1. Identification

Product identifier: Poulvac Marek CVI + HVT

Other means of identification:

Synonyms: Poulvac® * Poulvac Mareks CVI+HVT * Poulvac Ovoline CVI + HVT * Marek's Disease Vaccine, Serotypes 1 and 3, live virus * Rispens strain-HVT

Recommended use: Veterinary vaccine

Recommended restrictions: Not for human use

Manufacturer/Importer/Supplier/Distributor information:

Company Name (US): Zoetis Inc.
10 Sylvan Way
Parsippany, New Jersey 07054 (USA)
1-866-531-8896

Rocky Mountain Poison and Drug Center
Product Support/Technical Services
Emergency telephone numbers:
CHEMTREC (24 hours): 1-800-424-9300
International CHEMTREC (24 hours): +1-703-527-3887

Company Name (EU): Zoetis Belgium S.A.
Rue Laid Burniat 1
1348 Louvain-la-Neuve
Belgium

Telephone: +32 10 808080
Emergency telephone number:
International CHEMTREC (24 hours): +1-703-527-3887

Contact E-Mail: VMIPSrecords@zoetis.com

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards: Not classified.

Environmental hazards: Not classified.

OSHA defined 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.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information:

In the event of accidental injection, an allergic reaction may occur. Stored under liquid nitrogen. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

3. Composition/information on ingredients

Mixtures
### Composition comments
*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret. In accordance with 29 CFR 1910.1200, the exact percentage composition of this mixture has been withheld as a trade secret.

### 4. First-aid measures

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

#### Skin contact
In the case of skin contact, immediately wash the skin with plenty of soap and water. In the event of accidental self injection or needle stick injury, wash the injury thoroughly with clean running water. Get medical attention immediately. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Do not rub affected area.

#### 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 center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

### Most important symptoms/effects, acute and delayed
Direct contact with eyes may cause temporary irritation. Exposure may cause temporary irritation, redness, or discomfort. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

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

### General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

#### Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

#### 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
Move containers from fire area if you can do so without risk.

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

#### General fire hazards
No unusual fire or explosion hazards noted. The product is not flammable.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS. 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. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Clean surface thoroughly to remove residual contamination.

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

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

#### Environmental precautions
Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling

Use care in handling/storage. Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Avoid breathing mist or vapor. Avoid accidental injection. When using, do not eat, drink or smoke. Wash thoroughly after handling. Do not use in areas without adequate ventilation. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep refrigerated with a nitrogen blanket (atmosphere). Keep away from heat, sparks and open flame.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. Workplace Environmental Exposure Level (WEEL) Guides</th>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide (CAS 67-68-5)</td>
<td>TWA</td>
<td></td>
<td>250 ppm</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Control banding approach

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

Appropriate engineering controls

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. Ensure adequate ventilation, especially in confined areas. General ventilation normally adequate.

Individual protection measures, such as personal protective equipment

<table>
<thead>
<tr>
<th>Eye/face protection</th>
<th>Wear tight-fitting goggles or face shield.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin protection</td>
<td>Wear protective gloves.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Wear suitable protective clothing. Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.</td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>Wear appropriate thermal protective clothing, when necessary. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.</td>
</tr>
<tr>
<td>General hygiene</td>
<td>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.</td>
</tr>
</tbody>
</table>

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Frozen Suspension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>32 °F (0 °C) estimated</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>212 °F (100 °C) estimated</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Flash point</td>
<td>Non-flammable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not available.</td>
</tr>
<tr>
<td>(n-octanol/water)</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other information</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
</tbody>
</table>

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**

Heat, flames and sparks. Sunlight. Contact with incompatible materials.

**Incompatible materials**


**Hazardous decomposition products**

No hazardous decomposition products are known.

11. Toxicological information

**Information on likely routes of exposure**

**Inhalation**

No adverse effects due to inhalation are expected.

**Skin contact**

Prolonged skin contact may cause temporary irritation. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

- **Dimethyl sulfoxide**
  - Species: Rabbit
  - Severity: Mild

**Eye contact**

Direct contact with eyes may cause temporary irritation.

- **Dimethyl sulfoxide**
  - Species: Rabbit
  - Severity: Mild

**Ingestion**

May cause discomfort if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics**

Direct contact with eyes may cause temporary irritation. Exposure may cause temporary irritation, redness, or discomfort. In the event of accidental injection, an allergic reaction may occur. Signs and symptoms might include skin rash, itching, redness or swelling. Respiratory reactions may be characterized by rhinitis, sneezing, scratchy throat, oral mucosal edema, laryngeal mucosal edema, coughing, shortness of breath, wheezing, and chest pain. Asthma like reactions occur with acute exposures in sensitized patients. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

**Information on toxicological effects**

Material name: Poulvac Marek CVI + HVT

Version #: 04    Revision date: 10-15-2021    Issue date: 09-10-2013
Acute toxicity

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide (CAS 67-68-5)</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>40000 mg/kg</td>
</tr>
<tr>
<td>Inhalation</td>
<td>LC50</td>
<td>&gt; 2000 mg/m3</td>
</tr>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>14500 mg/kg</td>
</tr>
<tr>
<td><strong>Subchronic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>NOAEL</td>
<td>2.783 mg/L, 13 weeks Respiratory system</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

- Prolonged skin contact may cause temporary irritation.
- Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

- Not a respiratory sensitizer.
- This product is not expected to cause skin sensitization.

Germ cell mutagenicity

- No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

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

IARC Monographs. Overall Evaluation of Carcinogenicity

- Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

- Not listed.
Reproductive toxicity

Based on available data, the classification criteria are not met. This product is not expected to cause reproductive or developmental effects.

Developmental effects

Dimethyl sulfoxide

<table>
<thead>
<tr>
<th>Dose</th>
<th>Effect</th>
<th>Toxicity</th>
<th>Species</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 mg/kg/day</td>
<td>Embryo / Fetal Development, Maternal toxicity</td>
<td>Result: NOAEL</td>
<td>Rat</td>
<td>Oral</td>
</tr>
<tr>
<td>200 mg/kg/day</td>
<td>Embryo / Fetal Development, Fetotoxicity</td>
<td>Result: LOAEL</td>
<td>Rat</td>
<td>Oral</td>
</tr>
</tbody>
</table>

Specific target organ toxicity - single exposure

Not classified.

Specific target organ toxicity - repeated exposure

Not classified.

Aspiration hazard

Not an aspiration hazard.

Chronic effects

None known.

Further information

The antigens included in this product are non-infectious. All have been prepared from attenuated preparations of microorganisms.

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.

Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide (CAS 67-68-5)</td>
<td>Daphnia magna (Water Flea)</td>
<td>24600 mg/L, 48 Hours</td>
</tr>
<tr>
<td></td>
<td>Lepomis macrochirus (Bluegill Sunfish)</td>
<td>&gt; 40000 mg/L, 96 Hours</td>
</tr>
<tr>
<td></td>
<td>Oncorhynchus mykiss (Rainbow Trout)</td>
<td>33000 - 37000 mg/L, 96 Hours</td>
</tr>
<tr>
<td></td>
<td>Rainbow trout,donaldson trout</td>
<td>33000 - 37000 mg/l, 96 hours</td>
</tr>
<tr>
<td></td>
<td>(Oncorhynchus mykiss)</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Other adverse effects

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. 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.

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied.
14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not established.

15. Regulatory information

US federal regulations
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace
Dimethyl sulfoxide (CAS 67-68-5) Low priority

US state regulations

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

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 Industrial Chemicals (AICIS)</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>
</tbody>
</table>
Country(s) or region | Inventory name | On inventory (yes/no)*
--- | --- | ---
Korea | Existing Chemicals List (ECL) | No
New Zealand | New Zealand Inventory | No
Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | No
Taiwan | Taiwan Chemical Substance Inventory (TCSI) | No
United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | No

*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, including date of preparation or last revision

Issue date: 09-10-2013
Revision date: 10-15-2021
Version #: 04
Further information: None known.
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: This document has undergone significant changes and should be reviewed in its entirety.