# SAFETY DATA SHEETS

## This SDS packet was issued with item:

078912858

**The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).**

078912822 078912891

# MATERIAL SAFETY DATA SHEET



## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**Pfizer Animal Health**
**Pfizer Inc**
**235 East 42nd Street**
**New York, NY 10017**
**Poison Control Center Phone: 1-866-531-8896**
**Technical Services Phone: 1-800-366-5288**
**Emergency telephone number:**
**CHEMTREC (24 hours): 1-800-424-9300**
**Contact E-Mail:** pfizer-MSDS@pfizer.com

**Pfizer Ltd,**
**Kent**
**CT13 9NJ**
**United Kingdom**
**+00 44 (0)1304 616161**

**Emergency telephone number:**
**ChemSafe (24 hours): +44 (0)208 762 8322**

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

**Trade Name:** UltraChoice 7
**Chemical Family:** Mixture
**Intended Use:** Veterinary Vaccine

## 2. HAZARDS IDENTIFICATION

**Appearance:** Liquid solution in multiple-dose vials
**Signal Word:** WARNING

**Statement of Hazard:** May cause allergic skin reaction.

**Additional Hazard Information:**
**Short Term:** May cause eye and skin irritation. May cause allergic skin reaction . 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.

**EU Indication of danger:** Irritant

**EU Hazard Symbols:**

Xi

**EU Risk Phrases:**
R43 - May cause sensitization by skin contact.

**Australian Hazard Classification (NOHSC):** Hazardous Substance. Non-Hazardous Substance.

**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

**Hazardous**

| Ingredient | CAS Number | EU EINECS/ELINCS List | EU Classification | % |
|---|---|---|---|---|
| Saponin | 8047-15-2 | 232-462-6 | Not Listed | * |
| Formaldehyde | 50-00-0 | 200-001-8 | C;R34<br>Carc. Cat.3;R40<br>R43<br>T;R23/24/25 | 0.1 - 1.0% |
| Trade reg. no. | Proprietary | Not Listed | Not Listed | * |

| Ingredient | CAS Number | EU EINECS/ELINCS List | EU Classification | % |
|---|---|---|---|---|
| Clostridium perfringens type C | NOT ASSIGNED | Not Listed | Not Listed | * |
| Clostridium chauvoei | NOT ASSIGNED | Not Listed | Not Listed | * |
| Clostridium sordellii | NOT ASSIGNED | Not Listed | Not Listed | * |
| Clostridium septicum | NOT ASSIGNED | Not Listed | Not Listed | * |
| Clostridium perfringens type D | NOT ASSIGNED | Not Listed | Not Listed | * |
| Clostridium novyi | NOT ASSIGNED | Not Listed | Not Listed | * |
| Water, purified | 7732-18-5 | 231-791-2 | Not Listed | >90% |

**Additional Information:** * Proprietary
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

**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.

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** As for primary cause of fire.

**Hazardous Combustion Products:** Not known

**Fire Fighting Procedures:** Dike and collect water used to fight fire.

**Fire / Explosion Hazards:** Not applicable

## 6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| **Health and Safety Precautions:** | Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure. |
| **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. |
| **Measures for Environmental Protections:** | Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release. |
| **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

| | |
|---|---|
| **General Handling:** | Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use appropriate personal protective equipment. |
| **Storage Conditions:** | Store under refrigeration in closed container. |
| **Storage Temperature:** | 2-7°C |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

**Formaldehyde**

| | |
|---|---|
| **ACGIH Ceiling Threshold Limit:** | 0.3 ppm |
| **ACGIH - Sensitizer Designation** | Listed |
| **Australia STEL** | 2 ppm<br>2.5 mg/m$^3$ |
| **Australia TWA** | 1 ppm<br>1.2 mg/m$^3$ |
| **Austria OEL - MAKs** | Listed |
| **Bulgaria OEL - TWA** | Listed |
| **Czech Republic OEL - TWA** | Listed |
| **Estonia OEL - TWA** | Listed |
| **Finland OEL - TWA** | Listed |
| **France OEL - TWA** | Listed |
| **Germany (DFG) - MAK** | 0.3 ppm MAK<br>0.37 mg/m$^3$ MAK |
| **Greece OEL - TWA** | Listed |
| **Hungary OEL - TWA** | Listed |
| **Ireland OEL - TWAs** | Listed |
| **Japan - OELs - Ceilings** | 0.2 ppm<br>0.24 mg/m$^3$ |
| **Latvia OEL - TWA** | Listed |
| **Lithuania OEL - TWA** | Listed |
| **Netherlands OEL - TWA** | Listed |
| **OSHA - Final PELS - TWAs:** | 0.75 ppm |
| **OSHA - Specifically Regulated Chemicals** | 0.5 ppm-Action Level<br>0.75 ppm-TWA<br>2 ppm-STEL |
| **Poland OEL - TWA** | Listed |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|---|---|
| **Romania OEL - TWA** | Listed |
| **Slovenia OEL - TWA** | Listed |
| **Sweden OEL - TWAs** | Listed |

See exposure limits for component (s) listed above.

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

**Environmental Exposure Controls:** Refer to specific Member State legislation for requirements under Community environmental legislation.

**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:** Wear protective clothing when working with large quantities. Wash hands and arms thoroughly after handling this material.

**Respiratory protection:** In the event of a spill where the applicable Occupational Exposure Limit (OEL) may be exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures below the OEL.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|---|---|---|---|
| **Physical State:** | Liquid Solution in multiple-dose vials | **Color:** | No data available. |
| **Molecular Formula:** | Mixture | **Molecular Weight:** | Mixture |

**Solubility:** Soluble: Water (based on components)
**pH:** 7.0 +/- 1.5
**Boiling Point (°C):** >100
**Vapor Pressure (kPa):** Expected to be negligible
**Specific Gravity:** 1.0 +/-0.2

**Flash Point (Liquid) (°C):** Non-flammable
**Polymerization:** Will not occur

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable
**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

**General Information:** The antigens included in this product are non-infectious. All have been prepared from killed or inactivated preparations of microorganisms. The primary hazards are due to the formaldehyde content.

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

## 11. TOXICOLOGICAL INFORMATION

**Formaldehyde**
Rat Oral LD50 800 mg/kg

**Inhalation Acute Toxicity** Not determined for this mixture. However, irritation may occur based on effects of individual components.

**Ingestion Acute Toxicity** See Acute toxicity table.

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

**Formaldehyde**
Eye Irritation Rabbit Severe
Skin Irritation Rabbit Moderate Severe

**Skin Irritation / Sensitization** This product contains formaldehyde which is considered to be a skin sensitizer.

**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
9 Day(s) Rat Inhalation 15 ppm LOAEL Respiratory system
Rats exposed to 15 ppm formaldehyde vapor for six hours/day for up to nine days showed an acute cell degeneration, necrosis and inflammation in the nasal cavities. Inhalation exposure to formaldehyde for up to 90 days produced interstitial inflammation in the lungs of dogs, rats, monkeys, rabbits and guinea pigs.

**Chronic Effects/Carcinogenicity** In rats, several inhalation studies have shown that formaldehyde induces squamous-cell carcinomas and necrosis of the nasal cavity. Formaldehyde also showed cocarcinogenic effects when inhaled, ingested, or applied to the skin of rodents.

**Reproduction & Developmental Toxicity: (Study Type, 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

**Reproductive Effects** Not considered to be a reproductive hazard. Intravenous injection of saponins in pregnant rabbits, goats, and cows has caused abortion. Intraperitoneal administration of saponin to pregnant rats produced complete litter resorption at 25 mg/kg/day.

**Teratogenicity** Formaldehyde has been tested by inhalation, oral, and dermal routes and has not been shown to be teratogenic in animals. Intravenous injection of saponins in pregnant rabbits, goats, and cows has caused abortion. Intraperitoneal administration of saponin to pregnant rats produced complete litter resorption at 25 mg/kg/day. Lower doses of 5 and 15 mg/kg/day did not produce adverse effects on pregnancy except for pregnancy prolongation.

**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

**Mutagenicity** Formaldehyde has been reported to be active in many short-term tests, both in vitro and in vivo.

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

## 11. TOXICOLOGICAL INFORMATION

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

**Carcinogen Status:** Contains formaldehyde: potential cancer hazard.

**Formaldehyde**
**IARC:** Group 1
**NTP:** Listed
**OSHA:** Present

## 12. ECOLOGICAL INFORMATION

**Environmental Overview:** The environmental characteristics of this material have not been fully evaluated. Releases to the environment should be avoided.

## 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.

## 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

**EU Symbol:** Xi
**EU Indication of danger:** Irritant

**EU Risk Phrases:**
R43 - May cause sensitization by skin contact.

**EU Safety Phrases:**
S24 - Avoid contact with skin.
S37 - Wear suitable gloves.

## 15. REGULATORY INFORMATION

**OSHA Label:**
WARNING
May cause allergic skin reaction.

**Canada - WHMIS: Classifications**

**WHMIS hazard class:**
Class D, Division 2, Subdivision A

**Saponin**

| | |
|---|---|
| **Australia (AICS):** | Listed |
| **EU EINECS/ELINCS List** | 232-462-6 |

**Water, purified**

| | |
|---|---|
| **Inventory - United States TSCA - Sect. 8(b)** | Listed |
| **Australia (AICS):** | Listed |
| **REACH - Annex IV - Exemptions from the obligations of Register:** | Present |
| **EU EINECS/ELINCS List** | 231-791-2 |

**Formaldehyde**

| | |
|---|---|
| **CERCLA/SARA 313 Emission reporting** | 0.1% de minimis concentration |
| **CERCLA/SARA Hazardous Substances and their Reportable Quantities:** | 100 lb final RQ<br>45.4 kg final RQ |
| **CERCLA/SARA - Section 302 Extremely Hazardous TPQs** | 500 lb TPQ |
| **CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs** | 100 lb |
| **California Proposition 65** | carcinogen, initial date 1/1/88 (gas) |
| **OSHA - Specifically Regulated Chemicals** | 0.5 ppm-Action Level<br>0.75 ppm-TWA<br>2 ppm-STEL |
| **Inventory - United States TSCA - Sect. 8(b)** | Listed |
| **Australia (AICS):** | Listed |
| **Standard for the Uniform Scheduling for Drugs and Poisons:** | Schedule 2<br>Schedule 6 |
| **EU EINECS/ELINCS List** | 200-001-8 |

**Trade reg. no.**

| | |
|---|---|
| **Australia (AICS):** | Listed |

## 16. OTHER INFORMATION

**Text of R phrases mentioned in Section 3**

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:** Pfizer proprietary drug development information. Publicly available toxicity information.

**Reasons for Revision:** Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 13 - Disposal Considerations. Updated Section 15 - Regulatory Information.

**Prepared by:** Product Stewardship Hazard Communications
Pfizer Global Environment, Health, and Safety Operations

Pfizer 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**

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

**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.

| | |
|---|---|
| **Storage** | Store locked up. |
| **Disposal** | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| **Hazard(s) not otherwise classified (HNOC)** | None known. |
| **Supplemental information** | Direct contact with eyes may cause temporary irritation. In the event of accidental injection, an allergic reaction may occur. |

## 3. Composition/information on ingredients

**Mixtures**

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| Water, purified | | 7732-18-5 | >90 |
| Aluminum potassium sulfate | | 7784-24-9 | <5 |
| Formaldehyde | | 50-00-0 | 0.2 |
| Clostridium chauvoei | | NOT ASSIGNED | * |
| Clostridium haemolyticum | | NOT ASSIGNED | * |
| Clostridium novyi | | NOT ASSIGNED | * |
| Clostridium perfringens type C | | NOT ASSIGNED | * |
| Clostridium perfringens type D | | NOT ASSIGNED | * |
| Clostridium septicum | | NOT ASSIGNED | * |
| Clostridium sordellii | | NOT ASSIGNED | * |
| Saponin | | 8047-15-2 | ## |

**Composition comments**

## Trace
* 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 thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses, if present and easy to do. |
| **Ingestion** | 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. |
| **Most important symptoms/effects, acute and delayed** | 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. |
| **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.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

| Components | Type | Value |
|---|---|---|
| Formaldehyde (CAS 50-00-0) | STEL | 2 ppm |
| | TWA | 0.75 ppm |

**US. ACGIH Threshold Limit Values**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminum potassium sulfate (CAS 7784-24-9) | TWA | 1 mg/m3 | Respirable fraction. |
| Formaldehyde (CAS 50-00-0) | Ceiling | 0.3 ppm | |

**US. NIOSH: Pocket Guide to Chemical Hazards**

| Components | Type | Value |
|---|---|---|
| Aluminum potassium sulfate (CAS 7784-24-9) | TWA | 2 mg/m3 |
| Formaldehyde (CAS 50-00-0) | Ceiling | 0.1 ppm |
| | TWA | 0.016 ppm |

**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. |
| **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. |
| **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** May cause an allergic skin reaction.

Formaldehyde — Species: Rabbit; Severity: Moderate to Severe

**Eye contact** Direct contact with eyes may cause temporary irritation.

Formaldehyde — 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 | Species | Test Results |
|---|---|---|
| Formaldehyde (CAS 50-00-0) | | |
| **Acute** | | |
| **Dermal** | | |
| LD50 | Rabbit | 270 mg/kg |
| **Inhalation** | | |
| LC50 | Mouse | 0.414 mg/L, 4 hours |
| | Rat | 0.48 mg/L, 4 hours |
| **Oral** | | |
| LD50 | Rat | 100 mg/kg |
| **Chronic** | | |
| **Inhalation** | | |
| LOAEL | Mouse | 15 ppm, 2 years Tumors |
| | Rat | 15 ppm, 90 days Respiratory system |
| | | 6 ppm, 2 years Tumors |

**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

**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<br>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)<br>Result: Positive<br>Species: Bacteria<br><br>In Vitro Chromosome Aberration<br>Result: Positive<br>Species: Rodent<br><br>In Vitro Sister Chromatid Exchange<br>Result: Positive<br>Species: Rodent<br><br>In Vivo Chromosome Aberration<br>Result: Positive<br>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<br>Maternal toxicity<br>Species: Mouse<br>Organ: Oral<br><br>40 ppm Embryo / Fetal Development, Not Teratogenic<br>Maternal Toxicity<br>Species: Rat<br>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 | | Species | Test Results |
|---|---|---|---|
| Formaldehyde (CAS 50-00-0) | | | |
| | EC50 | Daphnia magna (Water Flea) | 42 mg/L, 24 Hours |
| | LC50 | Oncorhynchus mykiss (Rainbow Trout) | 118 ppm, 96 Hours |
| **Aquatic** | | | |
| Crustacea | EC50 | Water flea (Daphnia pulex) | 4.3 - 7.8 mg/l, 48 hours |
| Fish | LC50 | Striped bass (Morone saxatilis) | 10.302 - 16.743 mg/l, 96 hours |

**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**

| Chemical name | CAS number | Reportable quantity (pounds) | Threshold planning quantity (pounds) | Threshold planning quantity, lower value (pounds) | Threshold planning quantity, upper value (pounds) |
|---|---|---|---|---|---|
| Formaldehyde | 50-00-0 | 100 | 500 | | |

**SARA 311/312 Hazardous chemical** No

**SARA 313 (TRI reporting)**

| Chemical name | CAS number | % by wt. |
|---|---|---|
| Formaldehyde | 50-00-0 | 0.2 |

**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**

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| Australia | Australian Inventory of Chemical Substances (AICS) | No |
| Canada | Domestic Substances List (DSL) | No |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | No |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | No |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | No |
| New Zealand | New Zealand Inventory | No |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | 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** 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.