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Guidelines for using ACC Altus Series In-Form Chemical Surface Retarders for In-Situ (Cast-In-Place) Applications

Generally, when specifying chemical retarders on cast-in-place concrete applications there should be references to both the formwork specifications as well as the use and proper application of the retarder specified along with the placing and finishing operations in the concrete sections. This is particularly important if the contractors producing each are not the same. In most cases we would generally recommend generating a separate architectural concrete specification inclusive of all the preparation work, concrete placement and appropriate finishing required to complete the project correctly.

I. Formwork (Preparations)

A.) All concrete form materials should be free of all oils, chemical residues, greases and other materials that may interfere with the adherence of the painted retarder film to the form surface.

- 1. Clean all previously used formwork using mineral spirits, acetone or denatured alcohol prior to the application of the form retarder.**
- 2. All timber, plywood and other wood surfaces to be used in the treated areas exposed to view and coated with chemical retarder should be properly sealed prior to any application of the form retarder. This will aide in form clean-up and reduce possible etch differences caused by**



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absorption of the retarders active ingredients as well as cement paste and surface moisture during both the placement and curing processes.

(ACC recommends the use of steel formwork, fiberglass coated plywood sections, high density overlaid plywood or AC Grade plywood with a minimum of 2-3 coats of ACC Form Seal a high performance moisture cured urethane. Always make sure to allow for sufficient time for the sealer to properly cure prior to putting form sections into service. **[SPECIAL NOTE: The lighter the depth of etch of the final finish, the smoother and more seamless the requirement will be for the formwork used.]**

II. Application (Form Retarders)

A.) After the proper cleaning and sealing of the formwork to be used (when necessary), apply a full bodied single coat of Altus Series In-Form Retarder by brush, roller or by airless sprayer at a rate of 300-375 sq.ft/gallon at a wet mil thickness of 3-5 mils. ACC Altus Series Retarder should be thoroughly mixed using a jiffy type mixer and drill prior to each use or by pouring the complete contents between two clean and empty pails making sure any ingredients settled on the bottom are properly dispersed prior to use. *Do not use any form release agents prior to the use of Altus Series Retarders, this will diminish the performance of the painted retarder film and significantly affect the adherence of the film to the formwork during concrete placement.*

1. We generally advise that all formwork joints and seams be taped with urethane tape or similar jointing materials to reduce leakage during placement and the subsequent crusting that results on the finished surface from leakage at the joint during additional finishing operations.



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III. Concrete: General Placing and Finishing

A.) In general, the concrete mix design should have a higher coarse aggregate content than a standard wall mix or a structural mix design. The aggregate content should be increased to a minimum of at least 65%. This will increase the uniformity of the aggregate available at the surface providing a more consistent finish and more uniform depth of etch. ACC recommends a minimum water/cement ratio of .40 for best results.

- 1.) The concrete slump should be kept to a maximum of 7” unless you are employing a self-consolidating concrete to eliminate the need for vibration or at least significantly reduce it during wall placements helping to aid in reduction of potential segregation.**
- 2.) When placing sections over 6 ft. a tremie or elephant trunk should be used during placement to reduce the potential of mix segregation and abrasion of the retarder due to the height of the drop.**
- 3.) Vibration of the concrete should be by external means whenever possible. Using this method will aide in the reduction of sand streaks created through pour lines and placement overlaps not properly vibrated. When external means are not available the use of internal stinger type vibrator should be used to properly consolidate the concrete. Care must be taken to keep the stinger head to the backside of the reinforcement steel away**



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from the finished surfaces and the face to be exposed. This will limit the potential damage to the chemically activated form surface. Vibrate generally on 12-16” centers vertically for the best results.

- 4.) After the concrete has reached sufficient strength, generally a minimum of 2,000-2,500 psi for non-structural or load bearing walls, the forms are removed. The treated retarder matrix should be removed the same day with high-pressure water using 1,500-2,000 psi at a rate of 4-6 gallons per minute flow yielding 500-600 sq.ft. / Hour. Removal can also be accomplished using sandblast equipment or by a wet sandblast process at a rate of 800-1,200 sq.ft/hour.**

Important

- ❑ *Any delay in the removal of the chemically retarded cement matrix after the formwork has been removed will lead to potential inconsistencies due to the changing ambient conditions such as temperatures, humidity along with wind and rain.*
- ❑ *For best results in hot weather, the use of a hydration stabilizer or an integral retarder should be used to ensure the concrete should not set too quickly during and after placement. This is particularly necessary when employing low w/c ratio’s or when using faster setting (TYPE III) cements. Do not use accelerators when using Altus Series In-Form Retarders without consultation with ACC Technical Service Staff.*

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