

Australian Standard[®]

**Methods for impact tests on
plastics**

**Part 3: Calibration of the testing
machine**

This Australian Standard was prepared by Committee PL/10/2, Mechanical Testing of Plastics. It was approved on behalf of the Council of Standards Australia on 5 September 1989 and published on 12 March 1990.

The following interests are represented on Committee PL/10/2:

CSIRO — Division of Building, Construction and Engineering
Gas & Fuel Corporation of Victoria
National Association of Testing Authorities
Plastics Institute of Australia
Telecom Australia

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which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.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

**Methods for impact tests on
plastics**

**Part 3: Calibration of the testing
machine**

First published as AS 1146.3—1972.
Second edition 1990.

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

ISBN 0 7262 5978 8

AVA Documents
Document Sharing Hub

PREFACE

This Standard was prepared by the Standards Australia's Committee on Mechanical Testing of Plastics under the direction of the Plastics Standards Board, to supersede the 1972 edition.

This Standard is one in the AS 1146 series of Standards covering impact testing of plastics. Others in the series are as follows:

AS

1146 *Methods for impact tests on plastics*

1146.1 *Part 1: Izod impact resistance*

1146.2 *Part 2: Charpy impact resistance*

This edition is technically equivalent to the superseded edition; its presentation has been changed and it is now comparable with AS 1544.4, *Methods for impact tests on metals*, Part 4: *Calibration of the testing machine*.

© 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

	<i>Page</i>
FOREWORD	4
SECTION 1. SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	5
1.4 NOTATION	5
1.5 TESTING MACHINE	6
1.6 REQUIREMENTS FOR GAUGES	6
SECTION 2 COMPLETE CALIBRATION	
2.1 SCOPE OF SECTION	10
2.2 PRELIMINARY INSPECTION	10
2.3 LEVEL	10
2.4 BEARINGS	10
2.5 INDICATING EQUIPMENT	10
2.6 FRICTION LOSSES	10
2.7 LOCATION OF PENDULUM	10
2.8 TEST PIECE SUPPORTS	11
2.9 STRIKER	11
2.10 TEST PIECE CLEARANCE (CHARPY MACHINES)	12
2.11 CENTRE OF PERCUSSION	12
2.12 INITIAL POTENTIAL ENERGY	12
2.13 CALIBRATION OF SCALES	13
2.14 STRIKING VELOCITY	13
2.15 VERIFICATION OF MACHINES	13
2.16 TIME INTERVAL BETWEEN COMPLETE CALIBRATIONS	13
2.17 RECORD OF RESULTS	13
2.18 REPORT	13
SECTION 3 PARTIAL CALIBRATION	
3.1 SCOPE OF SECTION	14
3.2 PROCEDURE FOR PARTIAL CALIBRATION	14
3.3 TIME INTERVAL BETWEEN PARTIAL CALIBRATIONS	14
3.4 RECORD OF RESULTS	14
3.5 REPORT	14
APPENDIX A DIMENSIONS OF GAUGES AND COMPONENTS	15

FOREWORD

The satisfactory operation of a pendulum impact testing machine is dependent on factors which include the design, the foundation, the accuracy of construction of machine components, the degree of wear, and the friction-free movement of the pendulum.

During a test, all the absorbed energy indicated by the machine is attributed to the fracturing of the test piece. However, it is known that there are other mechanisms within the machine which absorb small amounts of energy; the test piece supports, the machine foundation and frame work, the pendulum and striker, ejection and drag of the broken test piece all cause some degree of energy absorption. This energy is not determined, as suitable methods and apparatus have not yet been developed for measuring energy absorption by these individual items.

Pendulum impact testing machines, used for testing plastics, commonly have impact energies in the range 1.35 J to 22.0 J, with a velocity at impact of 3.5 m/s.