	Buntrock Industries, Inc. Investment Casting Supplies	Document#: 7.11
		Rev#: 0
	Title: Slurry Total Solids	Page#: 1 of 2

Rev	Description of Change	Author	Date
0	Initial Release	Joe Norvell	2/12/14

1.0 Scope:

1.1 This test determines the total solids content of a slurry by evaporating to dryness in an oven. The weight of the residual solids is then measured and compared to the beginning weight to determine the percent solids. For this test, solids are defined as all material that will not be driven off at 120° C, which includes the organic additives contained in some colloidal silica binders.

2.0 Purpose:

2.1 The total solids content of a slurry is not generally used as a control test for production slurries. It can however, be useful as a quality check when new slurries are made or when problems demand an increase in the slurry testing campaign. As a result, it is best practice to establish a data base for each slurry formulation by measuring total solids content on at least one slurry that is made under close supervision.

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 Aluminum foil dish.

4.2 Oven capable of at least 120° C.

4.3 Balance capable of weighing to at least 0.01 grams.

5.0 Procedure:

5.1 Weigh an aluminum foil dish and record the weight.

5.2 Add homogenous slurry to the dish (about 50 grams), weigh and record the weight.

5.3 Dry the sample in an oven at 120° C for one hour.

5.4 Weigh the sample and return it to the oven for another 30 minutes. Be sure to protect the balance from the heat of the dish.

5.5 Weigh the sample again and if it is the same as was measured in step 5.4, record the weight. If the weight changed, continue drying until the weight stops changing. DO not allow the sample to sit before weighing as it may re-absorb some of the moisture it lost in the oven.

5.6 Calculate the percent solids using the following formula:

$$\frac{\text{Dry Slurry} - \text{Pan}}{\text{Wet Slurry} - \text{Pan}} \times 100 = \text{Percent Solids}$$

6.0 Results:

6.1 If the total solids content of a slurry falls outside its established target value, the slurry should be pulled from production until corrective action is completed. There are multiple causes for deviations of total solids content, and other slurry tests are needed in conjunction with total solids to find root cause. A new slurry, for example, that is otherwise under control may have been made with incorrect material, which would cause total solids content to be suspect even though slurry viscosity is within tolerance.

7.0 References:

7.1 None.