

**KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, 1990 EDITION**

SECTION 402

**CONCRETE ADMIXTURES FOR WATER REDUCTION,
SET RETARDATION, ACCELERATION AND PLASTICIZING**

Page 258, subsection 402.09. Delete this subsection and replace with the following:

**402.09 CONCRETE ADMIXTURES FOR WATER REDUCTION, SET RETARDATION,
ACCELERATION AND PLASTICIZING.**

(a) General.

The Contractor is responsible for all labor and equipment necessary for the proper mixing, measuring and dispensing of all admixtures, and for any mix design or trial testing which may be necessary. No additional compensation will be allowed for designing, furnishing and incorporating the admixture in the mix.

(b) Water Reduction and Set Retardation.

(1) Water reducing and set retarding admixtures may be necessary in all classes of concrete construction when the placing and finishing properties of the concrete are adversely affected by unfavorable weather or other conditions. The use of the admixtures is at the option of the Contractor with approval of the Engineer. Select and propose the type of prequalified admixture (Section 1400). It's continued use will be based on performance. It is the Contractor's responsibility to ensure that the admixture will work as intended without detrimental effects. The amount of the admixture to be used in the mix is determined by the Contractor, in accordance with the admixture manufacturer's recommendations.

(2) When high range water reducers (Types F and G) are added, only prequalified vinsol resin or tall oil based air entraining agents should be used with them to maintain air bubble size and spacing.

(c) Accelerating.

When specified in the plans, or in situations which involve contact with reinforcing steel and require early strength development to expedite opening to traffic, a non-chloride accelerator may be appropriate. The Engineer may approve the use of a prequalified Type C or E admixture (Subsection 1402).

(d) Plasticizing.

In concrete structures or prestressed beams, which are congested by large amounts of reinforcing steel, the Engineer may approve the use of a prequalified plasticizer (Section 1400) to produce greater slump concrete to enhance placement, while retaining an acceptable water/cement ratio. If this option is used, comply with the following procedures:

Submit the design mix for approval. Once the mix is approved, it is necessary to re-submit it only if there is a change in design. When plasticizing admixture is used, the maximum designated slump of concrete is 175 mm. An allowable tolerance of plus or minus 25 percent or 20 mm, whichever is larger, will be permitted from the designated slump. If slump is too high, a truck may be held until it comes into compliance, provided it is within the time and temperature limits, and revolutions are not exceeded.

Specifically address the normal change in air entrainment from the mix after addition of a plasticizer in the mix design. Depending on the mix, more, or less air entraining admixture may be required to maintain the required air content in the final mix. As with high range water reducers, when plasticizers are added, only prequalified vinsol resin or tall oil based air entraining agents should be used with them to maintain air bubble size and spacing.

Manufacturers of plasticizing admixtures may recommend additional mixing revolutions beyond those specified in Subsection 402.07(a) above, to adequately mix the plasticizer. If required, address additional mixing revolutions (not to exceed 60 additional) in the mix design.

Provide a batching sequence in the mix design, in which the location of the plant in relation to the job site is identified, and the sequencing and place of addition of the plasticizer is specified. Add the plasticizer in compliance with the recommendations of the admixture manufacturer. No water may be added after the plasticizer is put in the batch. A batch may be redosed with up to 50% of the original dose, provided time and temperature limits are not exceeded, and a minimum of 30 revolutions remain for mixing. When a dose or redose is added to a mix truck, ensure that the admixture gets to the front of the load for thorough mixing.

Conduct testing on at least one full trial batch using the proposed mixture, to determine the adequacy of the time of addition of plasticizer, and the proper dosage required to obtain the desired properties. Determine the air content in the fresh mixture before and after the addition of the plasticizer. Monitor slump, air, temperature and workability at regular intervals for the time period from when the plasticizer is added, until placement is estimated to be completed. If these properties remain within specification limits, the concrete from the trial batch may be used in the project at the discretion of the Engineer. Minor adjustments may be made to the dose rate to compensate for environmental changes during the placement without a new mix design or trial batch.

SUBSECTION 1402

ADMIXTURES FOR WATER REDUCTION, SET RETARDATION, ACCELERATION AND PLASTICIZING OF PORTLAND CEMENT CONCRETE

following to 1402.01, in the appropriate order.

() **Type C - Accelerating Admixture:** An admixture that accelerates the setting of concrete.

() **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.

Page 835, 1402.03(b)(3). Add the following in the appropriate order.

C - accelerating, E - water reducing-accelerating

Page 835, 1402.03(c). Delete the entire paragraph and replace with the following:

(c) Forward a one liter sample from production of each type of admixture being offered for prequalification.

Page 835, 1402.04. Delete the entire paragraph and replace with the following:

Test Type A,B,C,D,E,F and G admixtures in accordance with ASTM C494. Test Type I and II admixtures in accordance with ASTM C1017.

08-03-95 M&R (JLC)

04208000C Type C Admixture	L	PRCT
04209000E Type E Admixture	L	PRCT