ASTM C150-22 Common Reference Type I/II Portland Cement for use in ASTM C989-22 Slag Activity Testing

Production Date: November 2023 **LOT #6**

STANDARD REQUIREMENTS
ASTM C 150 Tables 1 and 3 and ASTM C989 Section 10.1

CHEMICAL

Item	Spec. Limit	Test Result
SiO_2 (%)	[A]	20.06
Al_2O_3 (%)	[A]	4.74
Fe_2O_3 (%)	[A]	3.46
CaO (%)	[A]	62.48
MgO (%)	6.0 max	2.54
SO_3 (%)	3.0 max	3.4
Ignition loss (%)	3.0 max	1.76
Na_2O (%)	[A]	0.31
K_2O (%)	[A]	0.71
$Na_2O+0.658K_2O$ (min.-max, %)	0.60-0.90[B]	0.78
Insol. residue (%)	0.75 max	0.26
Potential phase composition(%)[D]		
C_3S	[A]	55.0
C_2S	[A]	16.0
C_3A	[A]	6.7
C_4AF	[A]	10.5

PHYSICAL

Item	Spec. Limit	Test Result
Air content of mortar (volume %)	12 max	7.2[C]
Blaine fineness (m^2/kg)	260 min	369
Mortar bar expansion (%) (C1038)	0.80 max	-0.008[C]
Min. compressive strength (psi)		
7 days	2760	4380
28 days	5000[B]	5360
Initial Set Time, Vicat (min.-max, minutes)	45-375	176

NOTES:
[A]No limit.
[B]Limit from ASTM C989.
[C]Test result represents data from one laboratory.
[D]Un-adjusted per Annex A1.5 of ASTM C150.

The chemical composition and physical test results listed above are the average from three laboratories unless otherwise noted (See Note C). Limits are from ASTM C150 unless otherwise noted (See Note B).

Tests were conducted on split samples obtained from a composite of grab samples representative of a blend of two portland cements meeting the requirements of ASTM C150.

ASTM C989 Common Reference Portland Cement FAQ's

Q: ASTM C989 requires re-qualification of the reference portland cement every six months. Does the re-qualification interval start when I receive the common reference cement package or when I open it for initial use?

A: *The interval starts when the package is opened and the sealed liner is broken.*

Q: How should the common reference portland cement be stored after it is received?

A: *As with any hydraulic cement, the package should be stored under laboratory conditions in a dry location. After opening, the package container should be tightly sealed between uses to minimize exposure to the atmosphere that could result in access to moisture.*

Q: How long can the unopened package of common reference portland cement be retained before use?

A: *Each package is labeled with an expiration date that is two years after production of the blend.*

Q: Can I use the strength test results provided with the common reference portland cement for determination of the Slag Activity Index (SAI)?

A: *No, the compressive strength results provided with the common reference cement are based on constant water-to-cement ratio in accordance with ASTM C109/C109M. The SAI determination in ASTM C989 is based on constant flow. Also, ASTM C989 requires periodic retests of the reference portland cement.*

Q: ASTM requires reporting values of total alkalies, fineness, and potential compound composition for the reference portland cement used for SAI testing. Can I use the values provided with the common reference portland cement?

A: *Yes, these values can be used as long as the common reference cement is properly stored. Once the common reference portland cement package is opened, it is recommended that loss on ignition tests be run periodically to confirm that the cement has not been compromised in storage.*

Q: Can I be sure that different shipments of the common reference portland cement will not impact my SAI results?

A: *It is intended that the common reference portland cement properties will be consistent from shipment to shipment. However, as with any change in reference portland cement, when using a new shipment, SAI test results should be compared with earlier data to detect any differences.*