



Nanopowder Analysis Results: 1 at% Nd:YAG

Prep Date: June 2011

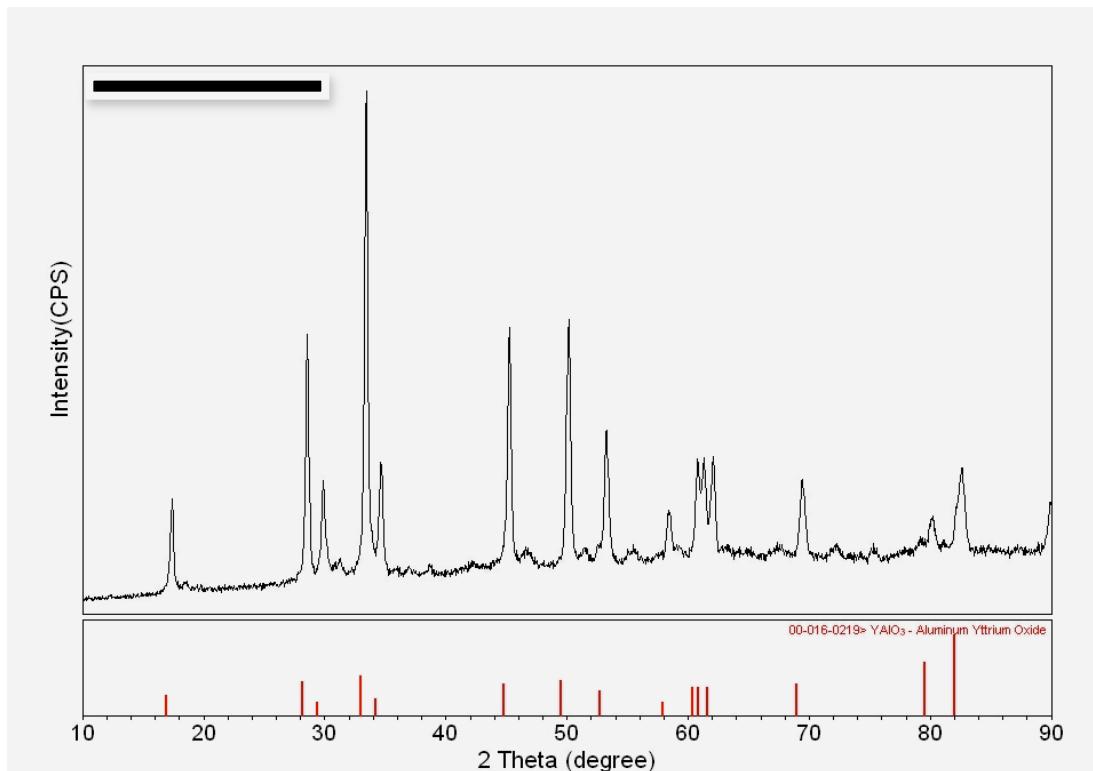
Formula: $\text{Y}_{2.97}\text{Nd}_{0.03}\text{Al}_{5.00}\text{O}_{12}$

1) SSA: 20 m²/g

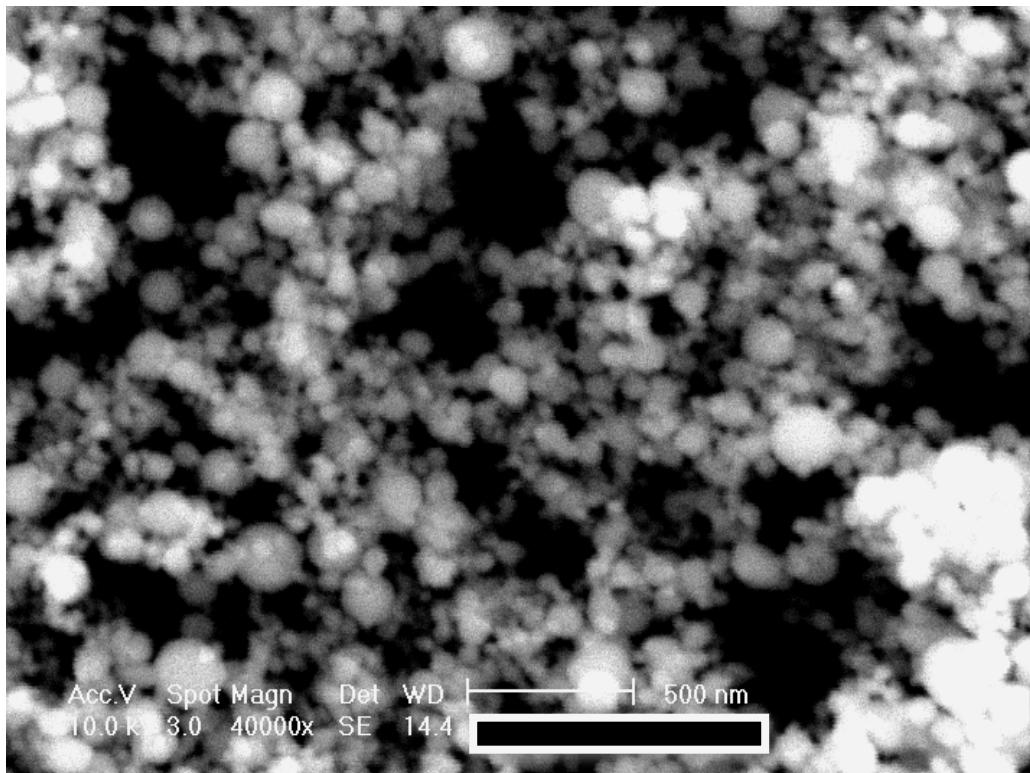
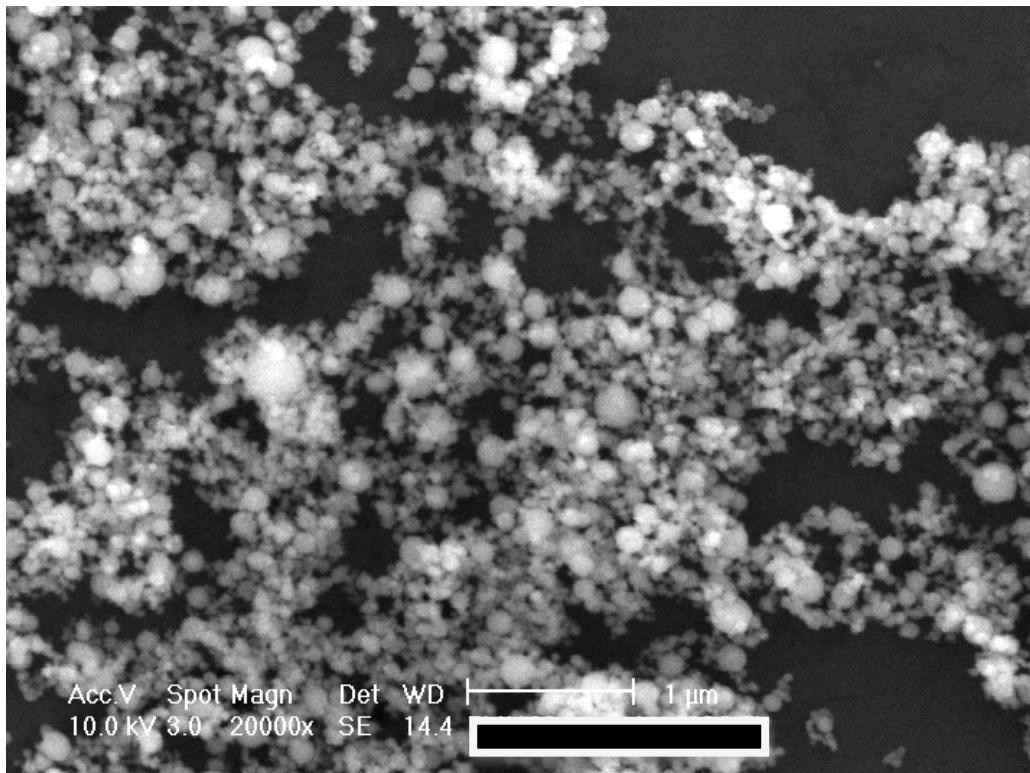
APS: 66 nm

reference density: 4.552 g/cm³

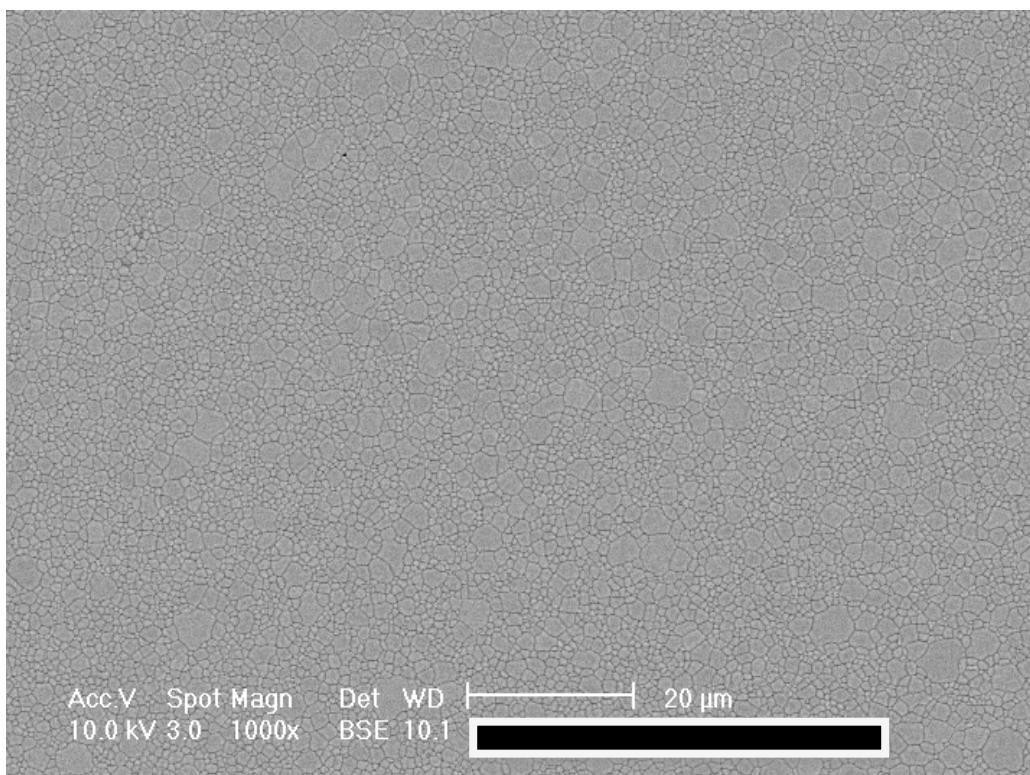
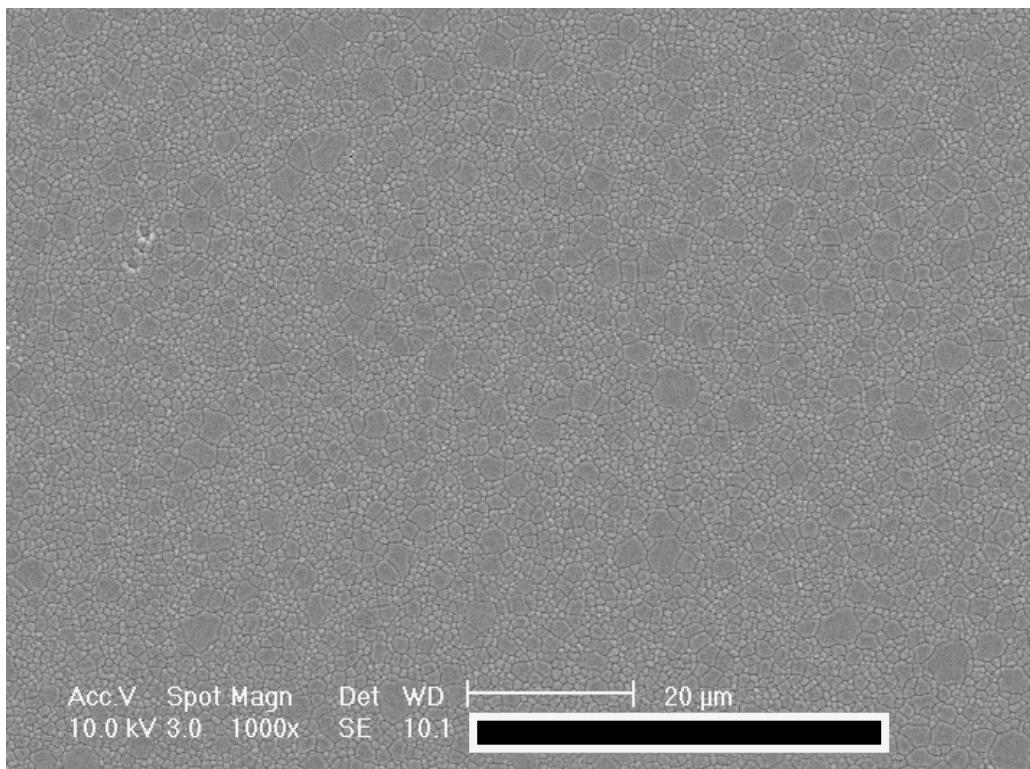
2) XRD:



3) SEM: Powder Morphology



4) SEM: Air Sintered Stoichiometry Check



5) GDMS:

ANALYSIS	ppmw	ANALYSIS	ppmw	ANALYSIS	ppmw
H		Zn	0.60	Pr	0.71
Li	<0.1	Ga	0.30	Nd	~7000
Be	<0.1	Ge		Sm	0.075
B	0.80	As	<0.5	Eu	0.080
C		Se		Gd	0.15
N		Br		Tb	<1
O	Major	Rb		Dy	0.16
F	1.1	Sr	<0.2	Ho	0.030
Na	0.70	Y	Major	Er	0.050
Mg	0.85	Zr	0.30	Tm	0.020
Al	Major	Nb	<0.1	Yb	0.030
Si	8.0	Mo	0.31	Lu	0.040
P	1.0	Ru		Hf	<0.1
S	8.2	Rh		Ta	<10
Cl	6.5	Pd		W	<0.1
K	0.50	Ag	<0.5	Re	
Ca	1.6	Cd		Os	
Sc	<0.05	In		Ir	
Ti	0.15	Sn	<0.5	Pt	
V	0.025	Sb	<1	Au	
Cr	0.80	Te		Hg	
Mn	0.037	I		Tl	
Fe	1.5	Cs		Pb	<0.1
Co	0.012	Ba	<0.1	Bi	<0.1
Ni	0.15	La	0.30	Th	<0.05
Cu	0.18	Ce	0.027	U	<0.05

*Inhomogeneous

All other elements <0.1ppmw,
each

GDMS Summary

<u>Totals</u>	<u>ppmw</u>
Total Impurities	50
Volatiles (H,C,N,O,F,P,S,Cl,Br,I)	17
Metals	33
Transition Metals	15
Alkali/Alkaline Earths	4
Rare Earths (Lanthanides/Actinides)	3

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