CMAX® Cement for Precasters
Recommended GFRC Production Process/Procedure

CMAX® Cement product line is available as a cementitious material commercially sold Gray Precast and White Precast Cements. Procedure outlined below will produce a highly durable and superior quality product. Any deviation from the following procedure may result in minor defects in the product. The following is only a guideline to assist our customers with GFRC (Glass Fiber Reinforced Concrete).

Materials

1.	Gray or White Precast™	88 lbs.
2.	#30 Silica Sand	80-100 lbs.
3.	Water	30-40 lbs.
4.	Fiber Glass	4-8 lbs.
5.	Ice (as required)	3 lbs.
6.	UC Delay™ (as required)	0-8 oz. (Retarder)
7.	Plasticizer (as required)	0-8 oz.

Note: Option to use fiber glass with mix depending on applications and specifications per customer requirements.

Procedure

- Have all the mixing components, water, and ½ inch fiber glass pre-weighed before mixing starts.
- Water should be metered into mixture. If meter is not available, then measure water using a bucket, which has been previously marked with a hole. The hole is used to mark the required level of water for the mix.
- Measure any admixture if necessary, but this will change the water demand.

Preparation of molds

- The molds should be cleaned and in good condition.
- Any excess of oil in corners, edges and details will require wiping.
- Any excess of oil will retard the face mix.

Mixing Sequence

- Dispense pre-measured amount of water into the mixer.
- Start the mixer.
- Note: If ice or UC Delay™ is needed (mix temperature above 80° F).
  Place the ice or UC Delay™ in the mixer before starting it.
- First, add the pre-weighed sand (or bag) into mixer while the shear blade is rotating.

- Then, add the pre-weighed cement in to the mixer while the shear blade is rotating.
- Minimum mixing time 1 minute; not to exceed 3 minutes.
- For back mix only, add pre-weighed fiberglass gradually to make sure that fibers are evenly distributed in the mixture. Avoid over mixing after adding fiber.

Spraying

- Pour face mix into the pump funnel.
- Purge the face mix into a corner to check the consistency.
- Spraying of the face mix can start as soon as a continuous discharge comes out of the gun nozzle. Keep normal air pressure to avoid rebound.
- Hold the gun such that nozzle is approximately 12 inches from the surface of the mold.
- Apply the face mix by moving spray head back and forth across the mold using crisscross spray pattern. Direct the stream of material normal to the mold surface until required face mix covers the mold and required thickness is achieved.
- The thickness of the face mix should not exceed $3/16^{th}$ of an inch.
- Use moist paintbrushes to go over corners, edges, and detailed areas to eliminate air pockets and to get good compaction by brushes.

Back Mix

- Use the same procedure mentioned for face mix to apply back mix.
- Allow face mix to be just tacky before applying back up mix. If face mix is to wet back up mix applied will pull the face mix and face mix will slide or sag.
- Constantly check thickness with depth gauge. Maintain 5/8 thickness (total)
- To get a better compaction use roller in a backward motion and upward motion for vertical surfaces. The roller has to be wet to prevent the back mix from sticking into it.
- Carefully hand press those areas that cannot be reached by the roller.
- Cut off excess mix from the edges of the mold with the use of a wide spatula.

Curing

- Temperature of mix plays important role in cuing the product.
- Ideal temperature of face mix and back mix helps to cure faster without any surface cracks.
- CMAX Cement is very fast setting cement and it is very sensitive to temperature.
- In the beginning, monitor temperatures very closely to establish some learning process.
- Covering the product immediately after final finishing operations helps to cure faster.
- If the temperature of the mix is too low, product takes longer to set.
- If the temperature is too high, product set accelerates causing some cracks on the product's face.
- If you exceed the water cement ratio recommended by CC Products® Corporation, shrinkage cracks will develop.
- During early stage of curing, avoid direct sunlight.
- De-mold 1 hour after final set.

- Any textural requirements such as acid washing or sand blasting may be done minimum 3 hours after de-molding.
- Product may ship after 24 hours of curing or sooner depending architectural product.
- Recommend 3-10 days of curing for architectural product being installed for government projects, i.e. Caltrans, shipping ports, buildings or commercial high-rise applications.
- Breathable water repellent sealer may be applied if required.

CMAX Cement Products utilized in GFRC or casting precast applications will yield an ultra-high strength, superior and durable product.

Technical Support:

Please contact local sales representative in your area for any technical or on-site support.

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