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Technical Bulletin

TB-IG06-PF

Installation Guidelines

PliFlow Series Castables

PliFlow series castables are reduced cement castables modified to achieve free flow / self leveling consistency after mixing. As such, they require no vibration for consolidation during placement. PliFlow castables require longer times to stiffen and set (2 to 12 hrs or longer in cool conditions) than regular castable types.

Storage

PliFlow 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 placement characteristics, water demand, 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 PliFlow 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 any 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 free from gaps or cracks and 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. Forms must be study to resist the higher hydrostatic force of the PliFlow castable due to it's longer set time.
5. Mechanical mixing equipment should be used. 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. Hand mixing (i.e. mortar box) is not recommended.

Mixing

1. The ideal mixing and placement temperature (castable, water, & ambient conditions) 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 significantly 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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4. For the first batch add 90% of the mixing water as specified on the package data sheet.
5. Allow the batch to mix to “wet down” before adding additional water for the desired consistency. PliFlow castables require mixing times of between 2 to 5 minutes (depending on the mixer type and mixing action) to dissolve and disperse the casting additives and achieve “wet down”. 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. Pour the castable behind sturdy, gap free forms. No vibration is needed to remove entrapped air pockets, to consolidate or knit the pour layers and level the castable.
3. Do not over trowel or finish the cast surface.
4. 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. The 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 PliFlow 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

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Heat Up Schedules

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



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