AS 2850—1986

# Australian Standard®

Chemical analysis—Interlaboratory test programs—For determining precision of analytical method(s)— Guide to the planning and conduct This is a free page sample. Access the full version online.

This Australian standard was prepared by a subcommittee of the Association's Committee CH/23, General Methods of Chemical Analysis. It was approved on behalf of the Council of the Standards Association of Australia on 19 April 1986 and published on 4 August 1986.

The following interests are represented on Committee CH/23: Australian Government Analytical Laboratories Australian Institute of Food Science and Technology Australian Mineral Development Laboratories Bureau of Steel Manufacturers of Australia Commonwealth Scientific and Industrial Research Organization Confederation of Australian Industry National Association of Testing Authorities, Australia National Health and Medical Research Council Railways of Australia Committee Royal Australian Chemical Institute University of Sydney The following interests also assisted in the production of this standard: Kraft Foods Limited Rural Water Commission of Victoria SGS Australia Proprietary Limited State Electricity Commission of Victoria

Tomago Aluminium Company Proprietary Limited

This Standard was issued in draft form for comment as DR 84042.

**Review of Australian Standards.** To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

## Australian Standard®

Chemical analysis—Interlaboratory test programs—For determining precision of analytical method(s)— Guide to the planning and conduct

First published ..... 1986

PUBLISHED BY STANDARDS AUSTRALIA (STANDARDS ASSOCIATION OF AUSTRALIA) 1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 4229 2

#### PREFACE

This standard was prepared by the Association's Committee on General Methods of Chemical Analysis under the direction of the Chemical Standards Board. It has been prepared to assist persons and organizations involved in the development and testing/validation of methods of chemical analysis.

The standard provides guidance in choosing test materials, laboratories and test procedures to select and validate methods of chemical analysis and includes the subsequent determination of the precision of the test methods. It is based on ISO 5725—Precision of Test Methods—Determination of Repeatability and Reproducibility by Interlaboratory Tests, but has been expanded to include procedures which assist in the validation of test methods, and modified to aid its clarification and application.

It is suggested that the procedures described herein may, with simple but appropriate modification, be applied to many areas of physical testing also, e.g. viscosity determinations, fracture testing, density determinations.

It should be noted that proposals for expanding this standard, particulary with respect to including more details of data evaluation, have already been received by the committee and will be considered for inclusion in the second edition. It was felt that the proposals required far more deliberation and discussion than was considered acceptable for further delaying publication of this workable and much needed standard.

#### © Copyright - STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

### CONTENTS

3

		Page
1	SCOPE	4
2	APPLICATION	4
3	REFERENCED DOCUMENTS	4
4	DEFINITIONS	4
5	PRIOR DEVELOPMENT AND VALIDATION OF METHOD	5
6	SELECTION OF TEST MATERIALS	5
7	LABORATORY/PERSONNEL REQUIREMENTS	5
8	SETTING UP A TEST PROGRAM	5
9	EXECUTION OF TEST PROGRAMS	6
10	STATISTICAL ANALYSIS OF RESULTS	7
11	EVALUATION OF PRECISION DATA	8
12	EXPRESSION OF PRECISION DATA	8
AP	PENDICES	
A	STATISTICAL ANALYSIS AS A STEP BY STEP PROCEDURE	10
В	STATISTICAL ANALYSIS FOR UNIFORM-LEVELS EXPERIMENTS	13
С	STATISTICAL ANALYSIS FOR SPLIT-LEVELS EXPERIMENTS	22
D	CRITICAL DIFFERENCES DERIVABLE FROM REPEATABILITY	
	AND REPRODUCIBILITY	25
E	COMPUTER PROGRAM FOR CALCULATING REPEATABILITY	
	AND REPRODUCIBILITY	27
F	EXAMPLES OF INSTRUCTION/REPORTING SHEETS FOR	
	ACQUIRING TEST DATA FROM PARTICIPATING LABORA-	
	TORIES	38
	F1 EXAMPLE 1 ANALYSIS OF HEAVY MINERAL SANDS	38
	F2 EXAMPLE 2 ANALYSIS OF COAL/COKE	40
	F3 EXAMPLE 3 pH OF WATER-BASED PAINTS (AS 1580.505.1)	41
	F4 EXAMPLE 4 ALUMINIUM, PHOSPHORUS AND	
	MOISTURE IN ALUMINIUM ORES	44
G	ASSIGNMENT OF STATISTICAL SYMBOLS USED IN THIS	
	STANDARD	46



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