

HA 4002-5

Yttrium Oxide

Product Code: 424002-5
Technical Data Sheet

Revision: # 000
 Dated: 08/28/07

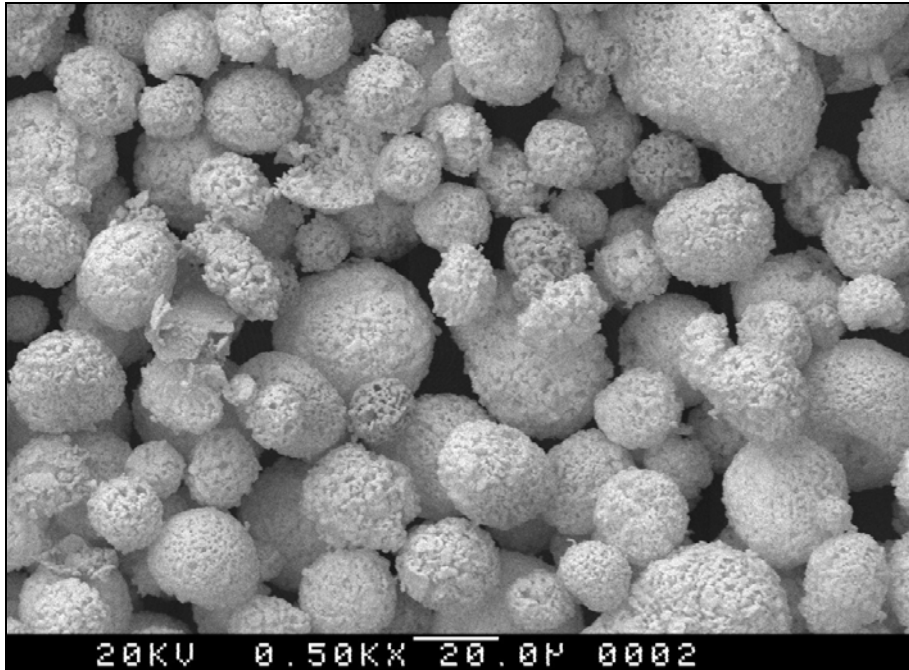


Figure 1: Typical Powder Morphology (SEM 500X)

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	1.2 – 1.4

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2. CHEMICAL PROPERTIES

2.1. Typical Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>
Y ₂ O ₃	99.9 min.
Al ₂ O ₃	<0.006
CaO	<0.005
Fe ₂ O ₃	<0.003
SiO ₂	<0.010
ZrO ₂	<0.003
HfO ₂	<0.003
All Others	<0.070

3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

3.1. Powder Morphology

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

3.2. Particle Size Distribution

- 3.2.1. The typical powder size range measured with Tyler according to ASTM B214 is -270 mesh +10 µm
- 3.2.2. Table 1 shows the required and typical particle size distribution measured with Microtrac according to ASTM B822
- 3.2.3. Figure 2 shows the typical Microtrac particle size distribution graph

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Table 1: Typical and Required Microtrac Particle Size Distribution

<u>Percentile</u>	<u>Typical Particle Size</u>		<u>Mean</u>	<u>Required Particle Size</u>
[%]	[μm]			
0.01	9.29		D ₁₀	10 - 20 μm
5.00	13.91			
10.00	16.04			
16.00	18.31		D ₅₀	25 - 35 μm
50.00	28.07			
84.00	38.15			
90.00	41.37		D ₉₀	40 - 50 μm
95.00	45.64			
99.99	62.08			

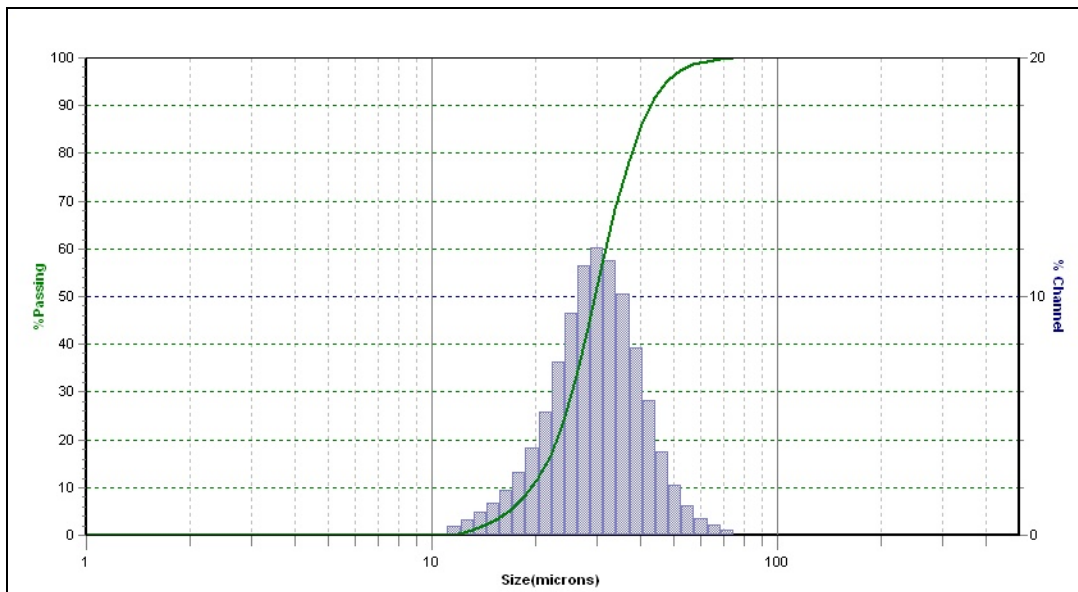


Figure 2: Typical Microtrac Particle Size Distribution