AS 2445.1—1990

Australian Standard®

Methods of sampling and testing retroreflective materials and devices for road traffic control purposes

Part 1: Retroreflective materials

STANDARDS AUSTRALIA

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The following interests are represented on Committee MS/49:

Australian Road Federation

Australian Road Research Board

Austroads

Confederation of Australian Industry

Confederation of Construction Contractors

CSIRO, National Measurement Laboratory

Metal Trades Industry Association of Australia

Railways of Australia Committee

University of New South Wales

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PREFACE

This Standard was prepared by the Standards Australia Committee on Retroreflective Devices to supersede (in part) AS 1906.1—1976, *Retroreflective materials and devices for road traffic control purposes*, Part 1: *Retroreflective materials.*

This work has been carried out simultaneously with a revision of AS 1906.1. It now contains all of the test methods which were previously included in the 1976 edition of that Standard.

A reference to wrinkling has been included in AS 1906.1 as a potential form of degradation. It has not yet been determined under what, if any, circumstances wrinkling can be tolerated, nor has a suitable test method yet been developed. These matters are being investigated by the Committee and will result in either an amendment to this Standard or an inclusion in a future revision.

CONTENTS

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Part 1: Retroreflective materials

1 SCOPE This Standard sets out methods of sampling and testing retroreflective materials, as specified in AS 1906.1, for use in the manufacture of road signs and related traffic control devices. It does not apply to retroreflective pavement markings, markers placed directly on the pavement surface, or post mounted delineators.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1449 Wrought alloy steels—Stainless and heat-resisting steel plate, sheet and strip
1580 Method of test for paints and related materials
1580.403.1 Method 403.1: Scratch resistance
1734 Aluminium and aluminium alloys—Flat sheet, coiled sheet and plate
1906 Retroreflective materials and devices for road traffic control purposes
1906.1 Part 1: Retroreflective materials
2445 Methods of sampling and testing retroreflective materials and devices for road traffic control purposes
2445.2 Method 2: Retroreflective devices (non-pavement application)

CIE
Publication No 13.2 (1974)—Method of measuring and specifying colour rendering—Properties of light sources
Publication No 20 (1972)—Recommendations for the integrated irradiance and spectral distribution of simulated solar radiation for testing purposes

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 1906.1 apply.

4 SAMPLING Test pieces shall be selected in a random manner.

5 TESTING

5.1 Preparation of test pieces

5.1.1 *Conditioning of test pieces* Unless otherwise specified in a particular test, where conditioning of test pieces is required prior to testing in any of the tests prescribed in this Standard, the conditioning shall consist in the storing of the specimen at 20 ±2°C and 50 ±5% relative humidity for 24 h. The subsequent test shall be carried out at the same temperature and relative humidity unless otherwise specified in a particular test. Before conditioning, test pieces shall be washed with a mild detergent.

5.1.2 *Mounting of test pieces—physical property and adhesion tests* Where tests prescribed in Clauses 5.6, 5.7 and 5.9 are to be performed using a test piece mounted on a substrate, the test pieces shall be applied to polished (mirror finish) 0.9 mm stainless steel sheet, 18/8 austenitic, Grade AS 1449/302, in the degreased condition.

For material having pressure-sensitive adhesive, the pressure of application of the material to the stainless steel substrate shall be obtained by use of a steel roller 80 ±5 mm diameter and 45 ±2 mm wide, covered with rubber approximately 5 mm thick and having a Shore A Durometer hardness of 80 ±5. The mass of the roller shall be 2.0 ±0.1 kg.

For material having heat-activated adhesive, the method of application of the material to the stainless steel substrate shall be strictly in accordance with the application instructions of the manufacturer of the retroreflective material.

5.1.3 *Mounting of test pieces—other tests* For tests prescribed in Clauses 5.2, 5.3, 5.4, 5.10, 5.11, 5.12 and 5.13, the method of mounting the test piece shall be the same as in Clause 5.1.2 except that the substrate shall be a 2 mm thick panel of aluminium complying with the requirements of AS 1734 for alloy 5052-H36, 5052-H38, 5251-H36, 5251-H38, or 6061-T6. The panel shall be degreased and lightly acid-etched prior to mounting the test piece.