

1402 - CHEMICAL ADMIXTURES FOR CONCRETE

SECTION 1402

CHEMICAL ADMIXTURES FOR CONCRETE

1402.1 DESCRIPTION

This specification covers chemical admixtures to be added to concrete mixtures during mixing operations for the purposes listed below:

a. Type A – Water Reducing Admixture. An admixture that reduces the quantity of mixing water required to produce concrete of a given consistency.

b. Type B – Set Retarding Admixture. An admixture that retards the setting of concrete.

c. Type C - Accelerating Admixture. An admixture that accelerates the setting of concrete.

d. Type D – Water Reducing-Set Retarding Admixture. An admixture that reduces the quantity of mixing water required to produce concrete of a given consistency, and retards the setting of concrete.

e. Type E - Water Reducing and Accelerating Admixture. An admixture that reduces the quantity of mixing water required to produce concrete of a given consistency, and accelerates the setting of concrete.

f. Type F – Water-Reducing, High Range Admixture. An admixture that reduces the quantity of mixing water required to produce concrete of a given consistency by 12% or greater.

g. Type G – Water Reducing, High Range, and Retarding Admixture. An admixture that reduces the quantity of mixing water required to produce concrete of a given consistency by 12% or greater, and retards the setting of concrete.

h. Type I – Plasticizing Admixture. An admixture that produces flowing concrete without further addition of water.

i. Type II – Plasticizing and Set Retarding Admixture. An admixture that produces flowing concrete without further addition of water, and retards the setting of concrete.

NOTE: Flowing concrete is defined as having a slump equal to or greater than 7 ½ inches.

1402.2 REQUIREMENTS

a. Provide Type A, B, C, D, E, F and G admixtures that comply with ASTM C 494.

b. Provide Type I and II plasticizing admixtures that comply with ASTM C 1017.

1402.3 TEST METHODS

a. Test Type A, B, C, D, E, F, and G admixtures as specified in ASTM C 494, with the following exception:
(1) Provisional qualification, as stated in Table 1, Note C, will not be considered until at least 6 months of data has been established.

b. Test Type I and II plasticizing admixtures as specified in ASTM C 1017.

1402.4 PREQUALIFICATION

a. Each brand and type of admixture covered by this specification must be prequalified. Submit a written request to be evaluated for prequalification to the Chief of Materials and Research. Provide the following for each brand and type of material to be evaluated:

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- (1) Name and address of the manufacturer.
 - (2) Brand name of the material.
 - (3) Type of material as defined in **subsection 1402.1**.
 - (4) The chloride content of the admixture and whether or not chloride was added during its manufacture.
 - (5) Recommended dosage for each of the following concrete temperature ranges: 68° to 77°F, 77° to 86°F, and above 86°F.
 - (6) Recommended manner and time of adding the admixture to the concrete batch.
 - (7) Two copies of a certified test report prepared by a laboratory regularly inspected by the Cement and Concrete Reference Laboratory (CCRL) of the National Institute of Standards and Technology, showing test results complying with the applicable requirements of ASTM C 494 or ASTM C 1017. Also, include evidence that the laboratory is regularly inspected by CCRL. Test results are to be no more than 36 months out of date.
 - (8) An infra-red spectrum of the admixture which was used in the laboratory tests.
- b.** Forward a one-liter sample from production of each type of admixture being offered for prequalification to the Engineer of Tests.
- c.** The information, test reports and test results obtained at the Materials and Research Center on samples submitted, will be reviewed by the Chief of Materials and Research. The manufacturer will be advised of the results.
- d.** Results of tests from the AASHTO National Transportation Product Evaluation Program (NTPEP) will be accepted in lieu of the sample requested above. Include the most recent NTPEP test report along with the other documentation requested. Include evidence that the product being offered is identical to the one reported in the NTPEP report.
- e.** The Bureau of Materials and Research will maintain a list of prequalified chemical admixtures for concrete. Products that have been prequalified by the above procedures will remain prequalified, as long as the formulation and manufacturing processes remain unchanged, and field experience indicates that the admixture functions appropriately. Changes in the formulation, manufacturing process, or failure of the admixture to function appropriately will require a new prequalification.

1402.5 BASIS OF ACCEPTANCE

- a.** Prequalification as set forth under **subsection 1402.4**.
- b.** Receipt and approval of a Type C certification as specified in **DIVISION 2600**.