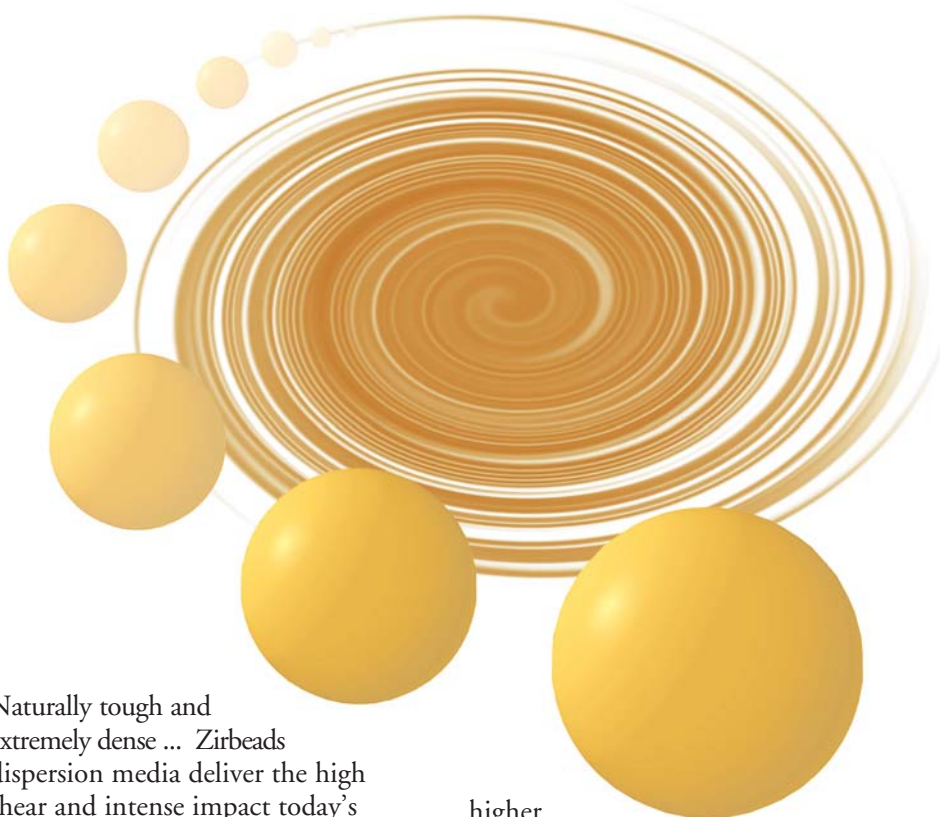




Zirbeads™ Dispersion Media



**Faster
Processing ...
Less
Contamination ...
& Increased
Efficiency**

Naturally tough and extremely dense ... Zirbeads dispersion media deliver the high shear and intense impact today's heavy-duty continuous mills demand. When using Zirbeads, mill efficiency increases¹, and product contamination considerably decreases!

Today's mills operate with media occupying up to 90%, or more, of the void volume. Zirbeads' higher density allows for a smaller diameter bead, resulting in more beads per charge, and providing more contact points for the product during residence. Using Zirbeads can double² the number of beads per unit of weight.

High viscosity and high percent solid formulations, such as automotive coatings and inks, are the ideal pre-mixes for Zirbeads. The characteristically

higher mass of Zirbeads provides the greater power (kinetic energy) needed by formulations of this nature. Zirbeads by Zircoa can disperse and grind pre-mixes up to 50,000 cps.

A Unique Material

Zirbeads are made of Zirconia ... a unique material, and the most dense ceramic media available. Zirbeads are hard, uniform in size and shape, non-porous, and exceptionally smooth. They resist chipping and fractures, extending the life of the media and the mill, and minimizing batch contamination. Chemically

inert, Zirbeads are resistant to virtually all acids and alkali, and are non-conductive and non-magnetic.

Selection

Zircoa has developed two Zirbead grades for most pre-mix formulations and mill requirements.

SUPER (1.4 to 3.35 mm)

When you require media with a wider and more economical distribution ... *SUPER* is the right choice. Historically used in vertical mills, Zirbeads *SUPER* now has several horizontal mill applications.

SUPER "XR" (.6 to 2.3 mm)

Designed for today's modern horizontal mills, Zirbeads *SUPER "XR"* provides the narrow size distribution needed for inks, automotive and magnetic coatings.

Optimizing Zirbeads' Mill Performance

To achieve optimum performance, Zirbeads contact with the formulation must be maximized. To achieve this, the agitation speed, Zirbead size, and throughput, must be balanced to the viscosity of the formulation. A donut-flow pattern of Zirbeads inside the mill is an indication of proper balance.

Zirbeads are designed for a formulation viscosity no less than 1000 cps, although milling of lower viscosity formulas is possible. As the viscosity drops, the balance between speed and bead size becomes more critical, to avoid excessive wear on the mill and the media itself. If you hear splashing, the viscosity is too low.

Introduce pre-mix that is sufficiently fine and homogeneous, then start the mill. Zirbeads unsupported by pre-mix can cause start-up and wear problems. Make sure the discharge screen is properly matched to the Zirbead size.

Never mix Zirbeads with other media. Zirbeads will grind-up lower density media such as zircon and glass beads, contaminating the product and causing undue wear on the mill.

Ready to Assist You

Need more help, or have a specialized need? Other custom size Zirbeads are available. Our application engineers are ready to assist you select the best Zirbead for your particular application.

1. The wear rate of Zirbeads is one half to one third that of other dispersion media. See "Typical Properties".
2. A 21% reduction in diameter allows twice as many beads. See "Suggested Charge Weights".

Typical Properties of Zirbeads vs Other Dispersion Media

Media	Density g/cm ³	Primary Material	Crushing Strength lb./grain (a)	Wear Rating (b)
Zirbeads	5.5	ZrO ₂ (c)	125 to 220	7
Zircon beads	3.7	ZrO ₂ •SiO ₂	105 to 160	11
Alumina beads	3.5	Al ₂ O ₃	125 to 220	22
Glass beads	2.8	SiO ₂	40 to 70	(d)
Ottawa sand	2.8	SiO ₂	10 to 20	(d)

(a) ASTM D 1213-54

(b) Zircoa Zirbeads wear test No. 59531. Zero = no wear.

(c) Typical composition (wt. %): ZrO₂ 97, MgO 3, SiO₂ <.35, CaO <.5, Fe₂O₃ <.1, Al₂O₃ <.2, TiO₂ <.1

(d) Specific gravity too low for test conditions

Suggested Zirbead Media Charge Weights

Horizontal Mill Size (Void Volume)	Zirbeads Super XR (1mm) for 85% Charge	
	liters	lbs. kg
15	102	46
20	136	62
45	305	139
100	677	308
200	1355	616

Zirbeads Available Sizes

Media	Sizes		Tyler Mesh
	Nom. (mm)	Range (mm)	
Zirbeads Super	2.4	1.4 - 3.35	-6 +12
	2.0	1.4 - 2.36	-8 +12
Zirbeads Super XR	2.0	1.7 - 2.3	-8 +10
	1.5	1.4 - 1.7	-10 +12
	1.3	1.18 - 1.4	-12 +14
	1	.85 - 1.18	-14 +20
	.7	.6 - .85	-20 +28

NOTE: Other sizes available upon request.



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