# Australian/New Zealand Standard<sup>™</sup>

# Testing of products for use in contact with drinking water





#### AS/NZS 4020:2005

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CH-034, Materials in Contact with Drinking Water. It was approved on behalf of the Council of Standards Australia on 20 October 2005 and on behalf of the Council of Standards New Zealand on 4 November 2005. This Standard was published on 29 November 2005.

The following are represented on Committee CH-034:

AUSTRAP

Australian Chamber of Commerce and Industry Australian Electrical and Electronic Manufacturers Association Australian Industry Group Australian Paint Manufacturers' Federation Australian Society for Microbiology Incorporated Certification Bodies (Australia) Copper Development Centre of Australia Health Department of Western Australia Ministry of Health, New Zealand National Health and Medical Research Council Plastics New Zealand Plastics Industry Pipe Association of Australia Rubber Manufacturers Association of Australia The Royal Australian Chemical Institute Water Services Association of Australia

#### Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 05089.

## Australian/New Zealand Standard<sup>™</sup>

# Testing of products for use in contact with drinking water

Originated as AS 3855(Int)—1991. Previous edition AS/NZS 4020:2002. Fifth edition 2005.

#### COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 6993 4

#### PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH-034, Materials in Contact with Drinking Water, to supersede AS/NZS 4020:2002, *Testing of products for use in contact with drinking water*.

In preparing this Standard, consideration has been given to comparable overseas Standards, to minimize duplication of effort and to maintain commonality, wherever reasonable, with those Standards. Particular consideration has been given to the various parts of BS 6920, *Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.* Several of the test procedures and criteria given in BS 6920 have been adopted or modified for Australian and New Zealand requirements.

This Standard departs from BS 6920 as follows:

- (a) This Standard provides a method of testing for the leaching of compounds that may produce a mutagenic effect.
- (b) The requirement for products to be tested at surface area-to-volume ratios that are not less than those in the intended end-use exposure (with the exception of the test for growth of aquatic micro-organisms). Where there is a difference between test and end-use exposures, provision is made for a scaling factor to be applied to the test result.
- (c) The inclusion of testing for metals extracted from metal products that are often components of products in contact with drinking water.

Significant changes from the previous edition include the following:

- (i) Inclusion of a colorimetric method for determination of cytotoxic activity.
- (ii) Inclusion of an appendix on the structure of test reports.
- (iii) Revision of the appendix on product submission information.
- (iv) Altered requirements for testing non-metallic products for leaching of metals.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendices to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is for information and guidance only.

### CONTENTS

## Page

FOREWORD		
1	SCOPE	. 5
2	REFERENCED DOCUMENTS	. 5
3	DEFINITIONS	. 6
4	TEST SAMPLES	. 8
5	SCALING FACTORS	. 9
6	TEST REQUIREMENTS	11
7	HOT WATER TESTS	14

### APPENDICES

А	SAMPLE PREPARATION	15
В	SCALING FACTORS—DERIVATION AND APPLICATION	21
С	TEST METHOD—TASTE OF WATER EXTRACT	26
D	TEST METHOD—APPEARANCE OF WATER EXTRACT	32
E	TEST METHOD—GROWTH OF AQUATIC MICRO-ORGANISMS	35
F	TEST METHOD—CYTOTOXIC ACTIVITY OF WATER EXTRACT	42
G	TEST METHOD—MUTAGENIC ACTIVITY OF WATER EXTRACT	51
Н	TEST METHOD—EXTRACTION OF METALS	55
Ι	TEST METHOD—EXTRACTION PROCEDURES FOR END-OF-LINE	
	FITTINGS	59
J	HIGH TEMPERATURE TESTS	64
Κ	TEST METHOD—SAMPLE EXTRACTION PROCEDURE FOR USE WITH	
	WATER-HEATING SYSTEMS	66
L	PRODUCT SUBMISSION INFORMATION	
М	SIMULATED SAMPLES	74
Ν	TEST REPORT	76



This is a free preview. Purchase the entire publication at the link below:

**Product Page** 

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation