



**CE Marked Material**  
**3rd BRITISH STANDARD 2017**  
**Anti-D (Rho) Antibodies**  
**NIBSC code: 73/517**  
**Instructions for use**  
**(Version 6.0, Dated 30/03/2020)**

0.23% residual moisture  
0.06% oxygen  
pure dry nitrogen

**This material is an 'Annex II List B' IVD and complies with the requirements of the "EU in vitro diagnostic medical device directive 98/79/EC".**

### 1. INTENDED USE

**This product is CE marked for use as an IVD within the UK, EU member states and EEA countries. In all other territories this product can be used for research purposes only.**

The 3rd British Standard for Anti-D (Rh<sub>0</sub>) Antibodies consists of ampoules, coded 73/517, containing the freeze-dried residue of approximately 0.5 ml of pooled human defibrinated plasma. Each ampoule of the Standard contains 11.5 International Units of anti-D antibody.

This Standard replaces the 2nd British Standard (73/515) and was derived from the same plasma pool. Although the replacement Standard was freeze-dried separately from the 2nd British Standard, it has the same assigned potency of 11.5 IU per ampoule.

The Standard is intended for use in the assay of plasma anti-D levels by automated haemagglutination. It is not for use in the calibration of individual laboratory standards, nor for the measurement of anti-D concentration in immunoglobulin preparations, nor as a blood grouping reagent. It is the user's responsibility to ensure the suitability of their procedures for assay of anti-D.

### 2. CAUTION

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

The preparation contains material of human origin. It was prepared from a pool of human defibrinated plasma in 1973; the donors were not individually tested for HBsAg, anti-HIV 1+2 and anti-HCV. The freeze-dried preparation was tested and found negative for HBsAg, anti-HIV antibody (WellcozymeR) and HCV RNA by PCR when such tests became available. However as with all preparations of human origin, the preparation cannot be assumed to be free from infectious agents. Suitable precautions should be undertaken in the use and disposal of the ampoule and its contents.

In the case of preparation of a replacement standard from new donations, there would be a requirement that individual donations would be tested and found negative for HBsAg, anti-HIV 1+2 and anti-HCV.

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

11.5 IU/ampoule.

### 4. CONTENTS

Country of origin of biological material: United Kingdom.

The Standard was prepared from 2 litres of plasma derived from a master pool of 23 litres of plasma. The plasma was recalcified, and excess calcium absorbed on an ion-exchange resin. The solution was filtered through 0.45 µ Millipore membranes and stored under sterile conditions before distribution into ampoules (0.5 mL/ampoule) and freeze-drying. Each ampoule contains approximately:  
37.4 mg dry solids

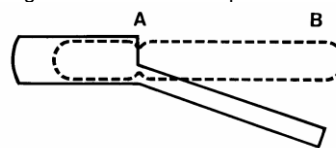
Three batches of the master pool of plasma above were lyophilised and calibrated in terms of the 1st International Standard for Anti-Rho (Anti-D) Incomplete Blood-Typing Serum Human (Coded 64/16) in a collaborative study involving five UK regional Blood Transfusion Centres. Assays were carried out using automated haemagglutination. There were no significant differences between the potencies or slopes of the log dose response lines for the 3 batches; the results of all assays on all batches were combined to give a mean potency of 11.5 International Units of anti-D antibody per ampoule, with 95% confidence limits of 11.0-12.1 International Units. One batch (72/229) was subsequently established as the 1st British Standard for anti-D antibodies. When stocks of 72/229 ran low, it was proposed that the second batch, coded 73/515, replace 72/229. Four laboratories estimated the potencies of 72/229 and 73/515 relative to the International Standard. The results showed that 72/229 and 73/515 were indistinguishable, as found in the original collaborative study. Although the mean potencies of 72/229 and 73/515 were slightly lower than the potencies assigned in the original collaborative study (10.0 IU/ampoule compared to 11.5 IU/ampoule), the individual potency estimates all fell within the range of potency estimates in the original collaborative study (9.5 – 15.0 IU/ampoule). To ensure continuity, it was proposed that 73/515 become the 2nd British Standard with an assigned potency of 11.5 IU/ampoule and was adopted in 1992. When stocks of 73/515 ran low, it was proposed that the third batch, coded 73/517, replace 73/515. The results from an additional collaborative study involving three laboratories showed that 73/517 was of equivalent potency to the 2nd British Standard, with estimates for 73/517 (relative to the 2nd British Standard) ranging from 10 to 13 IU/ampoule and a combined potency of 11.6 IU/ampoule with 95% confidence limits of 10.5-12.8. To ensure continuity, it was proposed that 73/517 become the 3rd British Standard with an assigned potency of 11.5 IU/ampoule and was adopted in 2017.

### 5. STORAGE

Store unopened ampoules at -20°C or below.

### 6. DIRECTIONS FOR OPENING

Tap the ampoule gently to collect the material at the bottom (labelled) end. Ensure ampoule is scored all round at the narrow part of the neck, with a diamond or tungsten carbide tipped glass knife file or other suitable implement before attempting to open. Place the ampoule in the ampoule opener, positioning the score at position 'A'; shown in the diagram below. Surround the ampoule with cloth or layers of tissue paper. Grip the ampoule and holder in the hand and squeeze at point 'B'. The ampoule will snap open. Take care to avoid cuts and projectile glass fragments that enter eyes. Take care that no material is lost from the ampoule and that no glass falls into the ampoule.



Side view of ampoule opening device containing an ampoule positioned ready to open. 'A' is the score mark and 'B' the point of applied pressure.

### 7. USE OF MATERIAL

**No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution**

The recommended procedure is to dissolve the entire contents of the ampoule in 1.0 mL of 8.5-9.0 g/L sodium chloride containing 5 g/L bovine albumin, then dilute to 50 mL with the same solution (wash the ampoule out well with diluent to recover all the material). This solution may be stored for



up to 3 months in aliquots at -40°C [1]. Aliquots should not be re-frozen after use.

The Standard has been calibrated in terms of the 1st International Standard for Anti-Rh<sub>0</sub> (Anti-D) Incomplete Blood-Typing Serum Human (code 64/16) in a collaborative study involving five UK regional Blood Transfusion Centres and a potency of 11.5 International Units per ampoule was assigned. More recently, the potency of this Standard has been confirmed in a collaborative study involving 3 UK regional Blood Transfusion Centres by calibration in terms of the 2nd British Standard for Anti-D (Rho) Antibodies (73/515). Results from the recent collaborative study confirmed the assigned potency of 11.5 International Units per ampoule. In both collaborative studies, assays were carried out by automated haemagglutination.

#### 8. STABILITY

Accelerated degradation studies indicated that this standard is suitably stable, when stored at -20°C or below, for the assigned value to remain valid until the expiry date of the standard (<0.01% loss of activity per year predicted for 73/517 when stored at -20°C).

These studies also indicated that the standard is suitably stable for shipment at ambient temperature without any effect on the assigned value (1.20% loss of activity per year predicted for 73/517 when stored at +20°C)

Expiry Date: 01 October 2026

Users who have data supporting any deterioration in the characteristics of any reference preparation are encouraged to contact NIBSC.

#### 9. REFERENCES

1. HH Gunson, personal communication.
2. Fox, B., Hockley, J. and Studholme, L. (2019), The British Standard for (European Conformity[CE] Marked) Anti-D: Its rarely discussed but important role in quantitating anti-D in patient plasma. *Transfusion Med.* doi:10.1111/tme.12649

#### 10. ACKNOWLEDGEMENTS

EC REP: Advena Ltd. Tower Business Centre, 2nd Flr., Tower Street, Swatar, BKR 4013 Malta.

We thank the participants of the collaborative studies.

#### 11. FURTHER INFORMATION

Further information can be obtained as follows;  
This material: enquiries@nibsc.org  
WHO Biological Standards:  
<http://www.who.int/biologicals/en/>  
JCTLM Higher order reference materials:  
<http://www.bipm.org/en/committees/jc/jctlm/>  
Derivation of International Units:  
[http://www.nibsc.org/standardisation/international\\_standards.aspx](http://www.nibsc.org/standardisation/international_standards.aspx)  
Ordering standards from NIBSC:  
<http://www.nibsc.org/products/ordering.aspx>  
NIBSC Terms & Conditions:  
[http://www.nibsc.org/terms\\_and\\_conditions.aspx](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.

#### 14. MATERIAL SAFETY SHEET

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

Physical and Chemical properties	
Physical appearance: Lyophilisate	Corrosive: No
Stable: Yes	Oxidising: No
Hygroscopic: No	Irritant: No
Flammable: No	Handling: See caution, Section 2
Other (specify): Contains material of human origin	
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 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](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

<b>Country of origin for customs purposes*:</b> United Kingdom
* 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.
<b>Net weight:</b> 0.04g
<b>Toxicity Statement:</b> Toxicity not assessed
<b>Veterinary certificate or other statement</b> if applicable.
<b>Attached:</b> No