WHO International Standard
Second International Standard for anti-hepatitis B surface antigen (anti-HBs) immunoglobulin, human
NIBSC code: 07/164
Instructions for use
(Version 1.0, Dated 22/10/2008)

1. INTENDED USE

Hepatitis B immunoglobulins are produced in many countries and the minimum potency requirements and potencies of individual batches are expressed in International Units (IU). This material is also used in diagnostic assays to determine the antibody content of sera from naturally infected individuals and vaccinees. The unitage indicative of seroconversion and sero-protection and the unitage indicative of long-term protection is also given in IU.

The candidate standard was assessed for suitability and calibrated in IU in a collaborative study in which 22 participants from 12 countries participated. The participants assayed the candidate standard and the First IS (W1042) on 19 different assay kits.

Stocks of this material are being shared with the Center for Biologics Evaluation and Research of the United States Food and Drug Administration, Bethesda, MD, USA for distribution as the new CBER/FDA standard for hepatitis B immunoglobulin, Lot 3.*

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

The preparation contains material of human origin, and either the final product or the source materials, from which it is derived, have been tested and found negative for HBsAg, anti-HIV and HCV RNA. 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
The unitage assigned to this material is 100 IU/ampoule

4. CONTENTS
Country of origin of biological material: United States.
Each ampoule contains the freeze dried residue of 1.0 ml human immunoglobulin. The candidate standard has been prepared from a bulk of 5% hepatitis B immunoglobulin. 1ml aliquots of this bulk were filled in DIN ampoules and freeze dried at NIBSC following documented procedures. This fill was 1.0g fill weight with a mean dry weight of 0.0715g. The coefficient of variation (CV) was 0.31%. Residual moisture measured on 10 samples gave a mean of 0.17% with a CV of 19.92% and oxygen immeasured in the headspace of 12 ampoules, gave a mean of 0.51% with a CV of 12.77%.

5. STORAGE
The ampoules should be stored at -20°C or below until use.
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. Various types of ampoule breaker are available commercially. To open the ampoule, tap the ampoule gently to collect material at the bottom (labelled) end and follow manufactures instructions provided with the ampoule breaker.

7. USE OF MATERIAL
No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution

Reconstitute the contents of each ampoule by the addition of 1.0ml distilled water. Shake gently without the formation of foam to ensure that all contents are reconstituted.

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.

Stability studies on reconstituted material are in progress. In the meantime, users should determine the stability of reconstituted material according to their own method of preparation, storage and use. However, multiple freeze/thaw cycles should be avoided.

NIBSC follows the policy of WHO with respect to its reference materials.

9. REFERENCES

10. ACKNOWLEDGEMENTS

11. FURTHER INFORMATION
Further information can be obtained as follows;
This material: enquiries@nibsc.org
WHO Biological Standards: http://www.who.int/biologicals/en/
Derivation of International Units: http://www.nibsc.org/standardsinternational/international_standards.aspx
NIBSC Terms & Conditions: http://www.nibsc.org/terms_and_conditions.aspx

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.
Physical and Chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical appearance: Freeze dried</td>
<td>No</td>
</tr>
<tr>
<td>Stable:</td>
<td>Yes</td>
</tr>
<tr>
<td>Hygroscopic:</td>
<td>No</td>
</tr>
<tr>
<td>Flammable:</td>
<td>No</td>
</tr>
<tr>
<td>Other (specify):</td>
<td>Contains human immunoglobulin</td>
</tr>
</tbody>
</table>

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: 1.0 g
- Toxicity Statement: Non-toxic
- Veterinary certificate or other statement if applicable: No
- Attached: No

17. CERTIFICATE OF ANALYSIS

NIBSC does not provide a Certificate of Analysis for WHO Biological Reference Materials because they are internationally recognised primary reference materials fully described in the instructions for use. The reference materials are established according to the WHO Recommendations for the preparation, characterization and establishment of international and other biological reference standards http://www.who.int/bloodproducts/publications/TRS932Annex2_Inter_biol esstandardsrev2004.pdf (revised 2004). They are officially endorsed by the WHO Expert Committee on Biological Standardization (ECBS) based on the report of the international collaborative study which established their suitability for the intended use.