

3M™ Ceramic Microspheres White Grades

Introduction

3M™ White Ceramic Microspheres are unique, semi-transparent, white-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 250 nm and have utility in radiation-curable and thin-film powder coatings.

Material Description

(Not for specification purposes)

Properties	3M™ Ceramic Microspheres White Grades
Shape	Solid Spheres
Composition	Alkali Alumino Silicate Ceramic
Color, Unaided Eye	White

Typical Physical Properties

(Not for specification purposes)

Properties	3M™ Ceramic Microspheres White Grades	Test Method
True Density	2.4 g/cc (20.0 lbs/gal)	
Bulk Density	1.5 g/cc (12.6 lbs/gal)	
Whiteness ("L" Value)	95+ (Hunter L,a,b scale)	ASTM D 2244
Crush Strength	> 4,200 kg/cm ² (> 60,000 psi)	
pH	9.0 – 12.0	ASTM E 70
Hardness	6	Mohs Scale
Softening Point	1,020°C (1,870°F)	
Refractive Index: Predominant	1.53	Becke Line
Dielectric Constant	3.19	
UV Light Transmission	UV Transparent down to 250 nm	
Thermal Conductivity	2.3 W/mK	

Properties	3M™ Ceramic Microspheres White Grades		
	W-210	W-410	W-610
95 th Percentile	12	24	40
90 th Percentile	9	15	28
50 th Percentile	3	4	10
10 th Percentile	1	1	1
Surface Area (m ² /cc)	5	3	3
Oil Absorption*	46	44	28

*gm oil/100cc microspheres

3M Ceramic Microspheres White Grades Formulating Information

3M White Ceramic Microspheres 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 in 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.

Additional Information

3M ceramic 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 3M ceramic microspheres in the United States, contact 3M Energy and Advanced Materials Division at **800-367-8905** or eamcustomerservice@mmm.com.

For and information on additional 3M products, visit our web site at: www.3M.com/paintsandcoatings.



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