
Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

**Environmental precautions**
Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Avoid discharge into drains, water courses or onto the ground.**

### 7. Handling and storage

**Precautions for safe handling**
Use only in well-ventilated areas. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin, and clothing. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Avoid release to the environment. Use care in handling/storage.

**Conditions for safe storage, including any incompatibilities**
Store in a well-ventilated place. @ 2 - 7°C (36 - 45°F). Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).
8. Exposure controls/personal protection

### Occupational exposure limits

#### US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

#### Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

<table>
<thead>
<tr>
<th>Components</th>
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<td>Sucrose (CAS 57-50-1)</td>
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</table>

#### Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

#### Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

#### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

#### Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

#### Biological limit values

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

#### Control banding approach

- Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate.

#### Appropriate engineering controls

- If contact is likely, safety glasses with side shields are recommended.
- Wear appropriate chemical resistant gloves.
- Wear suitable protective clothing. Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.
- No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment. Whenever air contamination (mist, vapor or odor) is generated, respiratory protection is recommended as a precaution to minimize exposure.
- Not applicable.

#### Individual protection measures, such as personal protective equipment

- Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

#### General hygiene considerations

- Powder.
- Solid.
- Solid.
- Pale yellow to reddish white
- Odourless.
- Not available.
- 6 - 8
- Not available.
Initial boiling point and boiling range
100 °C (212 °F)

Flash point
Not available.

Evaporation rate
Not available.

Flammability (solid, gas)
Not available.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Not available.

Flammability limit - upper (%)
Not available.

Explosive limit - lower (%)
Not available.

Explosive limit – upper (%)
Not available.

Vapour pressure
Not available.

Vapour density
Not available.

Relative density
Not available.

Solubility(ies)
Solubility (water)
Not available.

Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.

Decomposition temperature
Not available.

Viscosity
Not available.

Other information
Explosive properties
Not explosive.

Oxidising properties
Not oxidising.

10. Stability and reactivity
Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

Conditions to avoid
Contact with incompatible materials.

Incompatible materials
Strong oxidising agents.

Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation
Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Skin contact
No adverse effects due to skin contact are expected. Individuals sensitive to this material or other materials in its chemical class may develop allergic reactions. May cause skin irritation.

Eye contact
Direct contact with eyes may cause temporary irritation.

Ingestion
May be harmful if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms related to the physical, chemical and toxicological characteristics
Direct contact with eyes may cause temporary irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Allergic reactions are possible. Dermatitis. Rash. Coughing.

Information on toxicological effects

Acute toxicity
May be harmful if swallowed.
### Components

<table>
<thead>
<tr>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>29.7 g/kg</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>Prolonged skin contact may cause temporary irritation.</td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>Direct contact with eyes may cause temporary irritation.</td>
</tr>
<tr>
<td><strong>Respiratory or skin sensitisation</strong></td>
<td>Not a respiratory sensitizer.</td>
</tr>
<tr>
<td><strong>Respiratory sensitisation</strong></td>
<td>This product is not expected to cause skin sensitisation.</td>
</tr>
<tr>
<td><strong>Skin sensitisation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Bacterial Mutagenicity (Ames)</strong></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Species: Salmonella</td>
</tr>
</tbody>
</table>

**Carcinogenicity**

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**ACGIH Carcinogens**

<table>
<thead>
<tr>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>A4 Not classifiable as a human carcinogen.</td>
</tr>
</tbody>
</table>

**Canada - Manitoba OELs: carcinogenicity**

<table>
<thead>
<tr>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucrose (CAS 57-50-1)</td>
<td>Not classifiable as a human carcinogen.</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**

This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure**

Not classified.

**Specific target organ toxicity - repeated exposure**

Not classified.

**Aspiration hazard**

Not an aspiration hazard.

**Further information**

The antigens included in this product are non-infectious. All have been prepared from attenuated preparations of microorganisms. May cause hypersensitivity reactions in susceptible individuals.

### 12. Ecological information

**Ecotoxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Avoid release to the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Hydrogen Sulfate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CAS 7783-20-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Ceriodaphnia dubia) 52 - 67 mg/l, 48 hours</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Rainbow trout, donaldson trout (Oncorhynchus mykiss) 35.2 - 43.8 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

**Persistence and degradability**

No data available.

**Bioaccumulative potential**

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions**

Avoid release to the environment. Do not discharge into drains, water courses or onto the ground. 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. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
None known.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. Regulatory information

Canadian regulations

Controlled Drugs and Substances Act
Not regulated.

Export Control List (CEPA 1999, Schedule 3)
Not listed.

Greenhouse Gases
Not listed.

Precursor Control Regulations
Not regulated.

International regulations

Stockholm Convention
Not applicable.

Rotterdam Convention
Not applicable.

Kyoto protocol
Not applicable.

Montreal Protocol
Not applicable.

Basel Convention
Not applicable.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>Country(s) or region</td>
<td>Inventory name</td>
<td>On inventory (yes/no)*</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### 16. Other information

**Issue date**
02-June-2017

**Version No.**
01

**Disclaimer**
Zoetis Inc. believes that the information contained in this 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. The information in the sheet was written based on the best knowledge and experience currently available.

**Revision information**
- Product and Company Identification: Physical States
- Composition / Information on Ingredients: Ingredients
- Physical & Chemical Properties: Multiple Properties