


Top-Cast 05

Top-Cast 50

Top-Cast 150

Guidelines for mix designs, placing and finishing exposed aggregate concrete using Top-Cast

Grace's Top-Cast surface retarder, is designed to expose a wide range of aggregate sizes on the surface of concrete. With 11 different degrees, or depth of surface paste retardation, a contractor, architect or owner can achieve a whole range of exposed looks, depending on their choice of aggregates, mix designs, integral color, finishing techniques, and level of Top-Cast. Typically the first decision would be to decide what you really want to see on the surface of your concrete. Next, the concrete mix should be designed with the desired amount, color and size of aggregate you wish to see on the final surface. It is recommended that you consult with your local ready mix company for assistance, as they generally have the most knowledge of available aggregates in their markets. They also have the best understanding of designing the appropriate mixes to best achieve the end result look you might desire. It also is recommended that the ready mix producer consult with their local Dayton Superior Sales Professional for specific procedures, when working with Top-Cast applications. Once the mix design has been properly designed, then the concrete placing and finishing contractor must understand how to finish the concrete in a manner that will ensure that the aggregate that you wish to see on the surface is at the desired location within the concrete matrix in order to be adequately exposed. Lastly, the right level of Top-Cast must be selected in order to remove the desired amount of surface paste to expose the aggregate.

Placing and finishing guidelines for exposing aggregates larger than 3/8" (10mm)

- When using Top-Cast, a 6 sack mix should always be used to achieve correct etch (564 lbs. cement).
- Mix design should contain high percentage of coarse aggregate.
- Concrete should be placed with no more than 5" (125mm) slump.

- Concrete should be finished as little as possible to ensure that the aggregate stays tight and close to the surface of the concrete. Pushing the aggregate down can result in insufficient exposure of the coarse aggregate.
- Surface of concrete shall be as smooth as possible with minimal degree of ridge marks.
- Concrete surface shall be free of bleed water.
- For this level of exposure, one would normally use Top-Cast 75, 100, 125, 150, 200 or 250, depending on aggregate size to be exposed. (See Top-Cast brochure for chart.)
- Top-Cast shall be applied as soon as finishing procedures are complete and concrete surface still contains high degree of moisture. Top-Cast must be applied prior to losing surface moisture.
- Apply Top-Cast at a coverage rate of 200 to 300 sq. ft. per gallon. Full coverage must be achieved.
- Apply Top-Cast with commercial grade "Hudson or Chapin" sprayers. Adjustable or fan tip nozzles can be used (.3 or .5 GPM).
- Depending on ambient temperatures and humidity, Top-Cast, will dry in about 45 to 120 minutes. Once dry, Top-Cast will hold up to light to moderate rainfall.
- Once Top-Cast is applied, it is not necessary to cover with plastic unless rainfall is expected before Top-Cast is completely dry or heavy downpours are in the forecast.
- Depending on temperatures and setting characteristics of mix design, Top-Cast may be removed in 4 to 24 hours after application. Top-Cast **must not** be removed before underlying concrete has sufficient set to withstand washing by method used for Top-Cast removal.
- Methods used for Top-Cast removal are typically stiff bristle brooms and water hoses, power washers, or commercial floor scrubbers in conjunction with water hoses. Care should be taken when using power washers not to leave marks in the surface.



Guidelines for Using Surface Retarder

Placing and finishing guidelines for exposing aggregates 1/4" to 3/8" (6mm to 10mm)

- When using Top-Cast a 6 sack mix should always be used to achieve correct etch (564 lbs. cement).
- These mix designs will typically contain approximately a 50/50 ratio of coarse aggregate to fine aggregate.
- Concrete should be placed between 4" to 5" (100mm to 125mm) in slump.
- Finishing for this level of exposure should be very similar to broomed concrete.
- When surface is smooth, free of bird baths and firm enough to normally be broomed, Top-Cast should be applied. For best results, Top-Cast should be applied earlier versus later.
- Concrete surface must be free of trowel marks or they will show up after surface removal.
- Apply Top-Cast between 200 to 300 sq. ft. per gallon. Ensure that full coverage is achieved.
- For this level of exposure, one would typically be using Top-Cast 25, 50 or 75 depending on aggregate size and desired look. (See Top-Cast brochure for chart.)
- Same Top-Cast application and removal procedures used for full depth exposures apply.

Placing and finishing guidelines for exposing aggregates smaller than 1/4" (6mm). These may be referred to as "Micro-Exposed"

- Mix designs should be heavy on sand contents (60/40) and should have a minimum cement factor of 564 pounds (335 kg/m³). Coarse aggregate should be 3/4" (19mm) in size if possible. The larger the aggregate, the easier it is to work the stone down from the surface. Avoid small coarse aggregate if possible.
- Concrete should be placed between 4.5" to 5.5" (110mm to 140mm) in slump.
- Concrete should be rolled with roller tamper to ensure that coarse aggregate is pushed down from the surface.
- Rolling with tamper should be immediately followed with bull-floating. If possible, and for best results, concrete should be bull-floated in both directions.
- Remember, the objective when finishing this type of concrete is to get the stone down and away from the surface.
- Concrete should be floated and then troweled to level and smooth surface. There shall be no trowel, edger or jointer ridge marks on the surface. If ridge



marks are visible on the surface prior to application of Top-Cast, then they will show on the final surface after Top-Cast removal.

- Top-Cast shall be applied when surface still has sufficient moisture content in the surface. Lack of moisture will cause loss of depth of etch and make removal more difficult.
- For this level of exposure, one would normally be using either Top-Cast 03, 05 or 15 depending on desired look. (See Top-Cast brochure for chart.)
- Previous mentioned application and removal procedures for Top-Cast apply to Micro-Exposures as well.

Common mistakes or issues when using Top-Cast:

- Applying the product too late without sufficient surface moisture being present.
- Not achieving full coverage when applying.
- Not using the proper sprayers. Cheap is not better or sufficient!
- Using wrong mix designs for desired look.
- Not having enough finishers to complete necessary finishing work in time to apply Top-Cast at the right time.
- Removal issues are commonly caused by late application, not waiting too long to remove.
- Waiting too long to wash off in hot weather.
- Stones showing on the edges of micro-exposed surfaces. This is normally caused by floating out edger marks with float parallel to the form. After edging the first time, floats should be used to swipe paste back over the edge of the form. This is done by placing float onto concrete surface about 6" to 10" out from the form at a 45 degree angle to the form and swiping back to the edge. Float should be kept flat while doing this procedure.
- Knee board marks showing in final surface. Only "Non-Absorbent" materials shall be used. Absorbent materials such as wood can leave dark spots in the concrete. If impressions are left in fresh concrete by knee boards, impressions should be properly repaired before applying Top-Cast.

Exposed aggregate concrete looks best when enhanced with integral color, thus showcasing color and aggregate! Great looking exposed aggregate jobs are the result of the right mix design, the right placing and finishing techniques, a high quality surface retarder that will give you a consistent depth of etch, and the amount of detail in washing and cleaning the slab. Information in this document is intended as a guide. Actual mix designs, finishing and job conditions will impact final outcome.

Refer to www.daytonsuperior.com for latest Technical Data Sheet and MSDS
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