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Australian Standard 1317—1982

BLENDED CEMENT

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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Bureau of Steel Manufacturers of Australia
Cement and Concrete Association of Australia
Confederation of Australian Industry
Co-ordinator General's Department, Queensland
CSIRO, Division of Building Research
Department of Transport and Construction
Department of Public Works, N.S.W.
Engineering and Water Supply Department, S.A.
Housing Commission of Victoria
Hydro-Electric Commission, Tasmania
Institution of Engineers, Australia
Maritime Services Board of New South Wales
Melbourne and Metropolitan Board of Works
Metropolitan Water, Sewerage and Drainage Board, N.S.W.
National Association of Australian State Road Authorities
National Ready Mixed Concrete Association
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State Electricity Commission of Victoria
State Rivers and Water Supply Commission, Victoria
Water Resources Commission, N.S.W.
University of Adelaide
University of Melbourne
University of Sydney
University of Tasmania
University of Western Australia

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AUSTRALIAN STANDARD

BLENDED CEMENT

AS 1317—1982

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PREFACE

This edition of this standard was prepared by the Association's Committee on Cement to supersede AS 1317—1972.

Sampling requirements and methods of test have been revised and published separately as AS 2349 and AS 2350 respectively.

No changes have been made to the specified material characteristics. However a tabular format has been adopted in this edition which has simplified the presentation of the specification limits.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for BLENDED CEMENT

1 SCOPE. This standard specifies requirements for blended hydraulic cement.

2 CLASSIFICATION. Blended cements shall be classified as follows:

Type FA—normal portland fly-ash cement
Type FC—low heat portland fly-ash cement
Type SA—normal portland blastfurnace cement
Type SC—low heat portland blastfurnace cement

NOTE: Any type of portland cement clinker, from which portland cement complying with AS 1315 can be produced, may be used in the production of Types FA, FC, SA and SC cements.

3 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1129	Fly Ash for Use in Concrete
AS 1315	Portland Cement
AS 1378	Method for the Spectrophotometric Analysis of Cement (Metric Units)
AS 2349	Methods of Sampling Portland and Blended Cements
AS 2350	Methods of Testing Portland and Blended Cements
ASTM C 114	Methods for Chemical Analysis of Hydraulic Cement
ASTM C 465	Specifications for Processing Additions for Use in the Manufacture of Portland Cement

4 APPLICATION. This standard sets only the minimum standards of quality for each of the types of cement and does not purport to provide for all the requirements which may be needed for special usage of these cements.

NOTE: In such cases the minimum standards may be quoted for the requirements which are applicable, but any additional requirements to meet the end-use should be stated by the purchaser in his enquiry and purchasing contract documents.

5 DESCRIPTION OF MATERIALS.

5.1 Blended Materials.

5.1.1 *Portland fly ash cement (Types FA and FC).* Portland fly ash cement shall be an intimate and uniform blend of portland cement and fly ash (pulverized-fuel ash) produced either by intergrinding portland cement clinker, fly ash, and calcium sulphate containing not less than 30 percent sulphuric anhydride (SO_3) as required, with or without water, or by blending portland cement and fly ash.

Portland fly ash cement shall contain not less than 15 percent and not more than 40 percent by mass of fly ash.

NOTE: Appendix A prescribes the method of determining the proportions of portland cement and fly ash in the portland fly ash cement.

5.1.2 *Portland blastfurnace cement (Types SA and SC).* Portland blastfurnace cement shall be an intimate and uniform blend of portland cement and finely ground granulated blastfurnace slag produced either by intergrinding portland cement clinker, granulated blastfurnace slag, and calcium sulphate containing not less than 30 percent sulphuric anhydride (SO_3) as required, with or without water, or by blending portland cement and finely ground granulated blastfurnace slag.

Portland blastfurnace cement shall contain not less than 20 percent and not more than 65 percent by mass of finely ground granulated blastfurnace slag.

NOTE: Appendix A prescribes the method of determining the proportions of portland cement and blastfurnace slag in portland blastfurnace cement.

5.2 Constituent Materials.

5.2.1 *Fly ash (pulverized-fuel ash).* Fly ash shall comply with AS 1129.

5.2.2 *Granulated blastfurnace slag.* Granulated blastfurnace slag is the non-metallic product consisting essentially of silicates and alumino-silicates of calcium which is produced simultaneously with iron in a blast furnace and which is granulated by rapidly quenching the molten slag.

5.2.3 *Portland cement.* Portland cement shall comply with AS 1315.

5.2.4 *Portland cement clinker.* Portland cement clinker shall be a product from which portland cement complying with AS 1315 can be made.

5.2.5 *Processing additions.* Processing additions may be used in the production of blended cements, provided that the nature and proportions of such materials have been shown to be not deleterious in accordance with ASTM C 465.

Where a processing addition is used, the manufacturer shall state on the bag or, for bulk cement, in writing to the purchaser, that a processing addition has been incorporated in the cement. At the request of a purchaser, the manufacturer shall state in writing the nature, proportion and identity of any processing addition that may have been used and shall, on request, supply test data showing compliance of such processing addition(s) with ASTM C 465.

6 SAMPLING AND TESTING. Sampling and testing of cement for compliance with this standard shall be carried out in accordance with AS 2349 and AS 2350.

7 CHEMICAL COMPOSITION. When analysed in accordance with the methods of test prescribed in Table 1, the blended cement shall conform to the limits set out therein.

NOTE: The chemical composition may be determined in accordance with AS 1378 and the results used to determine whether the cement complies with Clause 7 and Table 1 of this standard. In case of dispute the classical methods specified in column 4 of Table 1 of this standard should be used as the referee method.