

HA 9204

ZrO₂ - 8% Y₂O₃

Product Code: 439204
Technical Data Sheet

Revision: # 000
 Dated: 04/14/09

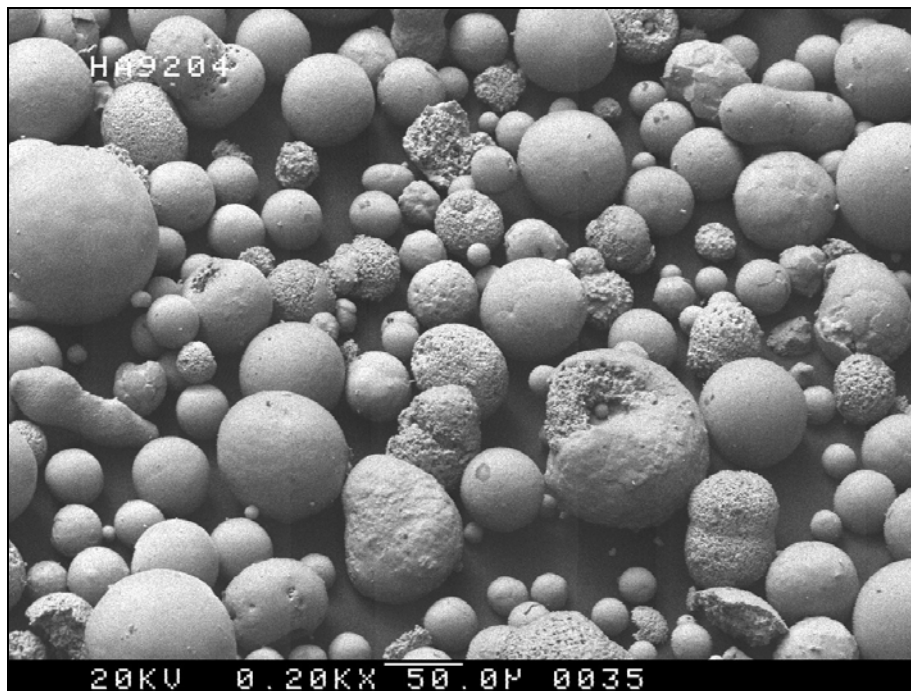


Figure 1: Typical Powder Morphology (SEM 200X)

1. PHYSICAL PROPERTIES

HA 9204 is a spray dried and atomized Ytria Stabilized Zirconia (YSZ) powder for thermal barrier coatings

Molecular Formula	ZrO ₂ – 8% Y ₂ O ₃
CAS #	66147-98-7
Melting Point [°C]	2,700
Crystal Structure	Cubic
Apparent Density [g/cm³] ASTM B212-89	1.8 – 2.3
Hall Flow [sec./50g] ASTM B213-90	30 - 40

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2. CHEMICAL PROPERTIES

2.1. Typical Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>
ZrO ₂	Balance
Y ₂ O ₃	6.50 – 9.00
Al ₂ O ₃	< 0.20
Fe ₂ O ₃	< 0.20
SiO ₂	< 1.00
TiO ₂	< 0.40
MgO	< 0.50
HfO ₂	< 2.50
All Others	< 0.50

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. The typical powder size range measured with Tyler according to ASTM B214 is -200 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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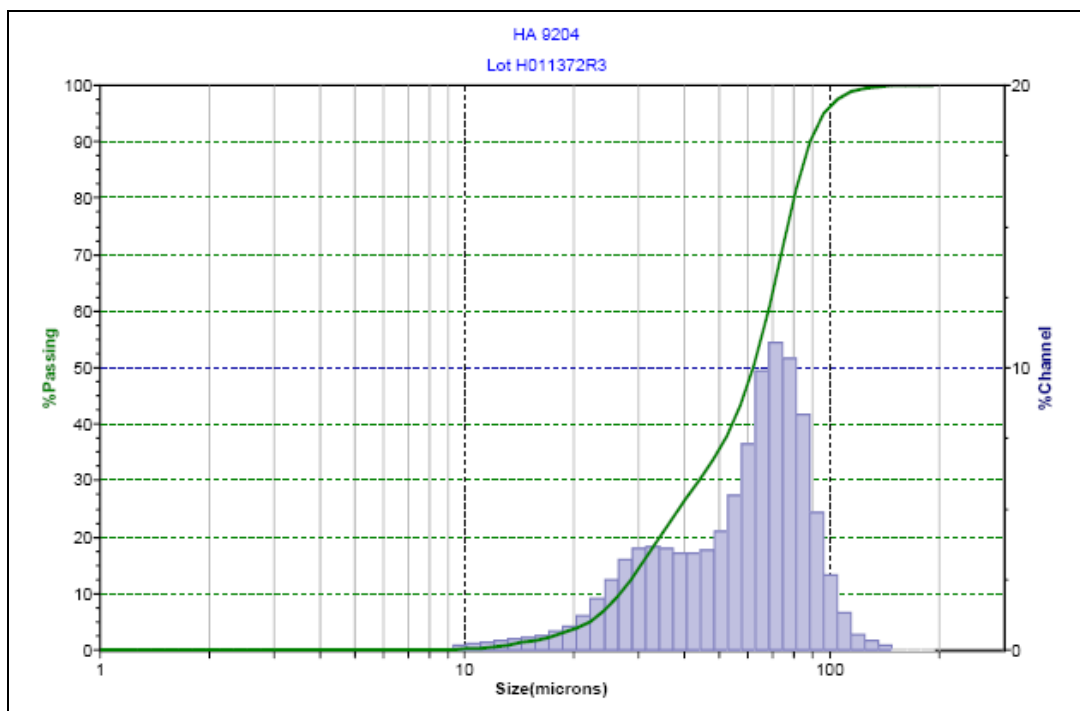
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Table 1: Typical and Required Microtrac Particle Size Distribution

<u>Percentile</u>	<u>Typical Particle Size</u>		<u>Mean</u>	<u>Required Particle Size</u>
[%]	[μm]			
0.01	9.32		D ₁₀	20 - 40 μm
5.00	22.03			
10.00	26.72			
16.00	31.10		D ₅₀	50 - 70 μm
50.00	61.82			
84.00	82.50			
90.00	87.94		D ₉₀	80 - 100 μm
95.00	96.14			
99.99	147.0			



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Figure 2: Typical Microtrac Particle Size Distribution