

### **GENERAL GUIDELINES**

#### **CASTING EZ EST Colloidal Silica Bonded Castables**

##### **A. STORAGE:**

1. EZ EST Castables should be stored in a dry place; free from excess dampness. Storage on dry concrete, asphalt, or other impervious surface will prevent moisture from the ground condensing under the plastic pallet cover and wetting the bags of material.
2. The EZ ADD liquid binder must NOT be exposed to freezing temperatures while in storage or during installation. EZ ADD will be rendered ineffective if frozen. Ideally, EZ ADD binder should be stored at temperatures between 60°F and 90°F.

##### **B. PREPARATION:**

1. Use clean tools and equipment. If the mixing equipment had previously mixed a cement-bonded castable, the mixer must be thoroughly cleaned out.
2. Waterproof all forms and surfaces.
3. A dry, clean paddle-type mechanical mixer is recommended.
4. For best results, the dry material, EZ ADD binder and ambient temperatures should be between 60°F to 85°F (16°C to 29°C) during mixing, placing, and curing.

##### **C. MIXING:**

1. Mix only as much castable as can be placed immediately. Under ideal conditions, 20 minutes should be the maximum placement time. Material left in pails may develop a "false" set making it difficult to properly place.
2. No water should be added to EZ EST castables when casting. Use only EZ ADD liquid binder.
3. Add the dry material to the mixer. The recommended addition of EZ ADD binder for casting is 9 to 10% by weight of dry material. For calculating the liquid binder addition, EZ ADD liquid binder weighs 10.8 lbs. per gallon. Measure the proper amount of colloidal silica binder and then quickly add the amount of specified binder to the mixer while the mixer is operating.
4. Mix the dry material and the liquid binder addition for 5 minutes. If mix appears too dry after 5 minutes of mixing, EZ ADD binder can be added in 0.1% increments. Allow 1 to 2 minutes of additional mixing time between binder additions. Once an acceptable EZ ADD binder level is reached, use that amount as the starting point for the next batch.

## ***Technical Information***

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### **D. PLACING:**

1. Immersion or form vibration can be used to install EZ EST castables.

When using external or form vibration, use sufficient air pressure to run the vibrator at full capacity. Use a regulator on the air line to adjust the vibrator. Adjust the vibrators to produce enough vibration to place, knit, and level the mix. Do not over vibrate, this will segregate the mix.

2. Don't overwork or excessively trowel the surface. A smooth surface inhibits moisture removal during curing and drying by bringing fines to the surface. Do not burn out wood forms.

### **E. CURING:**

1. Do not disturb casting during the first 24-hour period after installation. After curing for a minimum 24 hours, check the castable set to assure that a hard set has been achieved prior to form removal and subsequent heatup.
2. EZ EST castables **MUST NOT** be exposed to cold or freezing temperatures during the curing period. Cold temperatures will extend the castable setting. Freezing temperatures will lower strengths and delay setting.

### **F. EXTREME WEATHER PRECAUTIONS**

1. Extreme Cold Weather:

- Keep the dry material, EZ ADD binder, mixer area, and installation area above 60°F (16°C) during installation and 24 hour curing period.
- Do not expose the cast lining or shape to freezing temperatures. Freezing temperatures will delay or inhibit the setting of the castable.

2. Extreme Hot Weather:

- Keep the dry material, EZ ADD binder, and installation area below 85°F (29°C) during installation and 24 hour curing period. Elevated temperatures may reduce working time and cause cracking due to surface dryout.
- Store the dry castable in a cool area prior to mixing.