



Reflective Products That Save Lives

ReflectoSpheres

Retro-Reflective Aluminized Glass Microspheres

1920 # 1945 # 1980 # 19200 # 19600

Description

ReflectoSphere # 1900 Series are hemispherically-aluminized high refractive index (RI = 1.9) glass beads, which are presently available in nominal diameters of 20, 45, 80, 200 and 600 microns. Larger bead diameters, up to 1,000 microns (1mm) are planned for production in 2005. The vacuum-metallized Aluminum coating is less than 1 micron in thickness. To assist in the formulation of package-stable, water-thinned inks and coatings, a stabilized, 75% slurry of #1945, is available as # 194575SL. (See separate TDS).

- # 1920 – for use in liquid inks (graveure, flexo) and thin film coatings
- # 1945 – for screen process inks, general-purpose coatings and injection molded plastics
- # 1980 – for use in powder coatings
- # 19200 – may be applied by scattering or fluidized bed onto wet coatings or adhesives
- # 19600 – for highway line striping use

Characteristics

Appearance:	Light gray, free-flowing powder
Specific Gravity:	4.2
Orientation:	When formulated into a coating or ink, orientation is random.
Retro-reflectivity:	Uniform from all angles of combined light source and viewing.
Brightness:	Retro-reflectivity levels of 50 to 75 Candella / lux / m ² are attainable.

Formulating with ReflectoSpheres

When ReflectoSpheres are dispersed into properly formulated ink or coating bases, they produce highly retro-reflective dried films. The amount of ReflectoSpheres required to produce effective retro-reflectivity varies, depending on the diameter of the beads and the type of ink or coating. In general, the beads must protrude from the surface by about half of their diameter and make up from 50 to 65% of volume solids of the dried film. Transparent, permanent pigments may be used to produce unique and aesthetic retro-reflective color effects.

System rheology is important. In general, the rheology for porous surfaces should be as near-Newtonian as possible. High thixotropy should be avoided. For non-porous surfaces, controlled thixotropy can be helpful in formulating. The intent must be to adhere the beads to the coating, avoiding high buildup of resin on the protruding bead surface. This must be balanced by controlled penetration of the resin into the substrate, or controlled shrinkage of the resin film, to expose the beads.

Another method of producing reflective surfaces is to apply an adhesive, or coating to any surface, then scatter ReflectoSpheres onto the surface of the wet adhesive. This technique is useful for reflectorizing traffic paints or small surfaces. A fluidized bed may also be used to apply the beads to a surface. Very large objects may be reflectorized in this way.

ReflectoSpheres may be used to produce highly reflective plastisols, water-thinned or solvent-thinned screen process inks and coatings, for the Graphic Arts and Truck/Van graphics industries. These inks and coatings are suitable for vinyl, polyolefin, polystyrene, polyester, paper and other substrates.

In plastics, when blended with small clear glass microspheres, unique color enhancing effects are obtained. We also produce metallized microspheres made of even higher index glass (RI = 2.1 to 2.3). When embedded in polymer, these microspheres reflect more brightly than the 1.9 index products.

We provide technical assistance to ink and coatings manufacturers wishing to produce proprietary reflective products with ReflectoSpheres at no charge. The information provided is believed to be accurate and reliable. Specifications are subject to revision without notice.

ReflectoSphere Division, 2010216 Ontario Limited,
Unit 2 - 135 St. David St., South, Fergus, ON N1M 2L4
TEL: (519) 843-2138 FAX: (519) 843-2712
e-mail: sales@reflectosphere.com or techservice@reflectosphere.com
Website: www.reflectosphere.com