

Australian Standard[®]

**METHODS FOR THE SAMPLING
AND TESTING ADHESIVES**

**PART 10—DETERMINATION OF
NON-VOLATILE MATTER
(SOLIDS CONTENT) OF
ADHESIVES**

The following scientific, industrial, consumer and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Adhesives and Sealants Manufacturers Association of Australia
Australian Chemical Industry Council
Australian Council of Furniture Manufacturers
Australian Federation of Consumer Organizations
Australian Institute of Packaging
Confederation of Australian Industry
CSIRO, Division of Building Research
Department of Defence
Department of Productivity
Footwear Manufacturers Federal Executive Council
Plastics Institute of Australia Incorporated
Plywood Association of Australia
Printing and Allied Trades Employers Federation of Australia
Railways of Australia Committee
Society of Automotive Engineers — Australasia
Telecom Australia

This standard, prepared by Committee CH/17, Adhesives, was approved on behalf of the Council of the Standards Association of Australia on 18 February 1980, and was published on 1 May 1980.

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which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.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.

This Standard was issued in draft form for comment as DR 77161.

Australian Standard[®]

**METHODS FOR THE SAMPLING
AND TESTING ADHESIVES**

**PART 10—DETERMINATION OF
NON-VOLATILE MATTER
(SOLIDS CONTENT) OF
ADHESIVES**

First published 1980

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

ISBN 0 7262 1892 8

PREFACE

This standard for determining the non-volatile matter (solids content) of adhesives, was prepared by the Association's Committee on Adhesives under the authority of the Chemical Standards Board, as one of a set of methods of test for adhesives.

The standard is intended primarily for use in the testing of adhesives for compliance with relevant material specifications. It is intended to be part of the relevant material specification when specifically referred to in that specification and will be subject to any qualifications or modifications given therein.

Other standards in the series that have been published are—

- Part 1 — Sampling
- Part 2 — Determination of the Corrosive Effect of Adhesives on Metals
- Part 3 — Bond Strength of Cured Wood-to-wood Adhesives in Shear
- Part 4 — Determination of the Wearing Effect of Set Adhesives on Cutting Edges
- Part 5 — Behaviour of Cured Wood-to-wood Adhesives under Long-term Loading
- Part 6 — Preferred Conditions for Testing the Water Resistance of Adhesives
Section 1 — Cellulosic Substrates
- Part 7 — pH value of Aqueous Extracts of Uncured Adhesives and of their Components and of Cured Adhesive Films
- Part 8 — Storage Properties of Adhesives
- Part 9 — Brookfield Viscosity of Liquid Adhesives

In the preparation of this standard, cognizance was taken of the following standards:

- AS 1580 Methods of Test for Paints, Varnishes, Lacquers and Related Materials
 Method 301.1 — Non-volatile content
- BS 5350 Adhesives:
 Part B2 — Determination of solids content
- ASTMD 1490 Non-volatile Content of Urea-formaldehyde Resin Solutions

Methods used in Australia for the determination of non-volatile matter of adhesives have varied considerably. As different methods give different results, it is considered imperative that a standard procedure be adopted. After a survey of a large number of methods and comparative trials, the committee decided that two methods should be described, one for low-viscosity and medium-viscosity adhesives and the other slightly more complex method for high-viscosity adhesives. It is thought that the methods will give valid comparable results if used by different persons in different laboratories.

It should be noted that solids determination of multi-component adhesives should be on individual components.

The standard makes reference to the following standards:

- | | |
|---------|--|
| AS 1321 | Methods for the Sampling and Testing of Adhesives:
Part 1 — Sampling |
| BS 2648 | Performance Requirements for Electrically-heated Laboratory
Drying Ovens. |

© 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.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR THE SAMPLING AND TESTING OF ADHESIVES

PART 10 — DETERMINATION OF NON-VOLATILE MATTER
(SOLIDS CONTENT) OF ADHESIVES

1 SCOPE. This standard sets out the method for the determination of non-volatile matter of adhesives by mass, and is applicable to dispersions, emulsions and solutions.

2 DEFINITION. For the purpose of this standard, the following definition applies:

Non-volatile matter — the residue remaining after evaporation of the volatile components under the prescribed test conditions.

NOTE: Non-volatile matter is often referred to as 'solids content'.

3 PRINCIPLE OF METHOD. The adhesive is mixed with a solvent or dispersion medium which is evaporated under prescribed conditions to leave a residue of non-volatile matter.

4 APPARATUS AND MATERIALS. The following apparatus and materials are required:

- (i) Analytical balance, capable of weighing to 1.0 mg.
- (ii) Desiccator, with silical gel as desiccant.
- (iii) Constant temperature oven, capable of maintaining a temperature of $105 \pm 2^\circ\text{C}$ and of a forced ventilation type, the air being adequately and quickly circulated in the oven and thoroughly distributed to all parts of it.

NOTE: An oven complying with BS 2648 has been found suitable.

- (iv) Dishes, of diameter 50 mm to 60 mm, depth approximately 15 mm, and having flat bottoms. The material of which the dishes are constructed shall be chemically resistant to the adhesive under test.

NOTES:

1. Weighing dishes with lids should be used where the volatility of the adhesive is found to affect the weighing.
 2. The area of the bottom of the dish has a significant effect on the reproducibility of results, and therefore the size of the dish should be strictly adhered to.
- (v) Pipette, spatula or syringe, as appropriate.