	Buntrock Industries, Inc. Investment Casting Supplies	Document#: 7.38
		Rev#: 0
	Title: Yttria Prime Slurry Makeup	Page#: 1 of 2

Rev	Description of Change	Author	Date
0	Initial Release	Joe Norvell	11/21/14

1.0 Scope:

1.1 This procedure describes the method for making a yttria prime slurry using T-123 binder and Buntrock yttria blend.

2.0 Purpose:

2.1 This instruction contains the formula and procedure for making a yttria prime slurry. The formula is given to make one liter of slurry. Use the volume of the tank the slurry will go in and how full the tank will be, making sure to leave a few centimeters of room at the top, to determine the number of liters of slurry to make. Multiply the number of liters of slurry being made by the formula for one liter given in the reference section of this procedure.

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 Slurry tank with a mixer.

4.2 A high shear mixer for slurry makeup if one is available.

4.3 A #5 Zahn Cup.

4.4 A scale to measure ingredients with.

4.5 The following ingredients:

Distilled or deionized water

T-123 Binder (equal weights of Ti Bond A and Ti Bond B mixed together)

Buntrock blended yttria flour

PS 9400 Surfactant

Antifoam 2004

5.0 Procedure:

5.1 Use the reference below and the tank volume to figure how much slurry to make

5.2 Mix equal weights of Ti Bond A and Ti Bond B to make an amount of T-123 that is needed for the slurry.

5.3 Add the T-123 binder to the tank.

5.4 Add the appropriate amount of clean water to the tank.

5.5 Add half the total amount of Antifoam 2004.

5.6 Slowly add the Buntrock yttria blend to the liquid while mixing. Use a high shear mixer for makeup if one is available. Frequently stop the mixer to allow air to escape from slurry.

5.7 After all flour has been added and the slurry is almost completely de-aired, add the surfactant and remaining Antifoam 2004, if needed. Use the minimum amount of antifoam to achieve a state where most or all of the bubbles break during draining of the slurry prior to stucco application.

5.8 Adjust the viscosity to between 15 and 20 seconds on a #5 Zahn by adding binder or Buntrock blended yttria flour

5.9 Slurry may be used after a short cream out period if a high shear mixer is used during makeup. Otherwise, let slurry properties stabilize before mixing. It is best to allow the slurry to mix overnight. Slurry thickening is often observed overnight and the slurry may need to be thinned the second day.

5.10 Please see document 7.39 for yttria slurry maintenance procedures.

6.0 References:

6.1 Buntrock yttria prime slurry formula:

	Weight %	1 Liter Slurry
T-123 Binder	14.7	434 g
De-ionized Water	3.7	109 g
BI Blended Yttria	81.6	2407 g
Totals	100.0	2950 g

PS9400 Surfactant	1 gram per liter of slurry
Antifoam 2004	0.2 grams per liter of slurry or as required