AS 3972—2010

Australian Standard®

General purpose and blended cements

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The following are represented on Committee BD-010:

- Australian Procurement and Construction Council
- Austroads
- Cement and Concrete Association of New Zealand
- Cement, Concrete and Aggregates Australia
- Concrete Institute of Australia
- Concrete Masonry Association
- Engineers Australia
- Portland Cement Association New Zealand

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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General purpose and blended cements

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PREFACE

This Standard was prepared by Standards Australia Committee BD-010, Cement, to supersede AS 3972—1997, *Portland and blended cements*.

Global warming has become a significant issue in the last decade and the Australian Government is embarking on programs to reduce Australia's carbon emissions. Cement is recognized as an energy intensive material and there has been considerable pressure from the Government and consumers to reduce its environmental effect in terms of greenhouse gas emission reductions.

The objective of this revision is to allow an increase in the proportion of mineral additions within the existing performance based specifications. This change is to permit a reduction in the 'carbon footprint' of cement manufacture and help meet the Government's program for the reduction of greenhouse gas emissions.

Changes to the previous edition are as follows:

(a) Increase in the allowable proportion of mineral additions in general purpose cement from 5% to 7.5%.

(b) Introduction of a new type of cement—general purpose limestone cement (Type GL)—that contains 8 to 20% limestone.

(c) Permitting the use of up to 5% minor additional constituents in general purpose cement.

(d) Placing a limit of 0.10% by mass of chlorides in cement.

(e) Includes additional compliance requirements for sampling, testing and labelling.

(f) A new normative Appendix B, which is essentially the (unchanged) requirements from AS 3974—1991, *Evaluation of uniformity of cement strength from a single source*. Following publication of this revision, AS 3974 will be withdrawn.

Type GL cement has been primarily introduced to allow manufacturers to further develop and trial limestone addition and the use of Type GL cement in critical applications should be carefully considered.

Within two years of the publication of this Standard the allowable proportion of mineral additions within general purpose cement will be amended to the optimum level proven by additional testing and the lower limit of Type GL will be amended accordingly.

For concrete, grouts, and mortars where long-term durability is required or where there is risk from one or a combination of salinity, salt water, alkali-silica reactive (ASR) aggregates or sulfate attack, further technical requirements may be applicable.

It should also be noted that generally the use of supplementary cementitious materials such as fly ash, ground granulated iron blast furnace slag, and amorphous silica significantly increases the durability of concrete and also reduce the carbon footprint of both cement and concrete.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard
General purpose and blended cements

1 SCOPE

This Standard specifies minimum requirements for hydraulic cements including general purpose and blended cements. It does not purport to provide for all the requirements that may be needed in specific applications of such cements.

NOTES:

1 Information on the interpretation of this Standard as a performance-based specification of cement is given in Appendix A.

2 Some additional information on applications and limitation of this Standard is included in the Preface.

2 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard.

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

AS

2350	Methods of testing portland, blended and masonry cements
2350.2	Method 2: Chemical composition
2350.7	Method 7: Determination of temperature rise during hydration of portland and blended cements
2350.9	Method 9: Determination of residue on the 45 µm sieve
2350.13	Method 13: Determination of drying shrinkage of cement mortars
2350.14	Method 14: Length change of cement mortars exposed to sulfate solution
3582	Supplementary cementitious materials for use with portland and blended cement
3582.1	Part 1: Fly ash
3582.2	Part 2: Slag—Ground granulated iron blast-furnace
3583	Methods of test for supplementary cementitious materials for use with portland cement
3583.13	Part 13: Determination of chloride ion content

AS/NZS

2350	Methods of testing portland, blended and masonry cements
2350.1	Method 1: Sampling
2350.4	Method 4: Setting time
2350.5	Method 5: Determination of soundness
2350.8	Method 8: Fineness index by air permeability
2350.11	Method 11: Compressive strength
3582	Supplementary cementitious materials for use with portland and blended cement
3582.3	Part 3: Amorphous silica

EN

933	Tests for geometrical properties of aggregates
933-9	Part 9: Assessment of fines—Methylene blue test
13639	Determination of total organic carbon in limestone