

CITY OF SAN ANGELO**ITEM 437****CONCRETE ADMIXTURES****437.1 DESCRIPTION.**

This Item shall govern for the admixtures used in Portland Cement Concrete, in accordance with the Plans, specifications and requirements herein.

437.2 MATERIALS.

Admixtures shall be in a liquid state and conform to the following requirements:

Chemical Admixtures – ASTM C494
Air Entraining Admixtures – ASTM C260

437.3 APPROVAL OF ADMIXTURES.

The City reserves the right to perform any or all of the tests required by ASTM C260 and ASTM C494 as a check on the tests reported by the manufacturer. In case of any variance, the City test will govern. Any change in formulation of an admixture shall require retesting, and shall be approved by the City.

A change in formulation discovered by any of the tests prescribed herein, or other means, and not reported and retested, may be just cause to remove a manufacturer from the pre-certified list for City projects.

All documentation and correspondence shall be submitted to the City Engineer, San Angelo, Texas.

437.4 DISPENSING EQUIPMENT.

Each admixture shall be measured and dispensed by a separate readily adjustable dispenser. When set to a predetermined volume, the dispenser shall fill to the preset amount and hold it without leakage until the operator releases the content by some positive means. Unless otherwise shown on the Plans, completely automatic dispensing will not be required, except for use with a fully automatic Plant.

The calibrated container shall be constructed in such a manner that the level of the admixture is visible at all times. A strip gauge with one (1) ounce increments for air-entraining admixtures and ten (10) ounce increments for water reducing and/or retarding admixtures, shall be attached securely to the measuring apparatus. This strip shall be a material possessing weather-resistant qualities. The accuracy required for these systems shall be plus or minus three (3) percent. The equipment shall visibly show the total amount to be dispensed for ready check by the City.

For individual concrete placements of less than two (2) cubic yards at the placement site, the City may waive the requirements for mechanical dispensing equipment.

437.5 CONSTRUCTION USE OF ADMIXTURES.

When used in accordance with the governing specification, the Contractor will be allowed to use any admixture, which has been approved. The Contractor shall submit to the City one (1) copy of the invoice showing the admixture or admixtures to be used on the project. Prior to using an admixture in the work, trial mixes shall be made and tested in the field using the materials and equipment to be used on the project. If more than one (1) admixture is used, they shall be used in such manner that the desirable effects of each are realized.

Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

The volume of liquid admixtures shall be taken into account when determining the water/cement ratio of the mix.

The dosage rate for air-entraining admixtures shall be adjusted as necessary to produce the required air content in the concrete. The air content shall be in accordance with Item 421, "Portland Cement Concrete", unless otherwise shown on the Plans.

When a retarding admixture is required for extended retardation, the amount to be used shall be established by several trial batches with varying retarder content and simulating the placing conditions to be encountered. When water reducing or retarding agents are used at the option of the Contractor, reduce dosage of the admixture will be permitted.

Accelerators will be used only to meet special requirements and will require the written approval of the City on each specific project. Accelerating admixtures will not be permitted in bridge decks, top slab of direct traffic culverts, nor when Type II cement is specified.

All accelerating admixtures dosages will be based on trial mixes and approved by the City.

High range water reducers will be used only to meet special requirements and will require written approval of the City on each specific project. A Work Plan for control shall be submitted by the Contractor for approval and an evaluation of the concrete containing the admixture will be performed by the City. Recommended guidelines for developing a Work Plan are shown in TxDOT Construction Bulletin C-11.

Suitable measures shall be taken to prevent admixtures from freezing. Admixtures shall be agitated as required to prevent separation or sedimentation of solids. Air agitation of entraining agents will not be permitted.

Air entraining agents shall be charged into the mixer with the first one-third (1/3) of the mix water. Retarding or water reducing admixtures, except for high-range water reducers, shall be charged into the mixer during the last one-third of the mix water. Each admixture shall be dispensed separately but at the same time as the mixing water. No admixture shall be dispensed on dry aggregates.

Alternate charging sequences based on trial batches may be used subject to approval by the City.

High range water reducing admixtures shall be used and/or dispensed in accordance with the approved Work Plan.

Should the desired effects of an admixture not be achieved in the concrete, the City may take a sample of the admixture being used for further testing. Further use of the admixture will not be allowed until the results of such test confirm that the admixture has not been changed or altered in any way.

437.6 MEASUREMENT AND PAYMENT.

The work performed, materials furnished and all labor, tools, equipment, and incidentals necessary to complete the work under this Item will not be measured or paid of directly, but will be considered subsidiary to the various bid Item of the contract.