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Technical Bulletin

TB-IG06-PC

Installation Guidelines

Plicast[®] (Dense) & Plicast LWI[®] Series Castables

This guideline is relevant for Plicast series dense conventional castables and Plicast LWI series insulating castables.

Storage

Plicast and Plicast LWI castables are packaged in moisture resistant bags and super sacks. Even so, castable packages should be kept dry since moisture can reduce the castable's ultimate strength and even cause hardening. Castable packages should be stored indoors in a dry, warm, location. If the material must be stored outdoors, it should be covered by tarpaulins and stored in a well drained location where standing water will not accumulate under the pallets. Do not store in direct sunlight, especially in hot climates.

Preparation

1. The site where the castable will be installed must be clean to minimize the chance of contaminating the castable.
2. Mixers, tools, vibrators, and conveying equipment must also be clean. NOTE: Contamination, particularly by portland cement, can effect setting, working time and final properties.
3. The back-up wall or insulation material against which the castables will be poured must be smooth and free from wide gaps or cracks. This surface, if not waterproof, must be coated with a curing compound or plastic film. If plastic film is used it must be securely attached or it may float or wrinkle during pouring.
4. All forms / molds used should be moisture resistant or made moisture resistant with the use of curing compound / moisture proofer. The forms should be coated with a parting compound / mold release agent.
5. Mechanical mixing equipment is recommended.

Plicast Dense Castables—paddle, pan, and other high intensity mixers are preferred. Other types of mixing equipment (i.e. tumblers / cement trucks) may increase mixing time and water demand.

Plicast LWI Castables—paddle, pan, or tumble mixers are preferred.

Note: High intensity mixing may break down light weight aggregate and in crease castable installed density

Mixing

1. The ideal mixing and placement temperature (castable, water, & ambient conditions) for Plicast castables should be 60°F (16°C) to 90°F (32°C). If ambient conditions after placement are below 45°F (7°C), setting may be delayed. High ambient and material temperatures, >90°F (32°C), may cause reduced working / setting times or flash setting.
2. Mixing water should be clean and potable (i.e. drinking quality).
3. Start the mixer and empty the entire contents of one or more packages (bags or super sacks) into the mixer.

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Plicast® (Dense) & Plicast LWI® Series Castables

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4. For the first batch add 90% of the mixing water as specified on the package or product data sheet.
5. Allow the batch to mix to “wet down” before adding additional water for the desired consistency. Plicast castables and Plicast LWI castables require mixing times of between 2 to 3 minutes. The final water amount required for the desired consistency can be used as the starting point for subsequent batches. Slight water adjustments may be needed from time to time during the casting process to maintain the desired consistency.

Placement

1. Castable placement should begin as soon as the mixing process is complete. The total time interval from the addition of water until the castable batch is in place should not exceed 20 minutes.
2. Place the castable taking care to fill in any undercuts or profiles. Vibrate using a wand or external (form) vibrator as needed to remove entrapped air pockets, to consolidate and knit the pour layers and level the castable.
3. Do not over vibrate the castable especially Plicast LWI castables. This will result in material segregation and surface skinning.
4. Do not over trowel or finish the cast surface to a very smooth or “slick” texture. This will inhibit moisture loss and setting. Use of a wood screed or broom is preferred for finishing the cast surface.
5. Once casting begins, it should continue uninterrupted until the form is complete. Do not allow castable to set more than 20 minutes between casting layers.

Curing and Bake Out

After casting, the exposed castable surface should be treated with a moisture retention membrane such as curing compound* or covered with plastic film for moist curing. Plicast castables should be left undisturbed for at least 12hrs though a 24hr moist cure is preferred. If cured in ambient conditions less than 45°F (7°C), additional time and / or supplemental form heating may be required. Castables should be protected from freezing during the moist curing period.

After curing Plicast castables may either be left to air dry or heated as soon as required. Please refer to the appropriate bake out schedule referenced below.

*Water based curing compound conforming to ASTM C309 Type I Class A&B recommended.

Technical References

Technical Questions

Plibrico Technical Department
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Heat Up Schedules

Field Cast	Plibrico Schedule B
Pre Cast	Plibrico Schedule PS-I



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