

---

---

**Microbiology of food and animal feeding  
stuffs — Horizontal methods for the  
detection and enumeration of  
Enterobacteriaceae —**

Part 1:  
**Detection and enumeration by MPN  
technique with pre-enrichment**

*Microbiologie des aliments — Méthodes horizontales pour la recherche  
et le dénombrement des Enterobacteriaceae —*

*Partie 1: Recherche et dénombrement à l'aide de la technique NPP  
avec préenrichissement*



Reference number  
ISO 21528-1:2004(E)

© ISO 2004

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	iv
Introduction .....	v
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Principle</b> .....	<b>2</b>
<b>4.1 Detection of Enterobacteriaceae</b> (see Annex A) .....	<b>2</b>
<b>4.2 Enumeration by the MPN technique</b> (see Annex B) .....	<b>3</b>
<b>5 Diluent, culture media and reagent</b> .....	<b>3</b>
<b>6 Apparatus and glassware</b> .....	<b>7</b>
<b>7 Sampling</b> .....	<b>7</b>
<b>8 Preparation of test sample</b> .....	<b>7</b>
<b>9 Procedure</b> .....	<b>7</b>
<b>9.1 General</b> .....	<b>7</b>
<b>9.2 Detection method</b> .....	<b>8</b>
<b>9.3 Enumeration method (MPN method)</b> .....	<b>8</b>
<b>9.4 Isolation and selection for confirmation</b> .....	<b>9</b>
<b>9.5 Subculturing selected colonies</b> .....	<b>9</b>
<b>9.6 Biochemical confirmation tests</b> .....	<b>9</b>
<b>10 Expression of results</b> .....	<b>9</b>
<b>10.1 Confirmed positive tubes</b> .....	<b>9</b>
<b>10.2 Detection method</b> .....	<b>10</b>
<b>10.3 Enumeration method: Calculation of the most probable number (MPN)</b> .....	<b>10</b>
<b>11 Precision</b> .....	<b>10</b>
<b>12 Test report</b> .....	<b>10</b>
<b>Annex A (normative) Diagram of procedure of the detection method</b> .....	<b>11</b>
<b>Annex B (normative) Diagram of procedure for MPN technique</b> .....	<b>12</b>