

AS 1774.4.1:2021



Refractories and refractory materials — Physical test methods

Method 4.1: Preparation of test pieces — By casting



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- Australian Foundry Institute
- Australian Industry Group
- Bureau of Steel Manufacturers of Australia
- Cement Industry Federation
- CSIRO
- Institute of Refractories Engineers
- Materials Australia
- Minerals Council of Australia
- Refractories Manufacturers Association of Australia

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Preface

This Test Method was prepared by the Standards Australia Committee MN-007, Refractories and Refractory Materials, to supersede AS 1774.4.1—2002, *Refractories and refractory materials—Physical test methods, Method 4.1: Preparation of test pieces—By casting*.

The objective of this document is to provide the Australian refractories industry with an accepted method for preparing monolithic test pieces by casting. This document has been modified to align as closely as possible with ISO 1927-4 and ISO 1927-5 while retaining the historical and technical benefits of AS 1774.4.1.

A list of all parts in the AS 1774 series can be found in the Standards Australia online catalogue.

The major changes in this edition are as follows:

- (a) Allow for an increased range of mould sizes for casting test pieces.
- (b) Define when an 80 mm flow cone is used for determination of flow.
- (c) Improved explanation of current Australian refractory industry practice.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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Australian Standard®

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1 Scope

This document describes a procedure for laboratory preparation of test pieces by casting.

This document applies to dense, medium weight and light weight castables (containing either hydraulic cements or other binders) to conventional and low cement castables, and to any other type of refractory castable that can be installed by a casting process.

[Appendix A](#) provides a method for measuring the consistency of unshaped castable refractories.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS 1774.30, *Refractories and refractory materials — Physical test methods, Method 30: Drying and firing schedules*

AS 2701, *Methods of sampling and testing mortar for masonry constructions*

AS 4433.2, *Guide to the sampling of particulate materials, Part 2: Preparation of samples*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in AS 2780 and the following apply.

3.1

may

indicates the existence of an option

3.2

shall

indicates that a statement is mandatory

3.3

should

indicates a recommendation

4 Principle

Castable refractory samples are mixed with water or other specified liquids until a specified consistency is achieved. They are then consolidated in a mould and allowed to cure and dry under defined conditions prior to testing.

5 Safety

For information on safety in laboratories, refer to the relevant parts of the AS/NZS 2243 series.