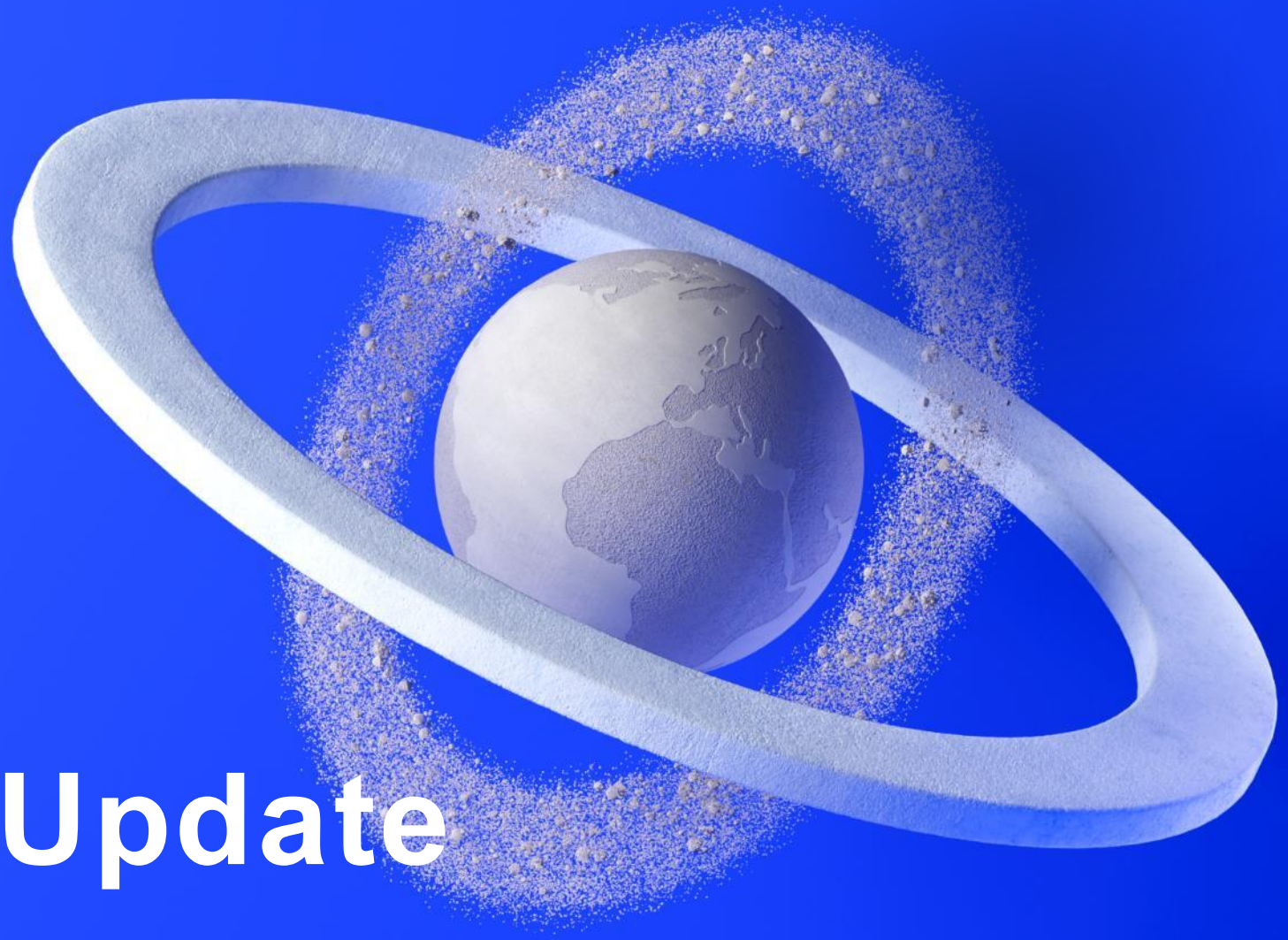

ASTM C09.23 Update

G. Terry Harris Sr., FACI

September 9, 2025

Agenda

01 Who We Are

02 ASTM C09.23 Standards

03 New and Withdrawn Standards

04 Changes to C494

05 Future Of C494

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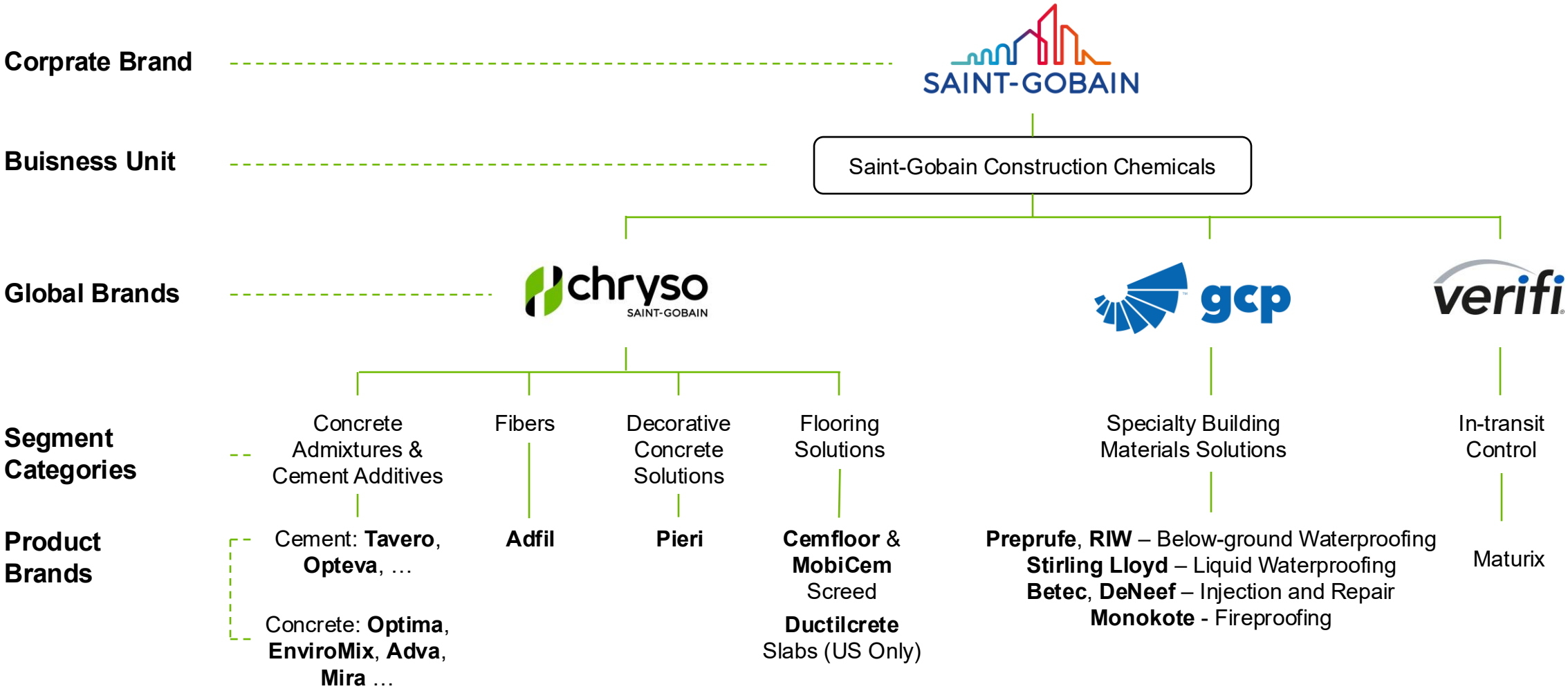
Brand Architecture General Principles



SAINT-GOBAIN

Facility Locations

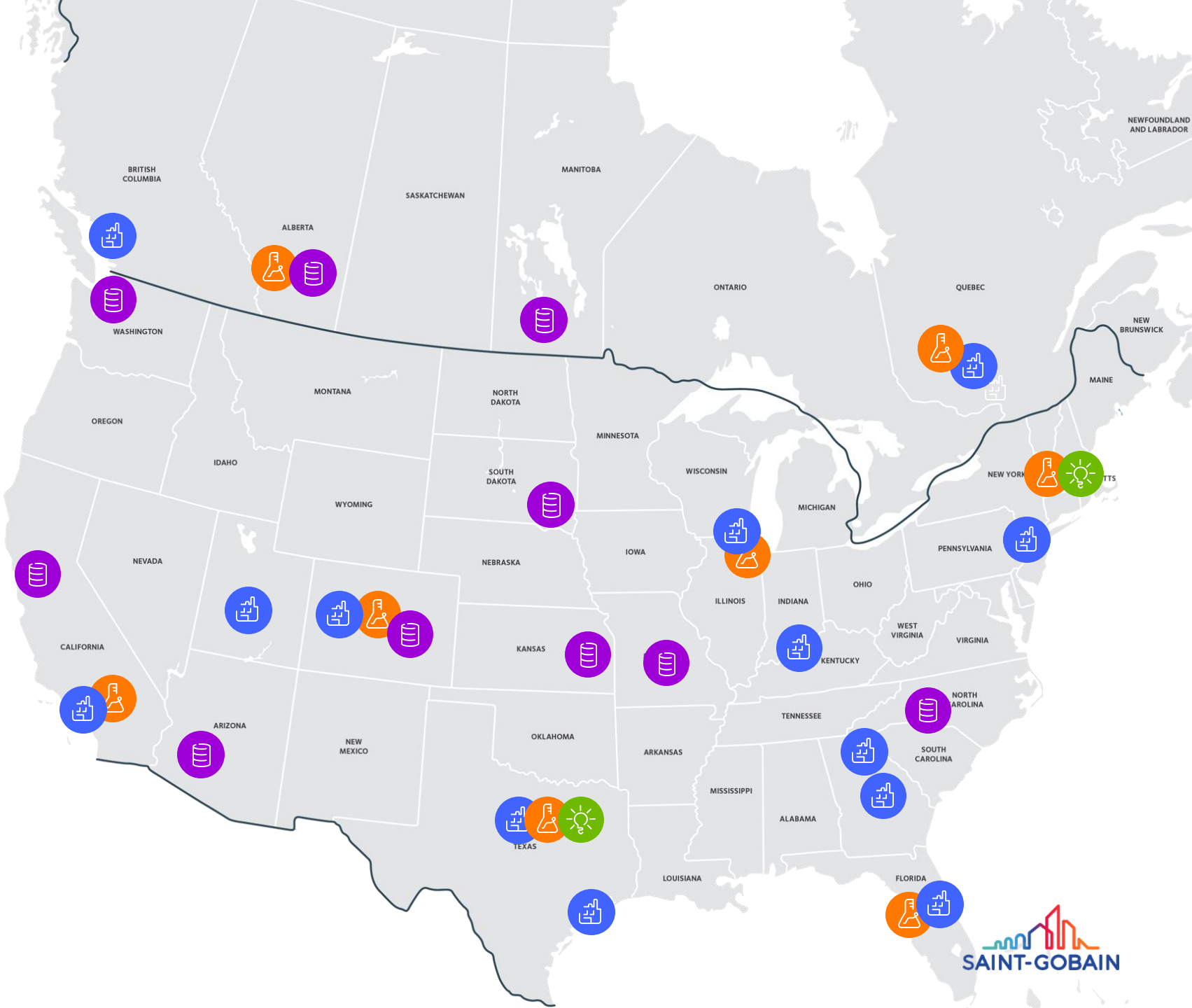
Chryso – North America

13 Manufacturing Sites
Where our customers need our products the most

10 Warehouses
Distributing products closer to our customers

2 R&D Centers
Delivering next-generation solutions for our customers

8 Application Labs
Providing local testing capabilities



C09.23 Standards

ASTM C09.23 Standards

- C233/C233M-24 Standard Test Method for Air-Entraining Admixtures for Concrete
- C260/C260M-24 Standard Specification for Air-Entraining Admixtures for Concrete
- C403/C403M-23 Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
- C494/C494M-24 Standard Specification for Chemical Admixtures for Concrete
- C796/C796M-25 Standard Test Method for Foaming Agents for Use in Producing Cellular Concrete Using Preformed Foam
- C869/C869M-24 Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete
- C979/C979M-24 Standard Specification for Pigments for Integrally Colored Concrete
- C1582/C1582M-24 Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete
- C1622/C1622M-24 Standard Specification for Cold-Weather Admixture Systems
- C1882/C1882M-24e1 Standard Specification for Anti-washout Admixtures for Concrete*

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New & Withdrawn Standards

New Standards

C1882/C1882M-24e1 Standard Specification for Anti-washout Admixtures for Concrete

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Withdrawn Standards

C1017/C1017M-13e1 Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete (Withdrawn 2022)

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Changes to C494

Addition of Type S

Designation: C494/C494M – 08a

Standard Specification for Chemical Admixtures for Concrete[1]

This standard is issued under the fixed designation C494/C494M; the number i
of original adoption or, in the case of revision, the year of last revision. A nun
A superscript epsilon (ε) indicates an editorial change since the last revision

This standard has been approved for use by agencies of the Department of D

1. Scope*

1.1 This specification covers materials for use as chemical admixtures to be added to hydraulic-cement concrete mixtures in the field for the purpose or purposes indicated for the eight types as follows:

1.1.1 *Type A*—Water-reducing admixtures,
1.1.2 *Type B*—Retarding admixtures,
1.1.3 *Type C*—Accelerating admixtures,
1.1.4 *Type D*—Water-reducing and retarding admixtures,
1.1.5 *Type E*—Water-reducing and accelerating admixtures,
1.1.6 *Type F*—Water-reducing, high range admixtures,
1.1.7 *Type G*—Water-reducing, high range, and retarding admixtures, and
1.1.8 *Type S*—Specific performance admixtures.

NOTE
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3.1.8 *specific performance admixture*—an admixture that provides a desired performance characteristic(s) other than reducing water content, or changing the time of setting of concrete, or both, without any adverse effects on fresh, hardened and durability properties of concrete as specified herein, excluding admixtures that are used primarily in the manufacture of dry-cast concrete products (See Note 5).

NOTE 5—Other specific performance characteristics include, but are not limited to, shrinkage reduction, mitigation of alkali-silica reaction, and viscosity modification. Admixtures used for the purposes of reducing water content or changing the time of setting of concrete are classified within the Type A through Type G grouping. Plasticizing, water-repellent, and efflorescence-controlling admixtures are examples of admixtures that are used in the manufacture of dry-cast concrete products.

TABLE 2 Types and Minimum Number of Specimens and Tests

	Number of Types of Specimens[A]	Number of Test Ages	Number of Conditions of Concrete[B]	Number of Specimens, min
Water content	...	1	2	[C]
Slump	1	1	2	C
Air content	1	1	2	C
Time of setting	1	[D]	2	6
Compressive strength				
Types B, C, and E	1	5	2	30
Types A, D, and S	1	6	2	36
Types F and G	1	7	2	42
Flexural strength	1	3	2	18
Freezing and thawing	1	1	2	12
Length change	1	1	2	6
Water reducing, high range	...	6	...	36
Water reducing, high —range and retarding	...	6	...	36

4. Ordering Information

4.1 The purchaser shall specify the type of chemical admixture desired, and in the case of a Type S admixture the specific performance characteristic(s) required.

5.5 At the request of the purchaser, the manufacturer shall provide data to substantiate the specific performance characteristic(s) stated by the manufacturer for a Type S admixture.

tion. A Type S admixture shall be tested at a dosage within the range recommended by the manufacturer for field use.

19.1.8 For a Type S admixture and when required by the purchaser, a report on the performance characteristics of the admixture in accordance with 5.5

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Type S

C494/C494M – 08a

TABLE 1 Physical Requirements[A]

	Type A, Water Reducing	Type B, Retarding	Type C, Acceler-ating	Type D, Water Reducing and Retarding	Type E, Water Reducing and Accelerating	Type F, Water Reducing, High Range	Type G, Water Reducing, High Range and Retarding	Type S Specific Performance
Water content, max, % of control	95	...	...	95	95	88	88	...
Time of setting, allowable deviation from control, h:min:								
Initial: at least	...	1:00 later	1:00 earlier	1:00 later	1:00 earlier	...	1:00 later	
not more than	1:00 earlier nor 1:30 later	3:30 later	3:30 earlier	3:30 later	3:30 earlier	1:00 earlier nor 1:30 later	3:30 later	1:00 earlier nor 1:30 later
Final: at least	...	...	1:00 earlier	...	1:00 earlier	...	...	
not more than	1:00 earlier nor 1:30 later	3:30 later	...	3:30 later	...	1:00 earlier nor 1:30 later	3:30 later	1:00 earlier nor 1:30 later
Compressive strength, min, % of control:[B]								
1 day	...	...	...	...	...	140	125	...
3 days	110	90	125	110	125	125	125	90
7 days	110	90	100	110	110	115	115	90
28 days	110 (120)[C]	90	100	110 (120)[C]	110	110 (120)[C]	110 (120)[C]	90
90 days	(117)[C]	n/a	n/a	(117)[C]	n/a	(117)[C]	(117)[C]	n/a
6 months	100 (113)[C]	90	90	100 (113)[C]	100	100 (113)[C]	100 (113)[C]	90
1 year	100	90	90	100	100	100	100	90
Flexural strength, min, % control:[B]								
3 days	100	90	110	100	110	110	110	90
7 days	100	90	100	100	100	100	100	90
28 days	100	90	90	100	100	100	100	90
Length change, max shrinkage (alternative requirements):[D]								
Percent of control	135	135	135	135	135	135	135	135
Increase over control	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Relative durability factor, min[E]	80	80	80	80	80	80	80	80

[A] The values in the table include allowance for normal variation in test results. The object of the 90 % compressive strength requirement for a Type B amd Type S admixture is to require a level of performance comparable to that of the reference concrete.

[B] The compressive and flexural strength of the concrete containing the admixture under test at any test age shall be not less than 90 % of that attained at any previous test age. The objective of this limit is to require that the compressive or flexural strength of the concrete containing the admixture under test shall not decrease with age.

[C] Alternative requirement. If the physical requirements are met and any of the measured relative strengths are greater than the requirement in parentheses, the admixture shall be considered provisionally qualified until the 1-year strength test results are obtained.

[D] Alternative requirements, see 17.1.4, % of control limit applies when length change of control is 0.030 % or greater; increase over control limit applies when length change of control is less than 0.030 %.

[E] This requirement is applicable only when the admixture is to be used in air-entrained concrete which may be exposed to freezing and thawing while wet.

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Changes to C494

C494-10
C494-10a
C494-11
C494-12
C494-13
C494-15 (Comparing Averages)
C494-15a
C494-16 (Table 2)
C494-17 (Comparing IR Spectrum)
C494-19 (Extensive Revision, added appendix)
C494-19e1 (Editorial)
C494-24 (Removed the 1-year strength requirement for type A, B, D, F and G; Allowed the use of IL cement
All other relavant standards were revised to allow the use of IL cement

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Future Standards?

Standards in Development

- WK54619 Standard Test Method for Using Temperature Rise as an Indication of Relative Time of Setting of Cementitious Mixtures
- WK95074 Permeability-Reducing Admixtures for Concrete
- WK95071 Determining the Depth of Water Penetration into Concrete Subject to Hydrostatic Conditions
- Shrinkage-Reducing Admixtures Standard is in development but not balloted yet
- Rheology Modifying Admixtures, Strength Enhancers Admixtures standard are not yet in Development

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New Standard in Development (Not C09.23)

WK 60809 - Colloidal Silica for Use in Concrete

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Thank you!
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