

New Canadian Standard: A3000-03

Published in early 2004, the 2003 edition of CSA A3000, Cementitious Materials Compendium, was consolidated into two product and three testing standards. The first edition of the A3000 compendium, published in 1998, began consolidation of test methods contained in Standards A5, A8, A23.5, A362 and A363. Redundancies and inconsistencies were eliminated and the test methods were compiled into a new CSA A456 series. With the second edition of the CSA A3000 compendium the consolidation is complete (see box).

Changes in CSA A3001 – Cementitious Materials

Portland Cements—Changes in CSA A3001-03 include new nomenclature for portland cements: two-letter descriptive type designations (see Table). The former Type 20 cement was split into two types by intended use; MS for moderate sulphate resistance and MH for moderate heat of hydration.

Blended Hydraulic Cements—The nomenclature for blended hydraulic cements has been modified to a three-letter descriptive designation to address its equivalent performance to portland cements with up to three supple-

CSA A3000-03 Cementitious Materials Compendium

- CSA A3001 *Cementitious Materials for Use in Concrete* supersedes A5 (Portland Cement), A23.5 (Supplementary Cementing Materials), A362 (Blended Hydraulic Cement), A363 (Cementitious Hydraulic Slag)
- CSA A3002 *Masonry and Mortar Cement* supersedes A8 (Masonry Cement)
- CSA A3003 *Chemical Test Methods for Cementitious Materials for Use in Concrete and Masonry* supersedes A456.1 (Chemical Tests)
- CSA A3004 *Physical Test Methods for Cementitious Materials for Use in Concrete and Masonry* supersedes A456.2 (Physical Tests)
- CSA A3005 *Test Equipment and Materials for Cementitious Materials for Use in Concrete and Masonry* supersedes A456.3 (Material and Equipment)

mentary cementing materials (see Table). Upon request, the designations for blended cements can also provide information on the composition of blended hydraulic cements. The designations then follow the form: BHb-Axx/Byy/Czz, where BHb is the blended hydraulic cement type, xx, yy, and zz are the supplementary materials used in the cement in proportions A, B, and C respectively. Covered supplementary cementitious materials include ground granulated blast furnace slag (S), silica fume (SF), natural pozzolans (N), and fly ash (Classes F, CI, and CH). Class F, CI, and CH fly ashes are low (less than 8% CaO by mass), medium (between 8% and 20% CaO by mass), and high calcium oxide (more than 20% CaO by mass) contents, respectively.

Blended Supplementary Cementing Materials—Blended SCMs are designated as BMB and have reporting requirements similar to blended hydraulic cements.

Table: Type Designations for Canadian Portland and Blended Hydraulic Cements

New type designations, CSA A3001-03		Type descriptions	Previous type designations		U.S. type designations	
Portland cement	Blended hydraulic cement		Portland cement	Blended cement	ASTM C 150	ASTM C 1157
GU	GUb	General use hydraulic cement	10	10E-x	I	GU
MS	MSb	Moderate sulphate-resistant hydraulic cement	20	20E-x	II	MS
MH	MHb	Moderate heat of hydration hydraulic cement	20	20E-x	II	MH
HE	HEb	High early-strength hydraulic cement	30	30E-x	III	HE
LH	LHb	Low heat of hydration hydraulic cement	40	40E-x	IV	LH
HS	HSb	High sulfate-resistant hydraulic cement	50	50E-x	V	HS

Examples:

MS—portland cement (with no supplementary cementitious materials) for use when moderate sulphate resistance is required.

GUb-30F/5SF—general use blended cement containing 30% by mass Class F fly ash (F) and 5% silica fume (SF).

Summary of Additional Changes

CSA A3000-03 is available in English and French and can be obtained at www.csa.ca.

Other points of interest in the new A3000-03 include:

- Provisions are given for blended hydraulic cements consisting of a portland cement and up to three supplementary cementing materials and blended supplementary cementing materials containing up to three components
- A provision has been included for the testing of processing additions when slag, fly ash, or natural pozzolans are present
- The C_3A limit for MH and MS (A3001-98 Type 20) has been revised to 8% maximum, similar to ASTM C 150 Type II
- The maximum silica fume content of blended hydraulic cements has been increased to 15%
- A definition for hydraulic cement has been added: hydraulic cement is defined as either a portland cement, a blended hydraulic cement, a mortar cement, or a masonry cement
- The uniformity requirements clause has been modified to clarify that the uniformity requirement is intended for the predominant product
- Annex C has been added to explain the changes to the nomenclature of portland and blended hydraulic cement types
- Annex D has been added as a guide for the evaluation of alternative supplementary cementing materials for use in concrete