

## Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle

Virbac (Australia) Pty Limited

Chemwatch Hazard Alert Code: 1

Chemwatch: 5156-20

Issue Date: 05/05/2016

Version No: 2.1.1.1

Print Date: 26/05/2016

Safety Data Sheet according to WHS and ADG requirements

Initial Date: Not Available  
S.GHS.AUS.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

|                                      |   |
|--------------------------------------|---|
| <b>Product name</b>                  | Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle |
| <b>Synonyms</b>                      | APVMA No: 50725   |
| <b>Other means of identification</b> | Not Available   |

#### Relevant identified uses of the substance or mixture and uses advised against

|                                 |   |
|---------------------------------|---|
| <b>Relevant identified uses</b> | Use according to manufacturer's directions. |
|---------------------------------|---|

#### Details of the supplier of the safety data sheet

|                                |   |
|--------------------------------|---|
| <b>Registered company name</b> | Virbac (Australia) Pty Limited              |
| <b>Address</b>                 | 361 Horsly Road Milperra NSW 2214 Australia |
| <b>Telephone</b>               | 1800 242 100                                |
| <b>Fax</b>                     | +61 2 9772 9773                             |
| <b>Website</b>                 | www.virbac.com.au                           |
| <b>Email</b>                   | au_customerservice@virbac.com.au            |

#### Emergency telephone number

|  |                            |
|--|----------------------------|
| <b>Association / Organisation</b>        | Poisons Information Centre |
| <b>Emergency telephone numbers</b>       | 13 11 26                   |
| <b>Other emergency telephone numbers</b> | Not Available              |

### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS.** According to the WHS Regulations and the ADG Code.

#### CHEMWATCH HAZARD RATINGS

|              | Min | Max |              |
|--------------|-----|-----|--------------|
| Flammability | 0   |     |              |
| Toxicity     | 1   |     | 0 = Minimum  |
| Body Contact | 1   |     | 1 = Low      |
| Reactivity   | 0   |     | 2 = Moderate |
| Chronic      | 0   |     | 3 = High     |
|              |     |     | 4 = Extreme  |

|                         |                |
|-------------------------|----------------|
| <b>Poisons Schedule</b> | Not Applicable |
| <b>Classification</b>   | Not Applicable |

#### Label elements

|                           |                |
|---------------------------|----------------|
| <b>GHS label elements</b> | Not Applicable |
|---------------------------|----------------|

|                    |                       |
|--------------------|-----------------------|
| <b>SIGNAL WORD</b> | <b>NOT APPLICABLE</b> |
|--------------------|-----------------------|

#### Hazard statement(s)

Not Applicable

#### Precautionary statement(s) Prevention

Not Applicable

#### Precautionary statement(s) Response

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No        | %[weight] | Name                                       |
|---------------|-----------|--|
| 93384-45-3    | <0.1      | <u>Botulinum toxin C</u>                   |
| 93384-46-4    | <0.1      | <u>Botulinum toxin D</u>                   |
| 54-64-8       | <0.1      | <u>sodium ethylmercuric thiosalicylate</u> |
| Not Available | >60       | Ingredients determined not to be hazardous |

**SECTION 4 FIRST AID MEASURES****Description of first aid measures**

|                     |  |
|---------------------|--|
| <b>Eye Contact</b>  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>  |
| <b>Skin Contact</b> | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>  |
| <b>Inhalation</b>   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>                      |
| <b>Ingestion</b>    | <ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul> |

**Indication of any immediate medical attention and special treatment needed**

For acute and short term repeated exposures to aryl and alkylmethoxy compounds of mercury: Absorption proceeds more rapidly than its inorganic counterpart but once inside the body biotransformation releases inorganic mercury. [Ellenhorn and Barceloux: Medical Toxicology]

- ▶ Treatment of botulinum toxin poisoning involves supportive care and prevention of the progress of the disease.
- ▶ Lavage, emesis, charcoal and cathartics may be useful within 24 hours of ingestion.
- ▶ Equine antitoxin neutralises blood-borne toxin and prevents progression of the disease but does not reverse existing neurological symptoms. Horse-serum sensitivity may be evident in up to 20% of patients.
- ▶ The trivalent antitoxin (ABE) is most frequently administered and is most effective against Type E toxin.

ELLENHORN and BARCELOUX: Medical Toxicology; Diagnosis and Treatment of Human Poisoning, Elsevier 1988

- ▶ The pentavalent antitoxin (ABCDE) is an investigational new drug. Sigma Aldrich
- ▶ At the first signs of bulbar muscle involvement the patient should be hospitalised in an intensive care unit with arrangements made for respiratory assistance. A tracheostomy may be necessary. In the presence of hypoventilation, mechanical assistance to breathing is imperative.
- ▶ Unless paralytic ileus is present, give sodium sulfate by mouth to purge the colon of unabsorbed toxin. High colonic enemas are also recommended. Faecal specimens should be saved for analysis.
- ▶ Equine antitoxin should be given after sensitivity tests are conducted. Epinephrine should be available to counteract sensitivity reactions. Monovalent Type E antitoxin should be reserved exclusively for proved outbreaks of the E type; similar use of bivalent Type AB should be restricted to use against A and/or B type outbreaks.
- ▶ Guanidine hydrochloride (15 to 40 mg/day by mouth) may produce an improvement in ocular muscles. Results are equivocal.
- ▶ Give repeated doses of activated charcoal and possibly cholestyramine by mouth; the toxin is known to persist in the alimentary tract for long periods, possibly as a result of enterohepatic circulation. This procedure is contraindicated in case of severe paralytic ileus.
- ▶ Experiments suggest that blockade at neuromuscular junctions is delayed by cold; a therapeutic trial with hypothermia should be considered.
- ▶ Administer antibiotics at earliest signs of infection. Pneumonia is frequently a proximal cause of death.
- ▶ Give fluids and electrolytes as indicated.

GOSELIN, SMITH and HODGE: Clinical Toxicology of Commercial Products.

**SECTION 5 FIREFIGHTING MEASURES****Extinguishing media**

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

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- ▶ foam.
- ▶ dry chemical powder.
- ▶ carbon dioxide.

### Special hazards arising from the substrate or mixture

|                             |             |
|-----------------------------|-------------|
| <b>Fire Incompatibility</b> | None known. |
|-----------------------------|-------------|

### Advice for firefighters

|                              |  |
|------------------------------|--|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul>  |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ The material is not readily combustible under normal conditions.</li> <li>▶ However, it will break down under fire conditions and the organic component may burn.</li> <li>▶ Not considered to be a significant fire risk.</li> <li>▶ Heat may cause expansion or decomposition with violent rupture of containers.</li> <li>▶ Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> </ul> <p>Decomposes on heating and produces toxic fumes of; carbon dioxide (CO<sub>2</sub>) hydrogen cyanide nitrogen oxides (NO<sub>x</sub>) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.</p> |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

|                     |  |
|---------------------|--|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>   |
| <b>Major Spills</b> | <p>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Neutralise/decontaminate residue (see Section 13 for specific agent).</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul> |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                          |  |
|--------------------------|--|
| <b>Safe handling</b>     | <p>NOTE : Do NOT pipette by mouth. Only trained personnel should be allowed to handle or use this product.</p> <ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ <b>DO NOT allow material to contact humans, exposed food or food utensils.</b></li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling, DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> </ul> |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>  |

### Conditions for safe storage, including any incompatibilities

|                           |  |
|---------------------------|--|
| <b>Suitable container</b> | ▶ Polyethylene or polypropylene container. |
|---------------------------|--|

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|                                |   |
|--------------------------------|---|
|                                | <ul style="list-style-type: none"> <li>▶ Packing as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>   |
| <b>Storage incompatibility</b> | <p>It is suggested that crystalline proteins are explosive as evidenced by the easily induced shattering of microcrystals. This may be a consequence of the implosive collapse of a metastable ordering of molecules (Bretherick's Handbook of Reactive Chemical Hazards). A study was performed to obtain quantitative data on the nature and yields of oxidation products formed by a prototypic oxidant system (HO•/O2) on small peptides, including Val-Gly-Val-Ala-Pro-Gly. Study results indicated that hydroperoxide formation occurred nonrandomly (Pro &gt; Val &gt; Ala &gt; Gly) and that the formation of hydroperoxide was inversely related to carbonyl yields (both peptide-bound and released). Multiple alcohols were generated at both side-chain and backbone sites. Summation of the product concentrations provided clear evidence for the occurrence of chain reactions in peptides exposed to HO•/O2, with the overall product yields exceeding that of the initial HO• generated.</p> |

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control parameters**

**OCCUPATIONAL EXPOSURE LIMITS (OEL)**

**INGREDIENT DATA**

Not Available

**EMERGENCY LIMITS**


| Ingredient  | Material name | TEEL-1        | TEEL-2        | TEEL-3        |
|---|---------------|---------------|---------------|---------------|
| Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle | Not Available | Not Available | Not Available | Not Available |

| Ingredient                                 | Original IDLH | Revised IDLH  |
|--|---------------|---------------|
| Botulinum toxin C                          | Not Available | Not Available |
| Botulinum toxin D                          | Not Available | Not Available |
| sodium ethylmercuric thiosalicylate        | 28 mg/m3      | 10 mg/m3      |
| Ingredients determined not to be hazardous | Not Available | Not Available |

**Exposure controls**

| <b>Appropriate engineering controls</b>  | <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> |                              |   |  |  |   |                                  |  |   |  |                              |
|--|--|------------------------------|---|--|--|---|----------------------------------|--|---|--|------------------------------|
|  | <table border="1"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td>0.25-0.5 m/s (50-100 f/min.)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table>  | Type of Contaminant:         | Air Speed:  | solvent, vapours, degreasing etc., evaporating from tank (in still air). | 0.25-0.5 m/s (50-100 f/min.)                               | aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.)       | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.)                | grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s (500-2000 f/min.) |
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|  | solvent, vapours, degreasing etc., evaporating from tank (in still air).   | 0.25-0.5 m/s (50-100 f/min.) |   |  |  |   |                                  |  |   |  |                              |
|  | aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)  | 0.5-1 m/s (100-200 f/min.)   |   |  |  |   |                                  |  |   |  |                              |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)   | 1-2.5 m/s (200-500 f/min.)   |                              |   |  |  |   |                                  |  |   |  |                              |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).   | 2.5-10 m/s (500-2000 f/min.)   |                              |   |  |  |   |                                  |  |   |  |                              |
| <p>Within each range the appropriate value depends on:</p> <table border="1"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table>  | Lower end of the range   | Upper end of the range       | 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents  | 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity  | 3: Intermittent, low production. | 3: High production, heavy use  | 4: Large hood or large air mass in motion | 4: Small hood-local control only   |                              |
| Lower end of the range   | Upper end of the range   |                              |   |  |  |   |                                  |  |   |  |                              |
| 1: Room air currents minimal or favourable to capture  | 1: Disturbing room air currents  |                              |   |  |  |   |                                  |  |   |  |                              |
| 2: Contaminants of low toxicity or of nuisance value only.   | 2: Contaminants of high toxicity   |                              |   |  |  |   |                                  |  |   |  |                              |
| 3: Intermittent, low production.   | 3: High production, heavy use  |                              |   |  |  |   |                                  |  |   |  |                              |
| 4: Large hood or large air mass in motion  | 4: Small hood-local control only   |                              |   |  |  |   |                                  |  |   |  |                              |
| <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p> |  |                              |   |  |  |   |                                  |  |   |  |                              |

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| <b>Personal protection</b>     |    |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
|--------------------------------|---|-------------------|------------------|-------------------|---------|-----|--------------|----------|-----|-----------|-------|------|-----------|-------|------|-----------|---------------|------|------------|-------------------------------|-----|------------|
| <b>Eye and face protection</b> | <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</li> </ul>   |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| <b>Skin protection</b>         | See Hand protection below   |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| <b>Hands/feet protection</b>   | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.</li> <li>▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.</li> </ul> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>▶ frequency and duration of contact,</li> <li>▶ chemical resistance of glove material,</li> <li>▶ glove thickness and</li> <li>▶ dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>▶ When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>▶ When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>▶ Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>▶ Contaminated gloves should be replaced.</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p><b>WARNING: Do NOT use latex or PVC gloves</b></p> <ul style="list-style-type: none"> <li>▶ In 1997, a researcher (Dr. Karen E. Wetterhahn) died from organic mercury poisoning, resulting from a single exposure to dimethylmercury almost a year before.</li> <li>▶ Heavy metals and organic metal compounds, in particular, have posed special hazards in worker protection. At the time of diagnosis and before she lapsed into a vegetative state, Dr. Wetterhahn asked that her case be made known to others.</li> </ul> <p>Permeation testing of the potential of transdermal exposure to dimethylmercury produced the following results*.</p> <table border="1"> <thead> <tr> <th>Glove material</th> <th>Thickness in mm*</th> <th>Breakthrough Time</th> </tr> </thead> <tbody> <tr> <td>Nitrile</td> <td>0.2</td> <td>0.25 minutes</td> </tr> <tr> <td>Neoprene</td> <td>0.8</td> <td>&lt;10 mins.</td> </tr> <tr> <td>Butyl</td> <td>0.33</td> <td>&lt;15 mins.</td> </tr> <tr> <td>Viton</td> <td>0.28</td> <td>&lt;15 mins.</td> </tr> <tr> <td>Silver Shield</td> <td>0.13</td> <td>&gt;240 mins.</td> </tr> <tr> <td>Silver Shield &amp; Neoprene Pair</td> <td>0.7</td> <td>&gt;240 mins.</td> </tr> </tbody> </table> <p>*Michael B Blayney:<br/>Applied Occupational and Environmental Hygiene: 16, pp 233-236, 2001<br/>* Originally quoted as mil (one mil = 0.001 inches)</p> | Glove material    | Thickness in mm* | Breakthrough Time | Nitrile | 0.2 | 0.25 minutes | Neoprene | 0.8 | <10 mins. | Butyl | 0.33 | <15 mins. | Viton | 0.28 | <15 mins. | Silver Shield | 0.13 | >240 mins. | Silver Shield & Neoprene Pair | 0.7 | >240 mins. |
| Glove material                 | Thickness in mm*  | Breakthrough Time |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Nitrile                        | 0.2   | 0.25 minutes      |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Neoprene                       | 0.8   | <10 mins.         |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Butyl                          | 0.33  | <15 mins.         |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Viton                          | 0.28  | <15 mins.         |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Silver Shield                  | 0.13  | >240 mins.        |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| Silver Shield & Neoprene Pair  | 0.7   | >240 mins.        |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| <b>Body protection</b>         | See Other protection below  |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| <b>Other protection</b>        | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C. apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>   |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |
| <b>Thermal hazards</b>         | Not Available   |                   |                  |                   |         |     |              |          |     |           |       |      |           |       |      |           |               |      |            |                               |     |            |

## Recommended material(s)

## GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle

| Material       | CPI  |
|----------------|------|
| ##hydrochloric | acid |
| ##sulfuric     | acid |
| BUTYL          | C    |
| BUTYL/NEOPRENE | C    |

## Respiratory protection

Type BE-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator   |
|------------------------------------|----------------------|----------------------|--------------------------|
| up to 10 x ES                      | BE-AUS P2            | -                    | BE-PAPR-AUS / Class 1 P2 |
| up to 50 x ES                      | -                    | BE-AUS / Class 1 P2  | -                        |

|                   |           |
|-------------------|-----------|
| HYPALON           | C         |
| NAT+NEOPR+NITRILE | C         |
| NATURAL RUBBER    | C         |
| NATURAL+NEOPRENE  | C         |
| NEOPRENE          | C         |
| NEOPRENE/NATURAL  | C         |
| NITRILE           | C         |
| NITRILE+PVC       | C         |
| PE                | C         |
| PE/EVAL/PE        | C         |
| PVA               | C         |
| PVC               | C         |
| SARANEX-23        | C         |
| SARANEX-23 2-PLY  | C         |
| TEFLON            | C         |
| VITON             | C         |
| VITON/CHLOROBUTYL | C         |
| VITON/NEOPRENE    | C         |
| ##sodium          | hydroxide |

|                |   |         |                |
|----------------|---|---------|----------------|
| up to 100 x ES | - | BE-2 P2 | BE-PAPR-2 P2 ^ |
|----------------|---|---------|----------------|

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|   |                                 |  |                |
|---|---------------------------------|--|----------------|
| <b>Appearance</b>                                   | Clear liquid; mixes with water. |  |                |
| <b>Physical state</b>                               | Liquid                          | <b>Relative density (Water = 1)</b>            | Not Available  |
| <b>Odour</b>  | Not Available                   | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available                   | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | Not Available                   | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | Not Available                   | <b>Viscosity (cSt)</b>                         | Not Available  |
| <b>Initial boiling point and boiling range (°C)</b> | Not Available                   | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | Not Available                   | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Available                   | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Available                   | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Available                   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Available  |
| <b>Lower Explosive Limit (%)</b>                    | Not Available                   | <b>Volatile Component (%vol)</b>               | Not Available  |
| <b>Vapour pressure (kPa)</b>                        | Not Available                   | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water (g/L)</b>                    | Miscible                        | <b>pH as a solution (1%)</b>                   | Not Available  |
| <b>Vapour density (Air = 1)</b>                     | Not Available                   | <b>VOC g/L</b>                                 | Not Available  |

## SECTION 10 STABILITY AND REACTIVITY

|   |  |
|---|--|
| <b>Reactivity</b>                         | See section 7  |
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| <b>Possibility of hazardous reactions</b> | See section 7  |
| <b>Conditions to avoid</b>                | See section 7  |
| <b>Incompatible materials</b>             | See section 7  |

**Hazardous decomposition products**

See section 5

**SECTION 11 TOXICOLOGICAL INFORMATION****Information on toxicological effects**

|                     |   |
|---------------------|---|
| <b>Inhaled</b>      | Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.<br>There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.   |
| <b>Ingestion</b>    | Accidental ingestion of the material may be damaging to the health of the individual.   |
| <b>Skin Contact</b> | Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.<br>There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.  |
| <b>Eye</b>          | Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).  |
| <b>Chronic</b>      | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.<br>There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.<br>There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.<br>Dusts produced by proteins can sometimes sensitise workers like other foreign bodies. Symptoms include asthma appearing soon after exposure, with wheezing, narrowing of the airways and breathing difficulties. |

|  |  |                             |
|--|--|-----------------------------|
| <b>Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle</b> | <b>TOXICITY</b>                          | <b>IRRITATION</b>           |
|  | Not Available                            | Not Available               |
| <b>Botulinum toxin C</b>   | <b>TOXICITY</b>                          | <b>IRRITATION</b>           |
|  | Not Available                            | Nil reported                |
| <b>Botulinum toxin D</b>   | <b>TOXICITY</b>                          | <b>IRRITATION</b>           |
|  | Not Available                            | Nil reported                |
| <b>sodium ethylmercuric thiosalicylate</b>                                 | <b>TOXICITY</b>                          | <b>IRRITATION</b>           |
|  | Oral (rat) LD50: 75 mg/kg <sup>[2]</sup> | Eye (rabbit): 0.008 mg mild |

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

|  |   |
|--|---|
| <b>SODIUM ETHYLMERCURIC THIOSALICYLATE</b> | The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.<br>Tumorigenic - neoplastic by RTECS criteria |
|--|---|

|  |   |                                 |   |
|--|---|---------------------------------|---|
| <b>Acute Toxicity</b>                    | ☉ | <b>Carcinogenicity</b>          | ☉ |
| <b>Skin Irritation/Corrosion</b>         | ☉ | <b>Reproductivity</b>           | ☉ |
| <b>Serious Eye Damage/Irritation</b>     | ☉ | <b>STOT - Single Exposure</b>   | ☉ |
| <b>Respiratory or Skin sensitisation</b> | ☉ | <b>STOT - Repeated Exposure</b> | ☉ |
| <b>Mutagenicity</b>                      | ☉ | <b>Aspiration Hazard</b>        | ☉ |

**Legend:** ✗ - Data available but does not fill the criteria for classification  
✔ - Data required to make classification available  
☉ - Data Not Available to make classification

**SECTION 12 ECOLOGICAL INFORMATION****Toxicity**

| Ingredient    | Endpoint       | Test Duration (hr) | Species        | Value          | Source         |
|---------------|----------------|--------------------|----------------|----------------|----------------|
| Not Available | Not Applicable | Not Applicable     | Not Applicable | Not Applicable | Not Applicable |

**Legend:**

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT** discharge into sewer or waterways.

**Persistence and degradability**

| Ingredient | Persistence: Water/Soil               | Persistence: Air                      |
|------------|---------------------------------------|---------------------------------------|
|            | No Data available for all ingredients | No Data available for all ingredients |

Continued...



**Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle**

**Bioaccumulative potential**

| Ingredient | Bioaccumulation                       |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

**Mobility in soil**

| Ingredient | Mobility                              |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

**SECTION 13 DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

| Product / Packaging disposal |  |
|------------------------------|--|
|                              | <ul style="list-style-type: none"> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Management Authority for disposal.</li> <li>▶ Bury residue in an authorised landfill.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |

**SECTION 14 TRANSPORT INFORMATION**

**Labels Required**

|                  |                |
|------------------|----------------|
| Marine Pollutant | NO             |
| HAZCHEM          | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 REGULATORY INFORMATION**

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**BOTULINUM TOXIN C(93384-45-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Not Applicable

**BOTULINUM TOXIN D(93384-46-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Not Applicable

**SODIUM ETHYLMERCURIC THIOSALICYLATE(54-64-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Inventory of Chemical Substances (AICS)

| National Inventory            | Status   |
|-------------------------------|--|
| Australia - AICS              | N (Botulinum toxin C; Botulinum toxin D)   |
| Canada - DSL                  | N (Botulinum toxin C; Botulinum toxin D)   |
| Canada - NDSL                 | N (Botulinum toxin C; sodium ethylmercuric thiosalicylate; Botulinum toxin D)  |
| China - IECSC                 | N (Botulinum toxin C; Botulinum toxin D)   |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | N (Botulinum toxin C; sodium ethylmercuric thiosalicylate; Botulinum toxin D)  |
| Korea - KECI                  | N (Botulinum toxin C; Botulinum toxin D)   |
| New Zealand - NZIoC           | N (Botulinum toxin C; Botulinum toxin D)   |
| Philippines - PICCS           | N (Botulinum toxin C; Botulinum toxin D)   |
| USA - TSCA                    | N (Botulinum toxin C; Botulinum toxin D)   |
| <b>Legend:</b>                | Y = All ingredients are on the inventory<br>N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) |

**SECTION 16 OTHER INFORMATION**

**Other information**



## Websters Low Volume Bivalent Botulinum Vaccine for Sheep and Cattle

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net](http://www.chemwatch.net)

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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