SAFETY DATA SHEET

1. Identification

Product identifier: Clostridium chauvoei-septicum-haemolyticum-novyi-sordellii-perfringens Types C&D Bacterin-Toxoid

Other means of identification
- Synonyms: UltraChoice® 8 * UltraChoice™ 8
- 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)
- 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
- Company Name (EU): Zoetis Belgium S.A.
  Mercuriusstraat 20
  1930 Zaventem
  Belgium
- 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:
- Sensitization, respiratory: Category 1A
- Sensitization, skin: Category 1A
- Carcinogenicity: Category 1A

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer.

Precautionary statement

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapor. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response: If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor. Wash contaminated clothing before reuse.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, purified</td>
<td>&gt;90</td>
<td>7732-18-5</td>
<td></td>
</tr>
<tr>
<td>Aluminum potassium sulfate</td>
<td>&lt;5</td>
<td>7784-24-9</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.2</td>
<td>50-00-0</td>
<td></td>
</tr>
<tr>
<td>Clostridium chauvoei</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium haemolyticum</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium novyi</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium perfringens type C</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium perfringens type D</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium septicum</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Clostridium sordellii</td>
<td>NOT ASSIGNED</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Saponin</td>
<td>## Trace</td>
<td>8047-15-2</td>
<td></td>
</tr>
</tbody>
</table>

Composition comments

* Non-hazardous Ingredients

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. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. For breathing difficulties, oxygen may be necessary.

**Skin contact**

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**

Rinse mouth. Call a physician immediately. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions.

**Ingestion**

Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. May cause an allergic skin reaction. Dermatitis. Rash. Difficulty in breathing.

Most important symptoms/effects, acute and delayed

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. Saponins have little toxicity for humans when ingested but have hemolytic effects when injected intravenously.

General information

For personal protection, see section 8 of the SDS. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

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.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Ensure adequate ventilation. Wear appropriate protective equipment and clothing during clean-up. Ventilate closed spaces before entering them. Avoid breathing mist or vapor. 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. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Ensure adequate ventilation. Wear appropriate protective equipment and clothing during clean-up. Avoid release to the environment.

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.

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

Do not handle until all safety precautions have been read and understood. Use with adequate ventilation. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid accidental injection. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Store in a cool, dry place out of direct sunlight. @ 2 - 7°C (36 - 45°F). Do not freeze. 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

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Type</td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td>STEL</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Type</td>
<td></td>
</tr>
<tr>
<td>Aluminum potassium sulfate (CAS 7784-24-9)</td>
<td>TWA</td>
<td>1 mg/m3 Respirable fraction.</td>
</tr>
<tr>
<td>Formaldehyde (CAS 50-00-0)</td>
<td>Ceiling</td>
<td>0.3 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Type</td>
</tr>
<tr>
<td>Aluminum potassium sulfate (CAS 7784-24-9)</td>
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<tr>
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<td>Ceiling</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
</tr>
</tbody>
</table>

Biological limit values

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

Control banding approach

Not available.

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. 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.
Individual protection measures, such as personal protective equipment

- **Eye/face protection**: If contact is likely, safety glasses with side shields are recommended.

- **Skin protection**
  - **Hand protection**: Wear protective gloves. Wear impervious gloves if skin contact is possible.
  - **Other**: Wear suitable protective clothing. Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.

- **Respiratory protection**: 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. Whenever air contamination (mist, vapor or odor) is generated, respiratory protection is recommended as a precaution to minimize exposure.

- **Thermal hazards**
  - Not applicable.

- **General hygiene considerations**: Observe any medical surveillance requirements. 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. Contaminated work clothing should not be allowed out of the workplace.

### 9. Physical and chemical properties

- **Appearance**: Liquid Solution in multiple-dose vials
  - **Physical state**: Liquid.
  - **Form**: Liquid.
  - **Color**: Not available.
  - **Odor**: Not available.
  - **Odor threshold**: Not available.
  - **pH**: 6 - 8
  - **Melting point/freezing point**: Not available.
  - **Initial boiling point and boiling range**: > 212 °F (> 100 °C)
  - **Flash point**: Non-flammable
  - **Evaporation rate**: Not available.
  - **Flammability (solid, gas)**: Not applicable.
  - **Flammability limit - lower (%)**: Not available.
  - **Flammability limit - upper (%)**: Not available.
  - **Explosive limit - lower (%)**: Not available.
  - **Explosive limit - upper (%)**: Not available.
  - **Vapor pressure**: Not available.
  - **Vapor density**: Not available.
  - **Relative density**: Not available.
  - **Solubility(ies)**
    - **Solubility (water)**: Soluble
  - **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.
    - **Oxidizing properties**: Not oxidizing.
    - **Specific gravity**: 0.8 - 1.2
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. Protect from sunlight. Store at 2-7°C. Prolonged exposure to higher temperatures may adversely affect potency. Do not freeze.

Incompatible materials
Strong oxidizing agents. This material can be denatured or inactivated by a variety of organic solvents, salts or heavy metals.

Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.

Skin contact
Formaldehyde
May cause an allergic skin reaction.
Species: Rabbit
Severity: Moderate to Severe

Eye contact
Formaldehyde
Direct contact with eyes may cause temporary irritation.
Species: Rabbit
Severity: Severe

Ingestion
Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics
Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity
Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Components

Formaldehyde (CAS 50-00-0)

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.

Eye Contact
Formaldehyde
Species: Rabbit
Severity: Severe

Respiratory or skin sensitization
ACGIH sensitization
FORMALDEHYDE (CAS 50-00-0) Dermal sensitization
Respiratory sensitization
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization
May cause an allergic skin reaction.

Skin sensitization
Formaldehyde
Species: Guinea Pig
Severity: Positive

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

Mutagenicity
Formaldehyde
In Vitro Bacterial Mutagenicity (Ames)
Result: Positive
Species: Bacteria

In Vitro Chromosome Aberration
Result: Positive
Species: Rodent

In Vitro Sister Chromatid Exchange
Result: Positive
Species: Rodent

In Vivo Chromosome Aberration
Result: Positive
Species: Not specified

Carcinogenicity
May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity
Formaldehyde (CAS 50-00-0) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Formaldehyde (CAS 50-00-0) Cancer

US. National Toxicology Program (NTP) Report on Carcinogens
Formaldehyde (CAS 50-00-0) Known To Be Human Carcinogen.

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

Developmental effects
Formaldehyde
185 mg/kg/day Embryo / Fetal Development, Not teratogenic
Maternal toxicity
Species: Mouse
Organ: Oral

40 ppm Embryo / Fetal Development, Not Teratogenic
Maternal Toxicity
Species: Rat
Organ: Inhalation

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

Further information
May cause allergic respiratory and skin reactions. In the event of accidental injection, an allergic reaction may occur. The antigens included in this product are non-infectious. All have been prepared from killed or inactivated preparations of microorganisms. Saponins have little toxicity for humans when ingested but have hemolytic effects when injected intravenously.

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 Test Results Species

Formaldehyde (CAS 50-00-0)

EC50 42 mg/L, 24 Hours  Daphnia magna (Water Flea)
LC50 118 ppm, 96 Hours  Oncorhynchus mykiss (Rainbow Trout)

Aquatic

EC50 4.3 - 7.8 mg/l, 48 hours  Water flea (Daphnia pulex)
LC50 10.302 - 16.743 mg/l, 96 hours  Striped bass (Morone saxatilis)

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. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. 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
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

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.

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 a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

CERCLA Hazardous Substance List (40 CFR 302.4)
Formaldehyde (CAS 50-00-0)  Listed.

SARA 304 Emergency release notification
Formaldehyde (CAS 50-00-0)  100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Formaldehyde (CAS 50-00-0)  Cancer
Skin sensitization
Respiratory sensitization
Eye irritation
Skin irritation
respiratory tract irritation
Acute toxicity
**Flammability**

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**
- Immediate Hazard - Yes
- Delayed Hazard - Yes
- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable quantity (pounds)</th>
<th>Threshold planning quantity (pounds)</th>
<th>Threshold planning quantity, lower value (pounds)</th>
<th>Threshold planning quantity, upper value (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>100</td>
<td>500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazardous chemical**

- No

**SARA 313 (TRI Reporting)**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Other federal regulations**

- **Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**
  - Formaldehyde (CAS 50-00-0)
- **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**
  - Formaldehyde (CAS 50-00-0)
- **Safe Drinking Water Act (SDWA)**
  - Not regulated.

**US state regulations**

- WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

- Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

- Formaldehyde (CAS 50-00-0)

**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>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, including date of preparation or last revision**

**Issue date**

03-12-2014

**Revision date**

05-05-2017

**Version #**

03
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.