



**WHO International Standard
WHO 1st International Standard ADAMTS13 Plasma
NIBSC code: 12/252
Instructions for use
(Version 1.0, Dated 17/12/2014)**

1. INTENDED USE

The WHO 1st International Standard for ADAMTS13 in plasma was established by the Expert Committee on Biological Standardisation of the World Health Organisation in 2014 and details of the preparation and value assignment are available in document WHO/BS/2014.2246 available from this address:

http://www.who.int/biologicals/BS_2246_IS_ADAMTS13.pdf?ua=1

The preparation consists of glass ampoules (coded 12/252) containing 1 ml aliquots of pooled normal human plasma, freeze-dried. The International Standard (IS) has values assigned for ADAMTS13 function and antigen.

The standard is intended to be used for the estimation of these analytes in human plasma.

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 assigned values were determined by comparison relative to locally collected pooled normal human plasma in an international collaborative study involving 32 laboratories in 14 countries. The overall mean values assigned to each ampoule of the WHO 1st IS are as follows:

ADAMTS13 function	0.91 IU per ampoule
ADAMTS13 antigen	0.92 IU per ampoule

Uncertainty: the assigned unitage does not carry an uncertainty associated with its calibration. The uncertainty may therefore be considered to be the variance of the ampoule content and was determined to be +/- 0.245%.

4. CONTENTS

Country of origin of biological material: United Kingdom.

The WHO 1st IS was prepared at the National Institute for Biological Standards and Control in February 2013 from a pool of 10.2 litres of plasma collected from 38 normal healthy donors. Blood was collected by conventional venepuncture into citrate-phosphate-dextrose-adenine anticoagulant. Each donation underwent leuco-filtration before being centrifuged twice to remove all cellular components. The units were then frozen and stored at -70°C. Plasma was thawed on the day of filling, pooled and then buffered by the addition of HEPES (N-[2-Hydroxyethyl]piperazine-N'-[2-ethanesulfonic acid]) to a final concentration of 40 mmol/l. One ml of the pooled plasma was dispensed into each of approximately 10,200 ampoules. Freeze-drying was performed in accordance with the conditions required for International Standards (1). The mean liquid filling weight was 1.0079g and the coefficient of variation was 0.245% based on 420 check-weight ampoules. Mean residual moisture after freeze-drying was 0.35% (n=12). Mean oxygen concentration in the headspace was 0.29% (n=12).

5. STORAGE

Unopened ampoules should be stored in the dark at -20°C or below.

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

Dissolve the total contents of the ampoule by adding 1.0 ml of distilled water, using gentle shaking, then transfer the contents to a plastic tube. Studies have shown the reconstituted standard to be stable for up to 4 hours when kept on melting ice, however, it is recommended that assays be carried out as soon as possible after reconstitution is complete. It is not recommended that frozen aliquots are used.

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.

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

9. REFERENCES

1. Campbell PJ. Procedures for the production of biological standards and reference preparations. *Journal of Biological Standardization* (1974) 2, 259-267.

10. ACKNOWLEDGEMENTS

Are made to the participants in the collaborative study, to the staff of the Centre for Biological Reference Materials (NIBSC) and to the chair and members of the SSC/ISTH sub-committee for von Willebrand factor for their support.

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

Ordering standards from NIBSC:

<http://www.nibsc.org/products/ordering.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.

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.

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: Solid	Corrosive: No
Stable: Yes	Oxidising: No
Hygroscopic: Yes	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 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 * 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.
Net weight: 0.079 g
Toxicity Statement: Non-toxic
Veterinary certificate or other statement if applicable.
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_bi_olefstandardsrev2004.pdf (revised 2004). They are officially endorsed