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

Product Identifier

Material Name: Clostridium chauvoei-septicum-haemolyticum-novyi-sordellii-perfringens Types C&D Bacterin-Toxoid

Trade Name: UltraChoice® 8

Chemical Family: Mixture

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Intended Use: Veterinary Vaccine

2. HAZARDS IDENTIFICATION

Appearance: Liquid solution in multiple-dose vials

Classification of the Substance or Mixture

GHS - Classification
- Respiratory Sensitization: Category 1
- Skin Sensitization: Category 1
- Carcinogenicity: Category 1A

EU Classification:
- EU Indication of danger: Harmful
- Carcinogenic: Category 3

EU Symbol: Xn

EU Risk Phrases:
- R40 - Limited evidence of a carcinogenic effect
- R43 - May cause sensitization by skin contact.

Label Elements

Signal Word: Danger

Hazard Statements:
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H317 - May cause an allergic skin reaction
- H350 - May cause cancer

Contact E-Mail: VMIPSrecords@zoetis.com
Precautionary Statements:

- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
- P284 - Wear respiratory protection
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician
- P302+ P352 - IF ON SKIN: Wash with plenty of soap and water
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P362 - Take off contaminated clothing and wash before reuse
- P308 + P313 - IF exposed or concerned: Get medical attention/advice
- P405 - Store locked up
- P501 - Dispose of contents/container in accordance with all local and national regulations

Other Hazards

Short Term:

May cause eye, skin and respiratory tract irritation. 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>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>Formaldehyde</td>
<td>50-00-0</td>
<td>200-001-8</td>
<td>T; R23/24/25 C; R34 Carc.Cat.3; R40 R43</td>
<td>Acute Tox. 3 (H301) Skin Corr. 1B (H314) Skin Sens. 1 (H317) Carc. 1A (H350) Acute Tox. 3 (H331)</td>
<td>&lt; 0.2</td>
</tr>
<tr>
<td>Saponin</td>
<td>8047-15-2</td>
<td>232-462-6</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>##</td>
</tr>
</tbody>
</table>
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EU EINECS/ELINCS</th>
<th>EU Classification</th>
<th>GHS Classification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum potassium sulfate</td>
<td>7784-24-9</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td></td>
</tr>
<tr>
<td>Clostridium haemolyticum</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium sordellii</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium novyi</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium chauvoei</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium perfringens type D</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium septicum</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Clostridium perfringens type C</td>
<td>NOT ASSIGNED</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>*</td>
</tr>
<tr>
<td>Water, purified</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>&gt;90%</td>
</tr>
</tbody>
</table>

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 mentioned in this Section, see Section 16

4. FIRST AID MEASURES

**Description of First Aid Measures**

**Eye Contact:**
Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately.

**Skin Contact:**
Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention. For information on potential delayed effects, see Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

**Ingestion:**
Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

**Inhalation:**
Remove to fresh air and keep patient at rest. Seek medical attention immediately.

**Most Important Symptoms and Effects, Both Acute and Delayed**

**Symptoms and Effects of Exposure:**
For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

**Medical Conditions Aggravated by Exposure:**
None known

Indication of the Immediate Medical Attention and Special Treatment Needed

**Notes to Physician:**
None

5. FIRE-FIGHTING MEASURES

**Extinguishing Media:**
Extinguish fires with CO2, extinguishing powder, foam, or water.

Special Hazards Arising from the Substance or Mixture
SAFETY DATA SHEET

Material Name: Clostridium chauvoei-Septicum-
haemolyticum-novyi-sordellii-perfringens Types C&D
Bacterin-Toxoid
Revision date: 14-Mar-2014

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 spill with absorbent material. 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
Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use appropriate personal protective equipment. Wash thoroughly after handling. Prevent environmental releases. Avoid accidental injection.

Conditions for Safe Storage, Including any Incompatibilities
Storage Conditions: Store under refrigeration in closed container. Do not freeze. Keep container tightly closed when not in use.

Storage Temperature: 2-7°C

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
Refer to available public information for specific member state Occupational Exposure Limits.

Formaldehyde
ACGIH Ceiling Threshold Limit: 0.3 ppm
ACGIH - Sensitizer Designation Sensitizer
Australia STEL 2 ppm
2.5 mg/m³
Australia TWA 1 ppm
1.2 mg/m³
Austria OEL - MAKs 0.5 ppm
0.6 mg/m³
Bulgaria OEL - TWA 1.0 mg/m³
## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Country/OEL Type</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic OEL - TWA</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>Estonia OEL - TWA</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.6 mg/m³</td>
</tr>
<tr>
<td>Finland OEL - TWA</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td></td>
<td>0.37 mg/m³</td>
</tr>
<tr>
<td>France OEL - TWA</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>Germany (DFG) - MAK</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td></td>
<td>0.37 mg/m³ no irritation should occur during mixed exposure</td>
</tr>
<tr>
<td>Greece OEL - TWA</td>
<td>2 ppm</td>
</tr>
<tr>
<td></td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td>Hungary OEL - TWA</td>
<td>0.6 mg/m³</td>
</tr>
<tr>
<td>Ireland OEL - TWAs</td>
<td>2 ppm</td>
</tr>
<tr>
<td></td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td>Japan - OELs - Ceilings</td>
<td>0.2 ppm</td>
</tr>
<tr>
<td></td>
<td>0.24 mg/m³</td>
</tr>
<tr>
<td>Latvia OEL - TWA</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>Lithuania OEL - TWA</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.6 mg/m³</td>
</tr>
<tr>
<td>Netherlands OEL - TWA</td>
<td>0.15 mg/m³</td>
</tr>
<tr>
<td>Vietnam OEL - TWAs</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>OSHA - Final PELS - TWAs:</td>
<td>0.75 ppm</td>
</tr>
<tr>
<td>OSHA - Specifically Regulated Chemicals</td>
<td>2 ppm</td>
</tr>
<tr>
<td></td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.75 ppm</td>
</tr>
<tr>
<td>Poland OEL - TWA</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>Romania OEL - TWA</td>
<td>1 ppm</td>
</tr>
<tr>
<td></td>
<td>1.20 mg/m³</td>
</tr>
<tr>
<td>Slovakia OEL - TWA</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td>Slovenia OEL - TWA</td>
<td>0.37 mg/m³</td>
</tr>
<tr>
<td>Sweden OEL - TWAs</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.62 mg/m³</td>
</tr>
<tr>
<td>Switzerland OEL -TWAs</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td></td>
<td>0.37 mg/m³</td>
</tr>
</tbody>
</table>

### Engineering Controls:
Engineering controls should be used as the primary means to control exposures. Exposure monitoring may be necessary to determine requirements.

### 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:
Safety glasses or goggles

### Skin:
Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.

### 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.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid Solution in multiple-dose vials
Odor: No data available.
Molecular Formula: Mixture
Solvent Solubility: No data available
Water solubility: Components are soluble in water
Water Solubility: No data available
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
Vapor Pressure (kPa): Expected to be negligible
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): Non-flammable
  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 under normal conditions of use.
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 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.
11. TOXICOLOGICAL INFORMATION

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

Formaldehyde
Rat  Oral  LD50  800 mg/kg

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

Formaldehyde
Eye Irritation  Rabbit  Severe
Skin Irritation  Rabbit  Moderate Severe
Skin Sensitization  Positive

Repeated Dose Toxicity: (Duration, Species, Route, Dose, End Point, Target Organ)

Formaldehyde
90 Day(s)  Dog  Inhalation  Not Specified  Lungs
90 Day(s)  Rat  Inhalation  Not Specified  Lungs
90 Day(s)  Monkey  Inhalation  Not Specified  Lungs
90 Day(s)  Rat  Inhalation  15 ppm  LOAEL  Respiratory system

Reproduction & Development Toxicity: (Duration, Species, Route, Dose, End Point, Effect(s))

Formaldehyde
Embryo / Fetal Development  Mouse  Oral  185 mg/kg/day  Not teratogenic, Maternal toxicity
Embryo / Fetal Development  Rat  Inhalation  40 ppm  Not Teratogenic, Maternal Toxicity

Genetic Toxicity: (Study Type, Cell Type/Organism, Result)

Formaldehyde
In Vitro Bacterial Mutagenicity (Ames)  Bacteria  Positive
In Vitro Chromosome Aberration  Rodent  Positive
In Vitro Sister Chromatid Exchange  Rodent  Positive
In Vivo Chromosome Aberration  Not specified  Positive

Carcinogenicity: (Duration, Species, Route, Dose, End Point, Effect(s))

Formaldehyde
2 Year(s)  Rat  Inhalation  6 ppm  LOAEL  Tumors
2 Year(s)  Mouse  Inhalation  15 ppm  LOAEL  Tumors

Carcinogen Status:  See below

Formaldehyde
IARC:  Group 1 (Carcinogenic to Humans)
NTP:  Known Human Carcinogen
OSHA:  Listed
12. ECOLOGICAL INFORMATION

Environmental Overview: The environmental characteristics of this material have not been fully evaluated. 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.

Formaldehyde
Listed

RCRA - U Series Wastes

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
WHOIS hazard class:
Class D, Division 2, Subdivision A
Class D, Division 2, Subdivision B
15. REGULATORY INFORMATION

Formaldehyde
CERCLA/SARA 313 Emission reporting 0.1 %
CERCLA/SARA Hazardous Substances 100 lb
and their Reportable Quantities:
45.4 kg
CERCLA/SARA - Section 302 Extremely Hazardous
Substances EPCRA RQs
CERCLA/SARA - Section 302 Extremely Hazardous
100 lb
500 lb
toxic units

CERCLA/SARA 313 Emission reporting 0.1 %
CERCLA/SARA Hazardous Substances 100 lb
and their Reportable Quantities:
45.4 kg
CERCLA/SARA - Section 302 Extremely Hazardous
Substances EPCRA RQs
CERCLA/SARA - Section 302 Extremely Hazardous
100 lb
500 lb

carcinogen initial date 1/1/88 gas

OSHA - Specifically Regulated Chemicals
Standard for the Uniform Scheduling for Drugs and Poisons:
Schedule 2
Schedule 6

Inventory - United States TSCA - Sect. 8(b)
Present
Australia (AICS):
Present

EU EINECS/ELINCS List
200-001-8

Saponin
CERCLA/SARA 313 Emission reporting Not Listed
California Proposition 65 Not Listed
Australia (AICS):
Present
EU EINECS/ELINCS List
232-462-6

Clostridium haemolyticum
CERCLA/SARA 313 Emission reporting Not Listed
California Proposition 65 Not Listed
EU EINECS/ELINCS List Not Listed

Clostridium sordellii
CERCLA/SARA 313 Emission reporting Not Listed
California Proposition 65 Not Listed
EU EINECS/ELINCS List Not Listed

Clostridium novyi
CERCLA/SARA 313 Emission reporting Not Listed
California Proposition 65 Not Listed
EU EINECS/ELINCS List Not Listed

Aluminum potassium sulfate
CERCLA/SARA 313 Emission reporting Not Listed
California Proposition 65 Not Listed
Australia (AICS):
Present
EU EINECS/ELINCS List Not Listed
15. REGULATORY INFORMATION

Clostridium chauvoei
- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- EU EINECS/ELINCS List: Not Listed

Clostridium perfringens type D
- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- EU EINECS/ELINCS List: Not Listed

Clostridium septicum
- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- EU EINECS/ELINCS List: Not Listed

Clostridium perfringens type C
- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- EU EINECS/ELINCS List: Not Listed

Water, purified
- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- REACH - Annex IV - Exemptions from the obligations of Register: Present
- EU EINECS/ELINCS List: 231-791-2

16. OTHER INFORMATION

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

H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H331 - Toxic if inhaled
H350 - May cause cancer

Carcinogenic: Category 3
T - Toxic
C - Corrosive

R34 - Causes burns.
R40 - Limited evidence of a carcinogenic effect
R43 - May cause sensitization by skin contact.
R23/24/25 - Toxic by inhalation, in contact with skin and if swallowed.
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 3 - Composition / Information on Ingredients. Updated Section 4 - First Aid Measures. Updated Section 5 - Fire Fighting Measures. 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 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