Non WHO Reference Material
Diphtheria and Tetanus Antitoxin, Guinea Pig Serum
NIBSC code: 98/572
Instructions for use
(Version 6.0, Dated 04/12/2012)

This material is not for in vitro diagnostic use.

1. INTENDED USE
This material is prepared from the pooled serum of 140 guinea pigs, female DH strain. Each guinea pig was immunised sub-cutaneously (s.c.) with 1.0 ml of 1:1 formulated mixture containing diphtheria and tetanus toxoids, adsorbed. Liquid formulations used in preparation of the 3rd International Standard for Diphtheria Toxoid, Adsorbed (98/560) [1] and the 3rd International Standard for Tetanus Toxoid, Adsorbed (98/552) [2] were used. Animals were terminally bled 6 weeks post immunisation and stable freeze-dried material was prepared using 0.5 ml of original serum per ampoule.

This material is suitable for use as a reference antiserum for measurement of diphtheria and tetanus antitoxin in guinea pig serum using appropriate serological methods [3, 4].

2. CAUTION
This preparation is not for administration to humans or animals in the human food chain

The material is not of human or bovine origin. As with all materials of biological origin, this preparation should be regarded as potentially hazardous to health. It should be used and discarded according to your own laboratory's safety procedures. Such safety procedures should include the wearing of protective gloves and avoiding the generation of aerosols. Care should be exercised in opening ampoules or vials, to avoid cuts.

3. UNITAGE
Each ampoule contains 3 International Units of diphtheria antitoxin as measured in vivo toxin neutralisation method against the 3rd International Standard for Diphtheria Antitoxin, equine (DI) i.e. passive protection in guinea pigs. Calibration was confirmed in 4 different laboratories with a mean estimate of 3.1 IU/ampoule (range 2.5 – 3.7 IU/ampoule) of diphtheria antitoxin. Each ampoule contains 3.5 International Units of tetanus antitoxin as measured by in vivo toxin neutralisation method against the 1st International Standard for Tetanus Antitoxin, human (TE-3) i.e passive protection in mice. Calibration was confirmed in 5 different laboratories with a mean estimate of 3.5 IU/ampoule (range 2.7 – 4.3 IU/ampoule) of tetanus antitoxin.

Units assigned to this material were valid at the time of manufacture and there is no data available on long term stability. However, dried serum standards are expected to undergo negligible loss of activity during long term storage at the indicated storage temperature [5].

4. CONTENTS
Country of origin of biological material: United Kingdom.
Each ampoule contains the freeze-dried residue of 0.5 ml of pooled guinea pig antiserum.

5. STORAGE
Unopened ampoules should be stored at -20°C.

Please note: because of the inherent stability of lyophilized material, NIBSC may ship these materials at ambient temperature.

6. DIRECTIONS FOR OPENING
DIN ampoules have an ‘easy-open’ coloured stress point, where the narrow ampoule stem joins the wider ampoule body. Tap the ampoule gently to collect the material at the bottom (labeled) end. Ensure that the disposable ampoule safety breaker provided is pushed down on the stem of the ampoule and against the shoulder of the ampoule body. Hold the body of the ampoule in one hand and the disposable ampoule breaker covering the ampoule stem between the thumb and first finger of the other hand. Apply a bending force to open the ampoule at the coloured stress point, primarily using the hand holding the plastic collar. Care should be taken to avoid cuts and projectile glass fragments that might enter the eyes, for example, by the use of suitable gloves and an eye shield. Take care that no material is lost from the ampoule and no glass falls into the ampoule. Within the ampoule is dry nitrogen gas at slightly less than atmospheric pressure. A new disposable ampoule breaker is provided with each DIN ampoule.

7. USE OF MATERIAL
No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution.
For practical purposes each ampoule contains the same quantity of diphtheria and tetanus antitoxin. The entire contents of each ampoule should be completely dissolved in an accurately measured amount (1.0 ml) of sterile distilled water and the solution kept cool (e.g. 4°C) prior to use. It is recommended that the solution, not for immediate use, is stored at -20°C or below. Repeated freeze thawing should be avoided. The ampoules contain no bacteriostat and the preparations should not be assumed to be sterile.

8. STABILITY
Reference materials are held at NIBSC within assured, temperature-controlled storage facilities. Reference Materials should be stored on receipt as indicated on the label. Units assigned to this material were valid at the time of calibration and there is no data available on long term stability. However, freeze-dried serum standards are expected to undergo negligible loss of activity during long term storage at the indicated storage temperature [5].

In-house stability monitoring (diphtheria IgG by ELISA) suggests that once reconstituted, aliquots stored at -20°C will remain stable for up to 12 months. However, users are encouraged to determine the stability of the material according to their own method of preparation, storage and use.

Users who have data supporting any changes in the characteristics of this material are encouraged to contact NIBSC.

9. REFERENCES

10. ACKNOWLEDGEMENTS
N/A.

11. FURTHER INFORMATION
Further information can be obtained as follows; This material: enquiries@nibsc.org
WHO Biological Standards:

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12. CUSTOMER FEEDBACK
Customers are encouraged to provide feedback on the suitability or use of the material provided or other aspects of our service. Please send any comments to enquiries@nibsc.org

13. CITATION
In all publications, including data sheets, in which this material is referenced, it is important that the preparation's title, its status, the NIBSC code number, and the name and address of NIBSC are cited and cited correctly.

14. MATERIAL SAFETY SHEET
Classification in accordance with Directive 2000/54/EC, Regulation (EC) No 1272/2008: Not applicable or not classified

<table>
<thead>
<tr>
<th>Physical and Chemical properties</th>
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<tbody>
<tr>
<td>Physical appearance: Freeze-dried</td>
<td>Corrosive: No</td>
</tr>
<tr>
<td>Stable: Yes</td>
<td>Oxidising: No</td>
</tr>
<tr>
<td>Hygroscopic: Yes</td>
<td>Irritant: No</td>
</tr>
<tr>
<td>Flammable: No</td>
<td>Handling: See caution, Section 2</td>
</tr>
<tr>
<td>Other (specify):</td>
<td></td>
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<tr>
<td>Contains material of animal origin</td>
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</tbody>
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Toxicological properties

Effects of inhalation: Not established, avoid inhalation
Effects of ingestion: Not established, avoid ingestion
Effects of skin absorption: Not established, avoid contact with skin

Suggested First Aid

Inhalation: Seek medical advice
Ingestion: Seek medical advice
Contact with eyes: Wash with copious amounts of water. Seek medical advice
Contact with skin: Wash thoroughly with water.

Action on Spillage and Method of Disposal

Spillage of ampoule contents should be taken up with absorbent material wetted with an appropriate disinfectant. Rinse area with an appropriate disinfectant followed by water. Absorbent materials used to treat spillage should be treated as biological waste.

15. LIABILITY AND LOSS
In the event that this document is translated into another language, the English language version shall prevail in the event of any inconsistencies between the documents.

 Unless expressly stated otherwise by NIBSC, NIBSC's Standard Terms and Conditions for the Supply of Materials (available at http://www.nibsc.org/About_Us/Terms_and_Conditions.aspx or upon request by the Recipient) ("Conditions") apply to the exclusion of all other terms and are hereby incorporated into this document by reference. The Recipient's attention is drawn in particular to the provisions of clause 11 of the Conditions.

16. INFORMATION FOR CUSTOMS USE ONLY

| Country of origin for customs purposes*: United Kingdom |
| Net weight: 0.5 ml |
| Toxicity Statement: Non-toxic |
| Veterinary certificate or other statement if applicable: |
| Attached: No |

* Defined as the country where the goods have been produced and/or sufficiently processed to be classed as originating from the country of supply, for example a change of state such as freeze-drying.

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WHO International Laboratory for Biological Standards, UK Official Medicines Control Laboratory