

Australian/New Zealand Standard[®]

Plastic monobloc chairs

AS/NZS 3813:1998

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The following interests are represented on Committee CS/91:

Australasian Furnishing Research and Development Institute
Department of Fair Trading N.S.W., Consumer Protection Agency
Furnishing Industry Association of Australia
Ministry of Consumer Affairs, New Zealand
Office of Consumer Affairs, Qld
Plastics Institute of New Zealand
Plastics and Chemicals Industry Association, Australia
Retailers Council of Australia

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CS/91 on Domestic Furniture, at the request of a manufacturer. Concern had been expressed by other manufacturers, the Plastics and Chemicals Industry Association and consumer affairs bodies that plastic chairs had been failing and that it was difficult to select good quality from poor quality chairs.

The Standard is based on ISO 7173, *Furniture—Chairs and stools—Determination of strength and durability* and ISO 7174, *Furniture—Chairs—Determination of stability, Part 1: Upright chairs and stools*. As the Committee considers that these Standards do not sufficiently cover plastic chairs within their scope, certain changes have been found to be necessary. Climate, mainly temperature, has a significant effect on the durability of plastic and therefore the requirements in tests differ. Specifically, some test methods do not translate to plastic: the diagonal base test does not allow for the elastic nature of the plastic and the fact that it does not necessarily just break but flexes or bends; the impact test, leg rearward, leg forward and leg sideways tests do not allow for the light weight of a plastic chair and can result in the entire chair being thrown away from the test apparatus. The floor surface used has been adapted to simulate more closely the surface that appeared to be causing the most problems in the more extreme end use applications.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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FOREWORD

This Standard allows for two levels of performance based on the end use of the chair—domestic or commercial. The forces used are sufficient to apply to chairs intended for adult use and also to ensure that a chair meets the minimum requirements in its intended environment, but do not ensure that failure will not eventually occur either as a result of habitual misuse or after three years of service.

With the exception of the seat and back loading point determination and the seat impact test, test results are dependent on the loads being correctly applied, therefore for the remaining tests, apparatus equivalent to that listed may be used. In the case of designs not catered for in the test procedures, the test should be carried out as closely as possible to that described and deviations from the test procedure noted on the test report.

The strength and durability of the chair are determined by the application of static, impact and fatigue tests. The forces used are sufficient to allow for normal functional use and reasonable misuse but not habitual misuse. Strength and durability are detailed in Section 3. The stability of the chair is determined by both the application of impact forces and by applying loads that could normally be encountered. Stability is detailed in Section 4 and by tilting the chair to simulate normal functional use. The tests provide a procedure that will allow comparative analysis of the stability of various chairs under relatively fixed conditions. Chair stability is related to personal sitting habits, chair style, use conditions, floor finish and condition as well as design of the chair legs, which are variables complicating the fixing of minimum requirements. The minimum acceptance level is based on the weight and style of chair for both frontwards and rearwards overturning.

The Committee addressed the issue of weathering of plastic monobloc chairs at great length. It was concluded that there is no fully satisfactory means of predicting long term weathering performance from accelerated (short term) tests, as every colour and every change in material formulation would need to be aged under standard weather rack conditions for three years.

The need for testing each and every change of colour or formulation would militate against improvements in formulation or colour changing with fashion and any new supplier, whether local or overseas, would have to wait three years for approval to supply. In view of the fact that ISO 7173 has no weathering requirement, nor were there any known failures from UV radiation on Australian produced monobloc chairs, it would be very onerous to include such a requirement at this stage.

If ISO should introduce such a requirement in the future, this Standard could be reviewed at that time.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Plastic monobloc chairs**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out requirements for the evaluation and selection of plastic monobloc chairs for adults but does not include chairs intended for bathroom use. It specifies minimum requirements for strength, durability and stability of the completed chair, but does not account for materials, design, construction or the process of manufacture.

NOTES:

- 1 Chairs intended for bathroom and shower use are not covered by this Standard. Chairs in such environments have different requirements due to the hot, wet conditions and the effects of soap. Inclusion of tests in this Standard to cover these conditions would add to the expense of all plastic monobloc chairs, as all chairs would have to be tested whether or not this use was intended. See Section 6 in this Standard for labelling and the Standard for mobile shower/toilet chairs.
- 2 The test results are only valid for the chair tested, therefore if the test is intended to be applied to similar chairs, the test specimen should represent the production model.
- 3 The test results do not ensure that structural failure will not occur.

1.2 OBJECTIVE To provide purchasers, specifiers, users, retailers, manufacturers and regulatory authorities with a standard for plastic chairs that specifies strength, durability and stability requirements and enables use of these criteria to assist in selection and evaluation.

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

AS

1449 Wrought alloy steels—Stainless and heat-resisting plate, sheet and strip

ISO

2439 Flexible cellular polymer materials—Determination of hardness (indentation technique)

1.4 DEFINITIONS For the purposes of this Standard, the definitions below apply.

1.4.1 Commercial—any item used in other than domestic premises.

1.4.2 Domestic—any item used in the home, whether it be for indoor or outdoor use.

1.4.3 Impact tests—tests to assess the strength of the chair under the rapid rates of loading that only occasionally occur.

1.4.4 Importer—the persons or corporate body assuming legal responsibility for the product under the relevant State or Federal laws, if the product is not manufactured in Australia or New Zealand.

1.4.5 Manufacturer—the persons or corporate body assuming legal responsibility for the product under the relevant State or Federal laws, if the product is manufactured in Australia or New Zealand.

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