



We create chemistry

## Troubleshooting Guide for Identifying Likely Causes for Low Compressive Strengths

### Mixing:

Ambient Temperature:	_____	Low temperatures result in slower strength gain.
Material Temperature:	_____	Low temperatures result in slower strength gain.
Water Temperature:	_____	Low temperatures result in slower strength gain.
Water Source:	_____	Only potable (drinkable) water should be used.
Water Quantity per Bag:	_____	Higher water contents can result in lower strength, higher shrinkage, increased air and segregation
Type of Mixer:	_____	Mixing with a drill can result in increased air.
Length of Mixing Period:	_____	Mixing for too short can lead to incomplete mixing. Mixing for too long can result in increased air.

### Sample Fabrication and Storage

Type of cube molds used:	_____	Only calibrated, brass, waxed 2" (50mm) cube molds should be used. Never use plastic inserts.
How were samples cured?	_____	Cementitious grouts must be moist cured.
Where were samples stored?	_____	Samples should be stored out of direct sunlight and moved to a testing lab after 24 hrs.
Temperature during storage:	_____	Samples should be stored at 21°C (72°F) if trying to verify manufacturer's data.
Samples vibrated?	_____	Vibration can result in segregation. Fluid grouts should be puddled. Otherwise, follow C-109.
Molds stacked/clamped?	_____	Expansion must be restrained. Otherwise, "bulged" cubes can exhibit low strengths
Samples moist cured?	_____	Cementitious grouts must be moist cured. Epoxy grouts are air cured.
Curing temperature?	_____	Samples should be stored at 21°C (72°F) if trying to verify manufacturer's data.



We create chemistry

**Sample Testing**

Were samples/cubes weighed? \_\_\_\_\_

Weighing cubes verifies unit weight and can indicate excess air/porosity or added water than can result in low strength.

What were dimensions of cubes? \_\_\_\_\_

Cube molds that are out of tolerance can result in variable, often low, strengths

Were cubes faces square? \_\_\_\_\_

Cube molds that are out of tolerance can result in variable, often low, strengths

What was the test (crosshead) speed? \_\_\_\_\_

Variable test speeds can result in variable results

Were apple-core breaks achieved? \_\_\_\_\_

Visual indication that samples were fabricated and tested correctly.