

# WHO EXPERT COMMITTEE ON SPECIFICATIONS FOR PHARMACEUTICAL PREPARATIONS

Thirty-sixth Report



World Health Organization

Geneva

The World Health Organization was established in 1948 as a specialized agency of the United Nations serving as the directing and coordinating authority for international health matters and public health. One of WHO's constitutional functions is to provide objective and reliable information and advice in the field of human health, a responsibility that it fulfils in part through its extensive programme of publications.

The Organization seeks through its publications to support national health strategies and address the most pressing public health concerns of populations around the world. To respond to the needs of Member States at all levels of development, WHO publishes practical manuals, handbooks and training material for specific categories of health workers; internationally applicable guidelines and standards; reviews and analyses of health policies, programmes and research; and state-of-the-art consensus reports that offer technical advice and recommendations for decision-makers. These books are closely tied to the Organization's priority activities, encompassing disease prevention and control, the development of equitable health systems based on primary health care, and health promotion for individuals and communities. Progress towards better health for all also demands the global dissemination and exchange of information that draws on the knowledge and experience of all WHO's Member countries and the collaboration of world leaders in public health and the biomedical sciences.

To ensure the widest possible availability of authoritative information and guidance on health matters, WHO secures the broad international distribution of its publications and encourages their translation and adaptation. By helping to promote and protect health and prevent and control disease throughout the world, WHO's books contribute to achieving the Organization's principal objective — the attainment by all people of the highest possible level of health.

---

The *WHO Technical Report Series* makes available the findings of various international groups of experts that provide WHO with the latest scientific and technical advice on a broad range of medical and public health subjects. Members of such expert groups serve without remuneration in their personal capacities rather than as representatives of governments or other bodies; their views do not necessarily reflect the decisions or the stated policy of WHO. An annual subscription to this series, comprising about 10 such reports, costs Sw. fr. 132.– (Sw. fr. 92.40 in developing countries).

*This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of the World Health Organization*

**WHO Technical Report Series**

**902**

---

# **WHO EXPERT COMMITTEE ON SPECIFICATIONS FOR PHARMACEUTICAL PREPARATIONS**

---

Thirty-sixth Report



---

**World Health Organization**  
**Geneva 2002**

WHO Library Cataloguing-in-Publication Data

WHO Expert Committee on Specifications for Pharmaceutical Preparations (1999 : Geneva, Switzerland)  
WHO Expert Committee on Specifications for Pharmaceutical Preparations : thirty-sixth report.

(WHO technical report series ; 902)

1.Pharmaceutical preparations — standards 2.Technology, Pharmaceutical — standards  
3.Quality control 4.Reference standards 5.Legislation, Drug 6.Guidelines I.Title II.Series

ISBN 92 4 120902 X  
ISSN 0512-3054

(NLM classification: QV 771)

The World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full. Applications and enquiries should be addressed to the Office of Publications, World Health Organization, Geneva, Switzerland, which will be glad to provide the latest information on any changes made to the text, plans for new editions, and reprints and translations already available.

**© World Health Organization 2002**

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. All rights reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

**Typeset in Hong Kong  
Printed in Singapore**

2001/13671 — Best-set/SNP — 6000

# Contents

1.	Introduction	1
2.	Quality control — specifications and tests	2
2.1	<i>The international pharmacopoeia</i> — 50 years on	2
2.2	Monographs for <i>The international pharmacopoeia</i>	3
2.3	Dissolution test requirements for individual monographs	3
2.4	Basic tests for pharmaceutical substances and dosage forms	3
3.	Quality control — reference materials	4
3.1	International Chemical Reference Substances	4
3.2	International Infrared Reference Spectra	4
3.3	Biological reference materials	5
3.4	Information on reference materials for pharmacopoeial analysis	5
4.	Quality control — pharmaceutical control laboratories	5
4.1	Good practices for national pharmaceutical control laboratories	5
4.2	Equipment for drug control laboratories	6
4.3	Requests for analysis of drug samples	6
4.4	External quality assessment	6
5.	Quality assurance — good manufacturing practices	6
5.1	Good manufacturing practices in pharmaceutical production	6
5.2	Good manufacturing practices for sterile pharmaceutical products	7
5.3	Guidelines for good storage practices	7
5.4	Hazard analysis and critical control point system	7
6.	Quality assurance — inspection	7
6.1	Pre-approval inspections	7
6.2	Quality systems for national GMP inspectorates	8
7.	Quality assurance — packaging	8
7.1	General aspects of packaging	8
7.2	Glass containers for pharmaceutical use and rubber closures for containers of pharmaceuticals	8
8.	Quality assurance — general topics	8
8.1	Starting materials for pharmaceutical products: control and safe trade	8
8.2	Model certificate of analysis for use in trade and procurement	9
8.3	Screening tests for antimalarials and antituberculosis drugs	9
8.4	Tuberculosis programme — fixed-dose combinations	9
8.5	Comparator products for equivalence assessment of interchangeable multisource (generic) products	10
8.6	Measures to combat counterfeit drugs	10
8.7	Information on general publications	11
9.	Nomenclature and computerized systems	11
9.1	International Nonproprietary Names for pharmaceutical substances	11

9.2	Regulatory information systems	12
9.3	Drug quality assurance terminology	12
10.	<b>Regulatory issues</b>	12
10.1	Harmonization of regulatory requirements	12
	<b>Acknowledgements</b>	13
	<b>References</b>	15
	Annex 1	
	List of available International Chemical Reference Substances	18
	Annex 2	
	List of available International Infrared Reference Spectra	25
	Annex 3	
	Good practices for national pharmaceutical control laboratories	27
	Annex 4	
	Considerations for requesting analysis of drug samples	69
	Annex 5	
	Basic elements of good manufacturing practices in pharmaceutical production	73
	Annex 6	
	Good manufacturing practices for sterile products	76
	Annex 7	
	Guidelines on pre-approval inspections	94
	Annex 8	
	Quality systems requirements for national good manufacturing practice inspectorates	101
	Annex 9	
	Guidelines on packaging for pharmaceutical products	119
	Annex 10	
	Model certificate of analysis	157
	Annex 11	
	Guidance on the selection of comparator pharmaceutical products for equivalence assessment of interchangeable multisource (generic) products	161
	Annex 12	
	Guidelines on the use of International Nonproprietary Names (INNs) for pharmaceutical substances	181

# WHO Expert Committee on Specifications for Pharmaceutical Preparations

Geneva, 31 May–4 June 1999

## Members\*

Professor I.O. Kibwage, Head, Drug Analysis and Research Unit, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Nairobi, Nairobi, Kenya

Dr R. Pandjaitan, Director, National Quality Control Laboratory of Drug and Food, Directorate-General of Drug and Food Control, Ministry of Health, WHO Collaborating Centre for Quality Assurance of Essential Drugs and Vaccines, Jakarta, Indonesia (*Vice-Chairperson*)

Ms A. Poompanich, Director, Division of Drug Analysis, Department of Medical Sciences, Ministry of Public Health, WHO Collaborating Centre for Drug Quality Assurance, Nonthaburi, Thailand

Miss M.L. Rabouhans, Scientific Editor-in-Chief, British Pharmacopoeia Commission, London, England (*Chairperson*)

Mr A. Saddem, Pharmaceutical Inspector, Director, Biology, National Drug Control Laboratory, Tunis, Tunisia

Mr A.J. van Zyl, van Zyl and Gouws Quality Associates, GMP Auditing and Consulting Service, Pretoria, South Africa (*Rapporteur*)

Professor Yang Zhong-Yuan, Director, Guangzhou Municipal Institute for Drug Control, Guangzhou, China

## Representatives of other organizations†

*Commonwealth Pharmaceutical Association (CPA)*

Dr A.G. Davidson, Head, Medicines Testing Laboratory, Edinburgh, Scotland

*European Agency for the Evaluation of Medicinal Products (EMA)*

Mr S.B. Fairchild, Head, Inspections Sector, EMA, London, England

*International Federation of Pharmaceutical Manufacturers Associations (IFPMA)*

Dr O. Morin Carpentier, Manager, Pharmaceutical and Biological Affairs, IFPMA, Geneva, Switzerland

*International Generic Pharmaceutical Alliance (IGPA)*

Dr N.F. Cappuccino, Vice-President, Research and Development, Apotexluc, Weston, Toronto, Ontario, Canada

---

\* Unable to attend: Dr M. Siewert, Senior Vice-President, Hoechst Marion Roussel, Frankfurt, Germany.

† Unable to attend: European Commission (EC), Brussels, Belgium; United Nations Industrial Development Organization (UNIDO), Liaison Office, Geneva, Switzerland; UNIDO, Vienna, Austria; United Nations International Drug Control Programme (UNDCP), Vienna, Austria; World Bank, Washington, DC, USA.

*International Pharmaceutical Excipients Council (IPEC)*

Dr A.J. Falk, Vice-Chairman, IPEC Americas, Arlington, VA, USA

Mrs P. Rafidison, GMP Chairman — IPEC Europe, Leidschendam, Netherlands

*International Pharmaceutical Federation (FIP)*

Dr P.-G. Kibat, Global Head, Analytics, Hoechst Marion Roussel, Frankfurt, Germany

*Pharmaceutical Inspection Convention (PIC)*

Mrs P. Jacquemain, Pharmaceutical Inspector, General Pharmaceutical Inspection, Ministry of Public Health, Brussels, Belgium

*World Intellectual Property Organization (WIPO)*

Mr M. Höpferger, Head, Geographical Indications and Special Projects Section, WIPO, Geneva, Switzerland

*World Self-Medication Industry (WSMI)*

Dr R. Fellay, Manager, Microbiology (Quality Assurance), Novartis Consumer Health, Nyon, Switzerland

Mrs K. Thaele, Pharmaceutical Development and Clinical Supply, Novartis Consumer Health, Nyon, Switzerland

**Secretariat**

Professor H.R. Altorfer, Department of Pharmacy, Swiss Federal Institute of Technology, Zurich, Switzerland (*Temporary Adviser*)

Dr E. Ehrin, Director, Central Laboratory, Apoteket AB, Huddinge, Sweden (*Temporary Adviser*)

Mr J.A. Halperin, Executive Vice-President, *The United States pharmacopeia*, Rockville, MD, USA (*Temporary Adviser*)

Dr H. Ibrahim, Responsible Pharmacist, DebioPharm S.A., Lausanne, Switzerland (*Temporary Adviser*)

Dr J. Idänpään-Heikkilä, Special Adviser on Quality Assurance and Safety, Health Technology and Pharmaceuticals, WHO, Geneva, Switzerland

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_30295](https://www.yunbaogao.cn/report/index/report?reportId=5_30295)

