

	<h1>Buntrock Industries, Inc.</h1> <p>Investment Casting Supplies</p>	Document#: 7.13
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Rev	Description of Change	Author	Date
0	Initial Release	Tim George	1/12/14

1.0 Scope:

- 1.1 This procedure describes a method for extracting the colloidal silica binder from water-based slurry.

2.0 Purpose:

- 2.1 Extracting the binder phase from a slurry is important because it allows the foundryman to test the quality of the binder being used in production slurry tanks. Binder stability is critical to mold and casting quality because the binder affects key shell mold properties such as strength.

3.0 Hazard and Safety:

- 3.1 Consult the Material Safety Data Sheet (MSDS) for required handling procedures and Personal Protective Equipment (PPE) required.

4.0 Equipment:

- 4.1 Centrifuge equivalent to Fischer Model #255 with rotor and 50 ml centrifuge tubes.
- 4.2 Disposable pipette or eye dropper or syringe.
- 4.3 Sample vial.

5.0 Procedure:

- 5.1 Place equal quantities of slurry sample in an even number of 50 ml centrifuge tubes. Attach caps and place tubes opposite to one another in the centrifuge rotor. The slurry sample should be at room temperature.
 - 5.1.1 Note: For some slurries, it will help to draw a large sample of the slurry and allow it to settle overnight before drawing partially settled liquid off the top to feed the centrifuge tubes. Be sure that the sample is covered while it is settling to prevent evaporation.
- 5.2 Run the centrifuge at 5000 rpm for 10 minutes, then allow centrifuge to come to a slow stop without braking.

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5.3 Carefully remove caps from the centrifuge tubes so as not to disturb the samples. With a disposable pipette, draw off the liquid portion in each tube and transfer to a clean dry vial that has been labeled accordingly. Be very careful to avoid drawing up unsettled refractory into the pipette.

5.3.1 Note: Some binders contain organic liquids such as latex and these liquids are likely to separate from the water during centrifuge operation. Check with binder supplier to determine which liquid portion(s) should be included in the sample.

5.4 Repeat items 5.1 through 5.3 until at least 10 ml of extracted binder has been collected.

6.0 Results:

6.1 Refer to the following tests in the Buntrock Industries procedures for tests to be done on extracted binder.

Section	Description
7.14	Slurry Gelation Test
7.15	Slurry Bacteria Test
7.16	Slurry Binder Specific Gravity and Silica Content
7.18	Slurry Foam Test

7.0 References:

7.1 None.