

# SAFETY DATA SHEET



## 1. Identification

**Product identifier** VANGUARD® crLyme  
**Other means of identification**  
**Synonyms** Borrelia Burgdorferi Extract, Subunit \* Lyme disease vaccine  
**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** 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** 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 | %  |
|--------------------|--------------------------|------------|----|
| Aluminum hydroxide |                          | 21645-51-2 | <5 |
| Sodium chloride    |                          | 7647-14-5  | <5 |

| Chemical name             | Common name and synonyms | CAS number   | %  |
|---------------------------|--------------------------|--------------|----|
| Potassium phosphate       |                          | 7778-77-0    | <1 |
| Borrelia OspA Antigen     |                          | Not Assigned |    |
| Borrelia OspC A12CF       |                          | Not Assigned |    |
| Sodium phosphate, dibasic |                          | 7558-79-4    |    |

**Composition comments** 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

If inhaled, remove to fresh air. If breathing is difficult, trained personnel should give oxygen. If symptoms persist, get medical attention.

##### 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. Wash contaminated clothing before reuse.

##### Eye contact

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention immediately.

##### Ingestion

Rinse mouth. Call a physician or poison control center 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. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. 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.

##### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. If an allergic reaction occurs, the worker should be removed to the nearest emergency room and the appropriate therapy instituted.

##### 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.

#### 5. Fire-fighting measures

##### Suitable extinguishing media

Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

##### Unsuitable extinguishing media

Do not use water jet.

##### Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

##### Special protective equipment and precautions for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus.

##### Fire fighting equipment/instructions

During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

##### Specific methods

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

##### General fire hazards

No unusual fire or explosion hazards noted. This product is a nonflammable aqueous solution.

#### 6. Accidental release measures

##### Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

##### Methods and materials for containment and cleaning up

Ensure adequate ventilation. Remove sources of ignition.

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 contaminated surface thoroughly.

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. Prevent release to the environment. For waste disposal, see section 13 of the SDS.

##### Environmental precautions

Use appropriate containment to avoid environmental contamination.

## 7. Handling and storage

### Precautions for safe handling

Wear appropriate personal protective equipment. Avoid contact with eyes. Avoid contact with skin. Avoid breathing mist or vapor. Avoid accidental injection. Observe good industrial hygiene practices. Wash thoroughly after handling. When using, do not eat, drink or smoke. Handle and open container with care. Avoid release to the environment.

### Conditions for safe storage, including any incompatibilities

Store in a cool, dry place out of direct sunlight. Store at 2-7°C. Prolonged exposure to higher temperatures may adversely affect potency. Do not freeze. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-3 (29 CFR 1910.1000)

| Components                          | Type | Value                | Form                 |
|-------------------------------------|------|----------------------|----------------------|
| Aluminum hydroxide (CAS 21645-51-2) | TWA  | 5 mg/m <sup>3</sup>  | Respirable fraction. |
|                                     |      | 15 mg/m <sup>3</sup> | Total dust.          |
|                                     |      | 50 mppcf             | Total dust.          |
|                                     |      | 15 mppcf             | Respirable fraction. |

#### US. ACGIH Threshold Limit Values

| Components                          | Type | Value               | Form                 |
|-------------------------------------|------|---------------------|----------------------|
| Aluminum hydroxide (CAS 21645-51-2) | TWA  | 1 mg/m <sup>3</sup> | Respirable fraction. |

### Biological limit values

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

### Control banding approach

Not available.

### 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. 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.

##### 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. Whenever excessive air contamination (dust, mist, vapor) is generated, respiratory protection, with appropriate protection factors, should be used to minimize exposure. 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.

#### Thermal hazards

Not applicable.

### General hygiene considerations

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.

## 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Form

Liquid.

#### Color

Light opaque

### Odor

Not available.

### Odor threshold

Not available.

### pH

7 - 7.4

### Melting point/freezing point

Not available.

### Initial boiling point and boiling range

Not available.

### Flash point

Not available.

|   |                 |
|---|-----------------|
| <b>Evaporation rate</b>                             | Not available.  |
| <b>Flammability (solid, gas)</b>                    | Not applicable. |
| <b>Upper/lower flammability or explosive limits</b> |                 |
| <b>Flammability limit - lower (%)</b>               | Not available.  |
| <b>Flammability limit - upper (%)</b>               | Not available.  |
| <b>Explosive limit - lower (%)</b>                  | Not available.  |
| <b>Explosive limit - upper (%)</b>                  | Not available.  |
| <b>Vapor pressure</b>                               | Not available.  |
| <b>Vapor density</b>                                | Not available.  |
| <b>Relative density</b>                             | Not available.  |
| <b>Solubility(ies)</b>                              |                 |
| <b>Solubility (water)</b>                           | Not available.  |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.  |
| <b>Auto-ignition temperature</b>                    | Not available.  |
| <b>Decomposition temperature</b>                    | Not available.  |
| <b>Viscosity</b>                                    | Not available.  |
| <b>Other information</b>                            |                 |
| <b>Explosive properties</b>                         | Not explosive.  |
| <b>Oxidizing properties</b>                         | Not oxidizing.  |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport.  |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.  |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.  |
| <b>Conditions to avoid</b>                | Direct sources of heat. Contact with incompatible materials. Protect from freezing. Avoid exposure to light, sunlight and elevated temperatures. |
| <b>Incompatible materials</b>             | As a precautionary measure, keep away from strong oxidizers.   |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.   |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |  |
|---------------------|--|
| <b>Inhalation</b>   | Under normal conditions of intended use, this material is not expected to be an inhalation hazard. |
| <b>Skin contact</b> | Prolonged skin contact may cause temporary irritation.   |
| Sodium chloride     | Species: Rabbit<br>Severity: Mild  |
| <b>Eye contact</b>  | Direct contact with eyes may cause temporary irritation.   |
| Sodium chloride     | Species: Rabbit<br>Severity: Moderate  |
| <b>Ingestion</b>    | Expected to be a low ingestion hazard.   |

|   |   |
|---|---|
| <b>Symptoms related to the physical, chemical and toxicological characteristics</b> | 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. |
|---|---|

### Information on toxicological effects

#### Acute toxicity

| Components  | Species  | Test Results       |
|---|--|--------------------|
| Sodium chloride (CAS 7647-14-5)                                       |  |                    |
| <b>Acute</b>  |  |                    |
| <b>Oral</b>   |  |                    |
| LD50  | Mouse  | 4000 mg/kg         |
|   | Rat  | 3000 mg/kg         |
| <b>Skin corrosion/irritation</b>                                      | Prolonged skin contact may cause temporary irritation.   |                    |
| <b>Serious eye damage/eye irritation</b>                              | Direct contact with eyes may cause temporary irritation.   |                    |
| <b>Eye Contact</b>  |  |                    |
| Sodium chloride   | Species: Rabbit  | Severity: Moderate |
| <b>Respiratory or skin sensitization</b>                              |  |                    |
| <b>Respiratory sensitization</b>                                      | Based on available data, the classification criteria are not met.  |                    |
| <b>Skin sensitization</b>   | Based on available data, the classification criteria are not met.  |                    |
| <b>Germ cell mutagenicity</b>   | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.                 |                    |
| <b>Carcinogenicity</b>  | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.  |                    |
| <b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>         |  |                    |
| Not listed.   |  |                    |
| <b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b> |  |                    |
| Not regulated.  |  |                    |
| <b>US. National Toxicology Program (NTP) Report on Carcinogens</b>    |  |                    |
| Not listed.   |  |                    |
| <b>Reproductive toxicity</b>  | This product is not expected to cause reproductive or developmental effects.   |                    |
| <b>Specific target organ toxicity - single exposure</b>               | Not classified.  |                    |
| <b>Specific target organ toxicity - repeated exposure</b>             | Not classified.  |                    |
| <b>Aspiration hazard</b>  | Not an aspiration hazard.  |                    |
| <b>Further information</b>  | The antigens included in this product are non-infectious. All have been prepared from attenuated preparations of microorganisms. |                    |

## 12. Ecological information

|                                      |  |                                      |                              |
|--------------------------------------|--|--------------------------------------|------------------------------|
| <b>Ecotoxicity</b>                   | 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. |                                      |                              |
| <b>Components</b>                    |  |                                      |                              |
| Sodium chloride (CAS 7647-14-5)      |  |                                      |                              |
| <b>Aquatic</b>                       |  |                                      |                              |
| Crustacea                            | EC50   | Water flea (Daphnia magna)           | 340.7 - 469.2 mg/l, 48 hours |
| Fish                                 | LC50   | Fathead minnow (Pimephales promelas) | 6020 - 7070 mg/l, 96 hours   |
| <b>Persistence and degradability</b> | No data is available on the degradability of this product.   |                                      |                              |
| <b>Bioaccumulative potential</b>     | No data available.   |                                      |                              |
| <b>Mobility in soil</b>              | No data available.   |                                      |                              |
| <b>Other adverse effects</b>         | 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

|  |  |
|--|--|
| <b>Disposal instructions</b>                 | Avoid release to the environment. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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. |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.   |
| <b>Hazardous waste code</b>                  | None known.  |
| <b>Waste from residues / unused products</b> | 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).   |
| <b>Contaminated packaging</b>                | 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.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium phosphate, dibasic (CAS 7558-79-4) Listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

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

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

### 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)** Not regulated.

**US state regulations**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**International Inventories**

| <b>Country(s) or region</b> | <b>Inventory name</b>  | <b>On inventory (yes/no)*</b> |
|-----------------------------|--|-------------------------------|
| 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** 04-15-2016

**Revision date** 04-27-2017

**Version #** 02

**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.