

Metal Coated Hollow Ceramic Microspheres

Metal coated hollow ceramic spheres enable design engineers to manufacture high strength light weight parts. Thermal conductivity can be varied and thermal expansion can also be controlled.

The Aluminum and Nickel coatings are 99+% pure, and have a consistent thickness. Complete coverage and adhesion is guaranteed and the coatings are stable in air at room temperature.

These coated microspheres can be pressed or forged into light weight structures or substrates. Parts formed using our microspheres are durable and machinable. For best results, the powders should be added to other matrix materials (Mg, Al, Ni, Ti, Fe, etc.) in volumes of 10-40% depending upon the properties desired.

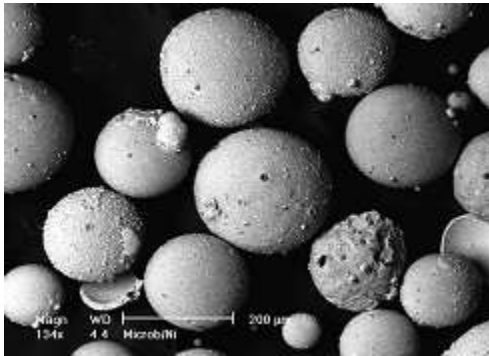


Fig. 1. Nickel coated microspheres

Typical Coatings

Aluminum 10-15 wt%
Nickel 20 wt%

Other metal coatings are available on request.

Typical Applications

EMI Shielding (Nickel Coated Spheres)
Magnetic Material (Nickel Coated Spheres)
Light weight components (Al, Mg, Ni)
Fillers for Plastics (Al, Mg, Ni)
Sulfate, Phosphate, and Borate free
Reflective and color enhancing
Oxidation and chemically resistant

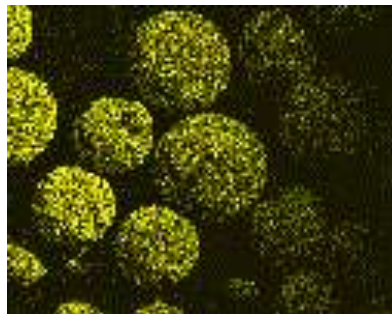


Fig. 2. EDS Ni Dot Map

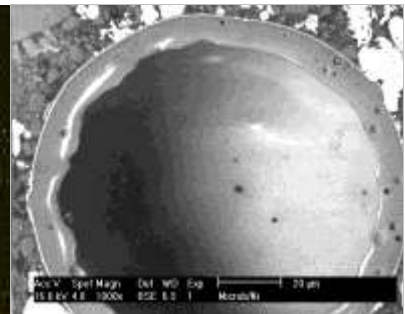


Fig. 3. Cross section of coated sphere

Standard Particle Sizes Available

Spherical hollow microspheres

- Chemically inert and free flowing
- Low density, reduces overall weight
- Lowers effective polymer viscosity

5-20 microns with an average particle size of 12 microns

20-100 microns with an average particle size of 42 microns

80-200 microns with an average particle size of 130 microns

Other sizes can be produced on request.

Product Variability

Metal Content	Crush Strength	Coating Thickness	Particle size	Particle density
5 – 80 wt%	2 – 60 Ksi	50 – 800 nano meter	1 – 400 micron	0.7 – 5.8 g/cc