Superseded by AS/NZS 4256.1:1994, AS/NZS 4256.3:1994, AS/NZS 4257.1:1994, AS/NZS 4257.2:1994, AS/NZS 4257.3:1994, AS/NZS 4257.4:1994, AS/NZS 4257.5:1994, AS/NZS 4257.6:1994 and AS/NZS 4257.7:1994

AS 2376, Part 2—1981
UDC 691.175-415:677.521:678.674

Australian Standard 2376, Part 2—1981

PLASTICS BUILDING SHEETS
Part 2—GLASS FIBRE REINFORCED POLYESTER (GRP)

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Institute of Building Surveyors

CSIRO, Division of Building Research

Department of Housing and Construction

Experimental Building Station

Plastics Institute of Australia Inc.

This standard, prepared by Committee PL/22, Plastics Building Sheets, was approved on behalf of the Council of the Standards Association of Australia on 19 October 1980, and was published on 1 February 1981.

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CORRIGENDUM
to
AS 2376, Part 2—1981
PLASTICS BUILDING SHEETS
PART 2—GLASS REINFORCED POLYESTER (GRP)

SUMMARY: This correction slip applies to Appendix E4(d).

Published on 6 October 1981.

Page 9. Appendix E, Paragraph E4(d).

Alter '40 mesh test sieve' to 'Grade B test sieve made from wire cloth with a nominal aperture size of 355 μm, complying with AS 1152.'

AUSTRALIAN STANDARD

PLASTICS BUILDING SHEETS
Part 2
GLASS FIBRE REINFORCED POLYESTER (GRP)

AS 2376, Part 2—1981

First published (as AS A66).....1966
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PREFACE

This standard was prepared by the Association's Committee for Plastics Building Sheets under the direction of the Plastics Standards Board to supersede AS A66—1966. This Part 2 applies to glass fibre reinforced polyester building sheets. Part 1 applies to PVC building sheets. Installation of sheets of both materials is dealt with in AS 2424, Plastics Building Sheets—General Installation Requirements and Design of Roofing Systems.

Important changes that have been made in the standard when compared with AS A66 relate to the elimination of the class of sheet which contains fire-retardant materials and the introduction of new requirements aimed at improving durability.

At this time no acceptable laboratory weathering test has been found in Australia or overseas, which is able to reproduce, in a short time, the same effects as those produced by natural weathering. Where natural weathering tests are required, they should be carried out in accordance with AS CK24, Code of Practice for Outdoor Weathering of Plastics in the Australian Environment, Part I—Commercial Products. Consideration will be given to the inclusion of any laboratory test of proven reliability that is developed in the future. In the interim, an ultraviolet (UV) exposure test has been included which can be used as a quality control check.

This standard may require reference to the following standards:

AS 1145	Method for Determination of Tensile Properties of Plastics Materials
AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1530	Methods for Fire Tests on Building Materials and Structures Part 3—Test for Early Fire Hazard Properties of Materials
AS 1562	Code of Practice for Design and Installation of Self-supporting Metal Roofing without Transverse Laps
AS 1821-1823	Suppliers Quality Control Systems (Levels 1 to 3)
AS 2000	Guide to AS 1821-1823 Suppliers Quality Control Systems
AS 2001	Methods of Test for Textiles
	AS 2001.4.1—Colourfastness Tests—Definitions and General Requirements
AS 2193	Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
AS 2424	Plastics Building Sheets—General Installation Requirements and Design of Roofing Systems
AS	Exposure of Plastics to Ultraviolet Lamps*
AS CK24	Outdoor Weathering of Plastics in the Australian Environment Part I—Commercial Products
ASTM D2583	Test for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

*In course of preparation.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for PLASTICS BUILDING SHEETS

PART 2—GLASS FIBRE REINFORCED POLYESTER (GRP)

1 SCOPE. This standard specifies requirements for general purpose translucent and opaque glass fibre reinforced polyester sheets of flat, corrugated and other geometrical configurations intended for roof and wall cladding applications. Sheets complying with this standard are intended to be fixed in accordance with AS 2424.

NOTE: Advisory information on the assessment of compliance with this standard is given in Appendix A.

2 CLASSIFICATION.

2.1 Types. The sheets shall be classified into types on the following basis:

(a) CT—to indicate the presence of surface tissue.

(b) SC—to indicate surface coated sheets.

2.2 Classes. The sheets shall be further classified in terms of mass per unit area.

NOTES:

1. For determination of mass per unit area, refer to Clause 8.
2. The following classes are commonly available:

Class	*Mass/unit area* g/m²
1200	1200
1800	1800
2400	2400

Alternatively classes are available for specific purposes

3 DEFINITIONS. for the purpose of this standard, the following definitions apply:

3.1 Surface treatments.

3.1.1 *Surface tissue*—a thin tissue (approximate thickness 0.25 mm) of a continuous mat reinforcement of staple glass or other suitable fibre.

3.1.2 *Surface coating*—any liquid coating or membrane applied to the surface of the sheet during or after lamination for the purpose of enhancing durability, appearance or other property indicated in this standard.

3.2 Polyester resin—an unsaturated thermosetting resin resulting from the esterification of suitable polybasic acids and polyhydric alcohols dissolved in selected vinyl monomers.

3.3 Width.

3.3.1 *Developed width*—the total width of surface of the sheet prior to shaping or profiling.

3.3.2 *Nominal sheet width*—the total width after profiling or manufacturing to finished goods width.

3.3.3 *Cover width*—the total amount of cover available from the sheet after allowing for side laps.

3.4 Bruising—a mark in a sheet caused by movement of the sheet before final cure.

3.5 Cure—the process of hardening a thermosetting resin under the influence of heat and/or curing agents.

4 MATERIALS.

4.1 Matrix Binder. The matrix binder shall be a fully-cured thermosetting polyester resin and shall have a Barcol hardness of not less than 40 when tested in accordance with ASTM D2583. Such resins may contain nominal amounts of catalyst residues and stabilizers.

4.2 Reinforcement. The reinforcement shall be glass fibre which has been drawn from 'E' glass with an alkali content less than 1.0 percent, and which has been chemically sized so as to be compatible with polyester resin systems.

5 APPEARANCE.

5.1 Freedom from Defects. Sheets shall not contain any holes and cracks that penetrate through the sheet thickness. Sheets shall be free from areas of other cracks, bubbles, crazing and bruising to the extent that such areas shall not cause the sheet to fail the test requirements of this standard.

NOTE: Guidance for determining bubble clusters which may be likely to affect the performance of the sheet is given in Fig. 1.

5.2 Visual Properties. Unless otherwise specified, sheets shall have an appearance consistent with good commercial practice in regard to foreign inclusion, dye lines, and striations, and the colour of sheets shall appear uniform with reflected or transmitted light.

6 DIMENSIONAL REQUIREMENTS.

6.1 Tolerances on Nominated Length and Cover Width. When the sheet is measured in accordance with Appendix B, the tolerance on the nominated length of any sheet shall be + 12 −0 mm, and the tolerance on the nominated cover width shall be ± 6 mm for any sheet.

6.2 Nominal Thickness. The nominal thickness of the sheet shall be designated by the manufacturer. When measured in accordance with Appendix B, the sheet thickness shall not be less than 90 percent of the nominal thickness.

6.3 Squareness. The corners of the sheet shall conform to a right angle such that the gap between a side of the sheet and a true right angle shall not exceed 5 mm for each metre run of width. In addition, the difference in the measurement of the diagonals, as measured at the corners of a sheet, shall not exceed 16 mm.

6.4 Profile. The profiles in the sheet shall be uniform. When measured in accordance with Appendix B, the distance between the centrelines of ribs or corrugations, or between the coincident points of the outer ribs, shall not vary by more than 5 mm.

NOTE: Matching of profiles with that of sheets of other materials which deviate from their nominated profile dimensions is not implied by the requirements of the above clause. This clause applies to sheet to be matched as produced; sheets damaged or spread as a result of storage, handling, transport or installation procedures are excluded.