



Ceramic Microspheres

Gray Grades

Introduction

3M™ Ceramic Microspheres are unique, semi-transparent, gray-colored, fine particle size, high-strength microspheres. These products are typically used to reduce VOC levels; increase filler loadings; improve hardness; and add burnish, scrub and abrasion resistance to a variety of coating formulations. Due to the ceramic chemistry of these products, they are also UV transparent down to 25 nm and have found utility in radiation-curable and thin-film powder coatings.

Material Description

Properties	3M Ceramic Microspheres Gray Grades
Shape	Hollow spheres with thick walls
Composition	Silica-Alumina Ceramic
Color, Unaided Eye	Gray

Typical Physical Properties

Not for specification purposes

Properties	3M Ceramic Microspheres Gray Grades	
Grayness ("L" Value)	64-69*	
Crush Strength	> 4,200 kg/cm ² (> 60,000 psi)	
pH	3.0 minimum	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	

* G-850 = 50+

Properties	3M Ceramic Microspheres Gray Grades				
	G-200	G-400	G-600	G-800	G-850
True Density (gm/cc)	2.5	2.4	2.3	2.2	2.1
Particle Size (microns)	95 th Percentile	12	24	40	200
	90 th Percentile	9	14	24	75
	50 th Percentile	4	5	6	18
	10 th Percentile	1	1	1	2
Surface Area (m ² /cc)	6	5	4	3	2
Oil Absorption*	70	60	60	60	70

*gm oil/100cc microspheres

3M™ Ceramic Microspheres Gray Grades Formulating Information

3M™ Ceramic Microspheres Gray Grades are best dispersed by using sand, ball and roller mills. For optimal dispersion, 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 Safety and Handling

Please read and follow the precautions and directions for use on the product label and Material Safety Data Sheet before using this product. Material Safety Data Sheets for this product are available from 3M Customer Service at 800-367-8905 or from your local 3M sales representative.

Resources

3M microspheres are supported by global sales, technical and customer service resources, with fully-staffed technical service laboratories in the U.S., Europe, Japan, Latin America and Southeast Asia. Users benefit from 3M's broad technology base and continuing attention to product development, performance, safety and environmental issues.

For additional technical information on microspheres in the United States, call 3M Energy and Advanced Materials Division, 800 367 8905.

For other 3M global offices and information on additional 3M products, visit our web site at: www.3M.com

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