

HA 4002

Yttrium Oxide

Product Code: 424002
Technical Data Sheet

Revision: # 002
 Dated: 07/28/07

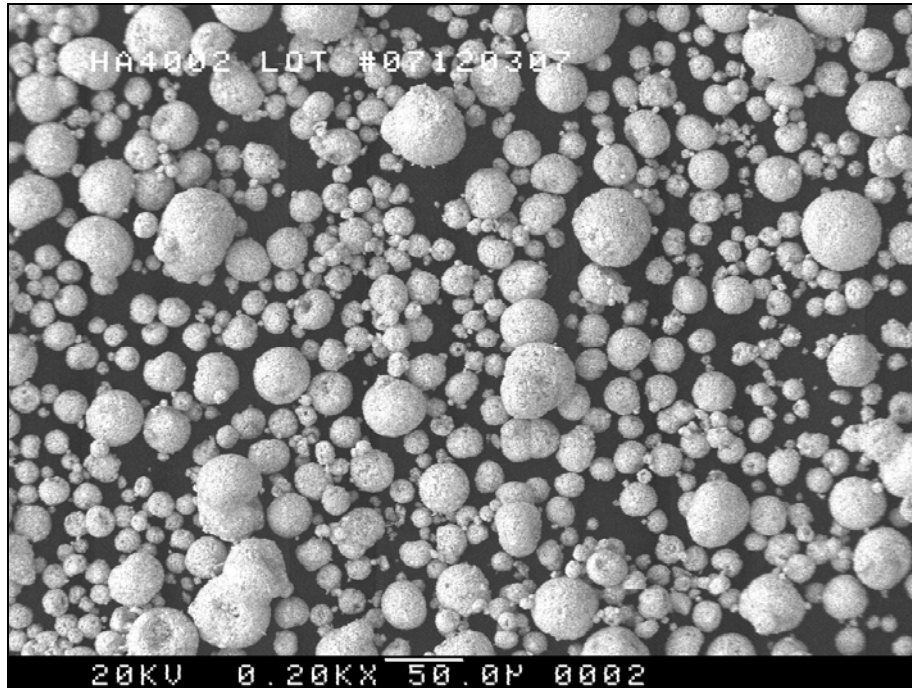


Figure 1

1. PHYSICAL PROPERTIES

HA 4002 is a spherical, easy flow, pure Yttrium Oxide (Y₂O₃) powder, designed to meet stringent semiconductor industry requirements

Molecular Formula	Y₂O₃
CAS #	1314-36-9
Melting Point [°C]	2,690
Crystal Structure	Cubic
Apparent Density [g/cm³] ASTM B212-89	1.2 – 1.4
Hall Flow [sec./50g] ASTM B213-90	105 - 120

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2. CHEMICAL PROPERTIES

2.1. Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>		<u>Element</u>	<u>Weight Percent</u>
Y ₂ O ₃	99.7 min.		SiO ₂	<0.002
Al ₂ O ₃	<0.002		ZrO ₂	<0.002
Na ₂ O	0.29		HfO ₂	<0.002
Fe ₂ O ₃	<0.002			

3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

3.1. Powder Morphology

- 3.1.1. Powder has spherical shape as produced by agglomeration processes.
- 3.1.2. Typical Powder Morphology using SEM is shown in Figure 1.

3.2. Particle Size Distribution

- 3.2.1. Table 1 shows the required and typical particle size distribution.
- 3.2.2. Figure 2 shows the typical Microtrac particle size distribution graph

Table 1

<u>Mean</u>	<u>Typical Particle Size</u>			<u>Mean</u>	<u>Required Particle Size</u>
[%]	[μm]	[mesh]			
0.01	9.34	1750		D ₁₀	10 - 20 μm
5.00	16.56	1000			
10.00	18.68	750			
16.00	20.41	625		D ₅₀	25 - 35 μm
50.00	27.41	500			
84.00	37.50	400			
90.00	41.55	325			
95.00	47.82	270		D ₉₀	40 - 50 μm
99.99	87.40	170			

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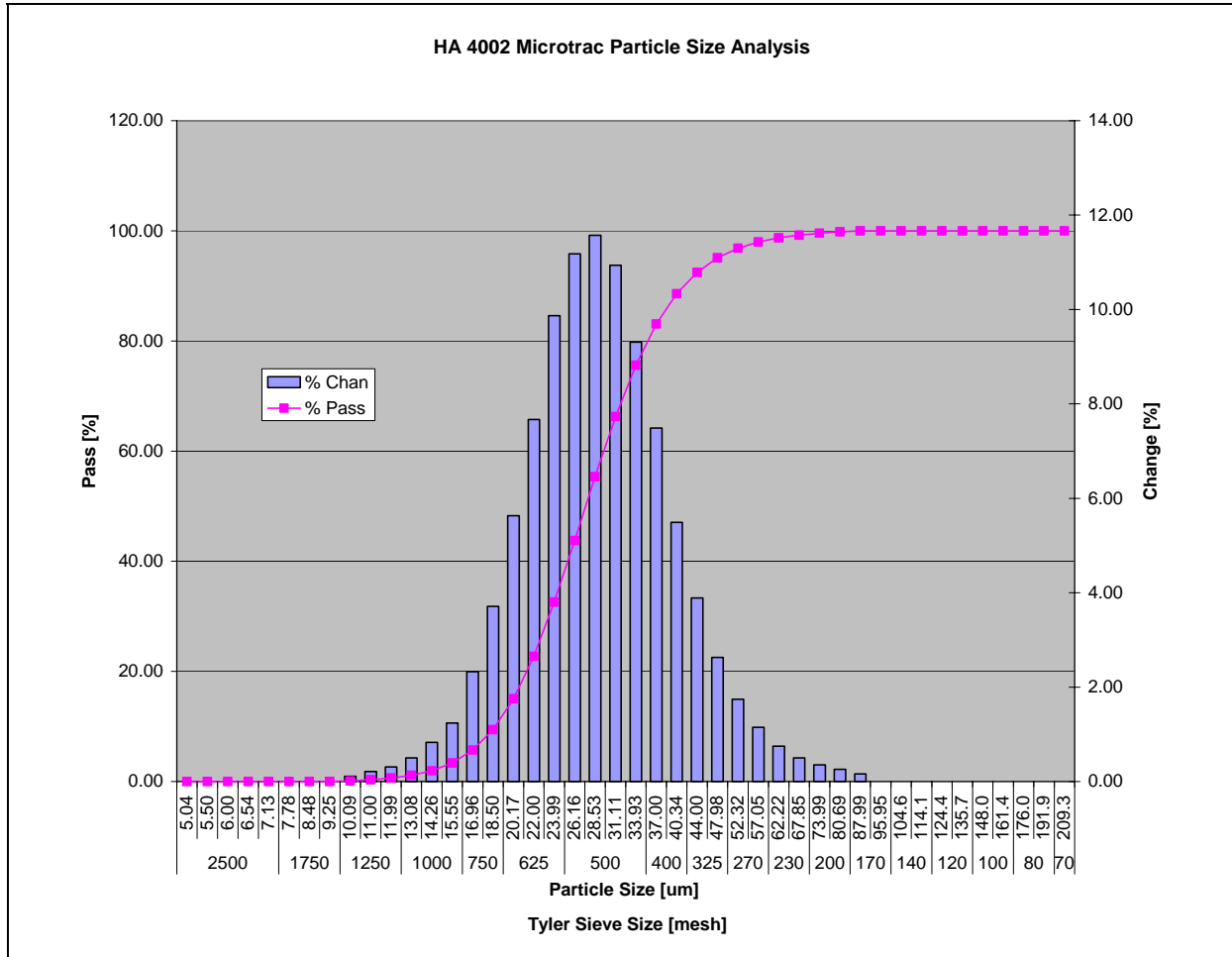


Figure 2

HA 4002

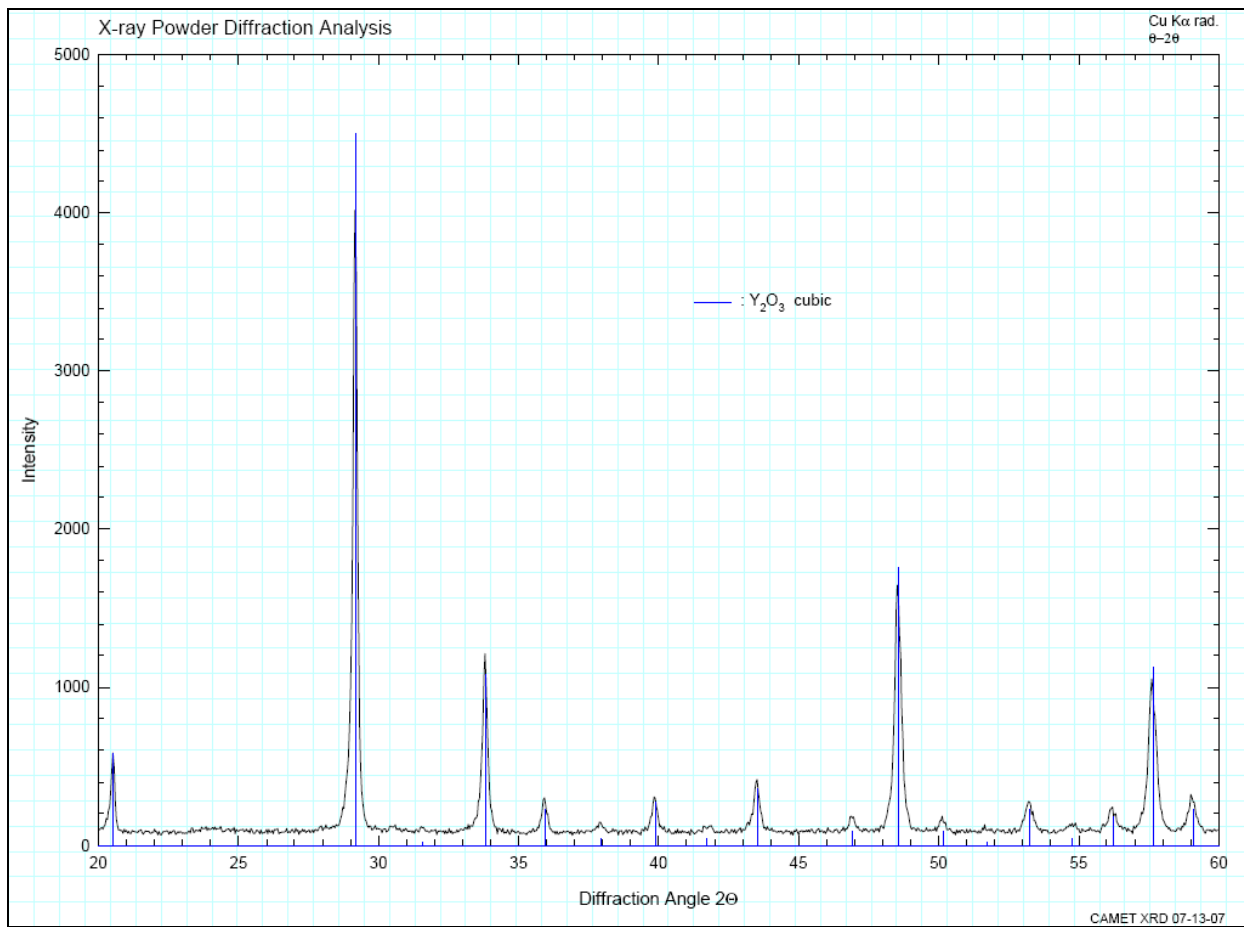
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4. X-RAY DIFFRACTION

4.1. Powder Diffraction Analysis



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5. PHASE DIAGRAM

5.1. Yttrium – Oxygen Phase Diagram

