



# Zeeospheres™

## ceramic microspheres

### Introduction

Zeeospheres™ Ceramic Microspheres are unique, gray-colored, fine particle size, high-strength microspheres. They are opaque to visible light, but transparent to U.V. light. These products are typically used to reduce VOC levels; increase filler loadings; improve hardness; reduce and control gloss; and add burnish, scrub and abrasion resistance to a variety of coating formulations. Due to their low resin demand, high hardness, and inert chemistry, these products, have found utility in high solids, water reducible, radiation-curable, and high durability coatings, powder coatings, and a wide range of premium-quality architectural coatings.

The key raw materials from which these Zeeospheres microspheres are produced have become darker in color over the years. Since many users have products or applications where consistency is important, lighter-colored ingredients are added to ensure that the final grayness of the product is within the historical range of 64 to 69<sup>1</sup>. This color control adds cost and complexity to the production of the microspheres, but helps ensure consistency.

### Gray Grades–Color Controlled

#### Material Description

Shape	Hollow spheres with thick walls
Composition	Silica-Alumina Ceramic
Color, unaided eye	Gray

#### Typical Physical Properties (Not for specification purposes)

Product	Zeeospheres™ Ceramic Microspheres Gray Grades	
Grayness ("L" Value)	64-69 <sup>2</sup>	
Crush Strength	> 4,200 kg/cm <sup>2</sup> (> 60,000 psi)	
pH	3.0–10.0	ASTM E 70
Hardness	7	Mohs Scale
Softening Point	1,020°C (1,870°F)	
Dielectric Constant	3.7–4.6	
Thermal Conductivity	2 W/mK	

Properties	Zeeospheres™ Ceramic Microspheres Gray Grades							
	G-200	G-400	G-600	G-800	G-850 <sup>3</sup>	G-200 PC	G-400 PC	
True Density (gm/cc)	2.5	2.4	2.3	2.2	2.1	2.5	2.4	
Particle Size (microns)	95 <sup>th</sup> PCTL	12	24	40	200	200	12	24
	90 <sup>th</sup> PCTL	9	14	24	75	100	9	14
	50 <sup>th</sup> PCTL	4	5	6	18	40	4	5
	10 <sup>th</sup> PCTL	1	1	1	2	12	1	1
Surface Area (m <sup>2</sup> /cc)	6	5	4	3	2	6	5	

#### Formulating Information

Zeeospheres™ Ceramic Microspheres Gray Grades are best dispersed by using sand, ball and roller mills. For optimal dispersion, the microspheres should be added to the grind stage along with pigments and other filler materials. Use of a dispersant can aid in the wet-out and dispersion of these products.

#### Product Storage, Handling and Safety

Please read and follow the precautions and directions for use on the product label and on Material Safety Data Sheets available from Zeeospheres Ceramics, LLC, (985) 532-2541, [www.zeeospheres.com](http://www.zeeospheres.com).

<sup>1</sup> "L" value on a standard colorimeter or reflectometer.

<sup>2</sup> G-850 = 50+

<sup>3</sup> Not color controlled "L" value: 20 minimum.

