



**WHO International Standard**  
**1st International Standard for MAPREC analysis of poliovirus type 2 (Sabin)**  
**NIBSC code: 97/758**  
**Instructions for use**  
**(Version 4.0, Dated 25/03/2008)**

### 1. INTENDED USE

This WHO International Standard was established by the WHO Expert Committee on Biological Standardisation at its 2003 meeting†.

It is the primary biological standard for the MAPREC assay of polio virus type 2 (Sabin). Preparation 97/758 is intended to be used as a concurrently tested reference to determine whether a monovalent poliovirus type 2 (Sabin) bulk passes or fails the MAPREC assay. It may also be used to calibrate consistency assays of poliovirus vaccine production that are assessed by the MAPREC test. Each assay should additionally include a high virus control, coded 98/596, and a low virus control, coded 97/756. An individual determination is not valid unless 98/596 gives a fail result and 97/756 gives a pass result, compared to 97/758.

### 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

The assigned mutation value of 0.67% 481-G, is based on WHO collaborative study data for MAPREC Type 2.

### 4. CONTENTS

Country of origin of biological material: USA.

Each DIN ampoule contains the freeze-dried residue of chemically synthesized DNA that spans nucleotides 431-521 of type 2 poliovirus (Sabin) RNA. The DNA was prepared at a nominal concentration of 0.01µg/ml in TE buffer pH7.5 (10mM Tris-HCl and 1mM EDTA) and 0.1% w/v lactose was added as a bulking agent prior to freeze-drying.

### 5. STORAGE

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

Rehydrate preparation 97/758 in 0.1ml of distilled water. Aliquot the rehydrated material in 10µl volumes, to avoid repeated freeze-thawing, and store at -70°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

A Standard Operating Procedure for the MAPREC assay is available from: Chief, Biologicals, World Health Organisation. This procedure requires that two ampoules of 97/758 are independently rehydrated and that aliquots from these separate ampoules are labeled 97/758 A and 97/758 B respectively. Results from 97/758 A and 97/758 B are used to validate each MAPREC assay.

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

### 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. WHO (2002) WHO Technical Report Series, 904, 31-91.
2. European Pharmacopoeia, 5th Edition (2006) Vaccines for human use, Poliomyelitis vaccine oral 01-2006:0215.

† 'Proposal to Establish a new International Standard and three new International Reference Preparations for the MAPREC Test of Poliovirus Type 2. Report of a WHO Collaborative Study.' WHO Expert Committee on Biological Standardization (53rd : 2003, Geneva)

### 10. ACKNOWLEDGEMENTS

We thank the participants of the MAPREC type 2 WHO collaborative Study.

### 11. FURTHER INFORMATION

Further information can be obtained as follows:

This material: [enquiries@nibsc.org](mailto: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](mailto: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.

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\\_efstandardsrev2004.pdf](http://www.who.int/bloodproducts/publications/TRS932Annex2_Inter_biol_efstandardsrev2004.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.

#### 14. MATERIAL SAFETY SHEET

Physical and Chemical properties	
<b>Classification in accordance with Directive 2000/54/EC, Regulation (EC) No 1272/2008:</b> <b>Not applicable or not classified</b> Physical appearance: white solid	Corrosive: No
	Stable: Yes
Hygroscopic: No	Oxidising: No
Flammable: No	Irritant: No
Other (specify): None	Handling: See caution, Section 2
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](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> 0.1g
<b>Toxicity Statement:</b> Toxicity not assessed
<b>Veterinary certificate or other statement</b> if applicable.
<b>Attached:</b> No

#### 17. CERTIFICATE OF ANALYSIS

NIBSC does not provide a Certificate of Analysis for WHO Biological Reference Materials because they are internationally recognised