	Buntrock Industries, Inc. Investment Casting Supplies	Document#: 7.7
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	Title: Slurry pH	Page#: 1 of 2

Rev	Description of Change	Author	Date
0	Initial Release	Tim George	1/12/14

1.0 Scope:

1.1 This procedure describes a method of determining the pH of water-based slurries.

2.0 Purpose:

2.1 pH testing can aid in avoiding conditions that can cause gelling of the slurry because most colloidal silica binders are stable only within a certain pH range. This acceptable pH range is provided by the supplier of the colloidal silica. As the pH of slurry shifts closer to pH limits, it is at greater risk for gelling.

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 pH Meter accurate to 0.01 pH units;

4.2 Beaker such as Fisher Scientific No. 02-593-50C.

4.3 Thermometer accurate to within $\pm$ 1 degree F (0.5 degrees C).j

4.4 Buffer solutions for calibrating pH meter.

4.5 Accumet Electrode – Fischer Scientific Catalog 13-660-62 or equivalent.

4.6 Glass Electrode – Fischer Scientific Catalog 13-620-284 or equivalent.

5.0 Procedure:

5.1 Follow manufacturer's recommended procedure to check for proper function of electrodes.

5.2 Standardize meter with buffer solutions at each end of range to be measured.

5.2.1 Note: Always rinse electrodes with distilled water and pat dry with a tissue after removing electrodes from a buffer or a slurry sample.

5.2.2 Also, buffer solutions have a limited life once they have been opened. Refer to manufacturer's manual for storage and shelf life instructions.

5.3 Place slurry sample (approximately 200 ml. is adequate) in clean beaker.

5.4 Measure and record slurry temperature.

5.5 Immerse electrodes in slurry and read pH once it has stabilized.

5.6 Record pH. Be sure to keep accurate records, in chronological order for each slurry.

5.7 As soon as pH electrode is removed from slurry, rinse immediately and thoroughly with distilled water. Cleanliness is vital for accuracy and long life of electrodes.

5.8 Follow manufacturer's instructions for storage of pH meter and electrodes.

5.9 PH changes can be caused by various factors and there are options with regard to controlling and/or responding to pH changes in productions slurries. The supplier of the colloidal silica should be consulted to review these options and to develop a control plan.

6.0 Results:

6.1 PH results should be recorded on control charts for each slurry and a base line should be established for each slurry to characterize its behavior.

7.0 References:

7.1 None.