mpbio™

Lysing Matrix for Sample Grinding

Optimal cell disruption for any sample type

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Lysing Matrix

FastPrep® Lysing beads and matrices make difficult-to-lyse samples easy. No matter how tough or resistant your samples are our bead beating tubes will effectively disrupt cell walls, providing the highest yields of nucleic acids and proteins in a matter of seconds. Sample lysis tubes from MP Bio are highly reproducible with no cross-contamination. All lysing matrix tubes are standard sizes and fit just about any homogenizer on the market. We offer a wide variety of lysing beads and matrices to fit all sample types and applications.

- **Optimal cell disruption for any sample.**
- **Size of the beads and composition optimized according to the sample.**
- **No cross contamination with closed Lysing Matrix tubes.**
- **Available in 2 mL, 4.5 mL, 15 mL, 50 mL tubes or 96 well plates.**
- **Fit any high-speed bead-beating homogenizers.**
- **Validated worldwide with 3,000+ Lysing Matrix specific publications.**

FastPrep® sample tubes range from low to high impaction breaking down any sample type whether the cell walls are hard or soft. Sample types include but are not limited to: human and animal and plant tissues; microorganisms like bacterial, yeast and fungi; plant, soil, fecal, plus insects and worms.

Impact-resistant lysis tubes with beads are available in 2 mL, 4.5 mL, 15 mL, 50 mL and 96-well format sizes and contain a wide variety of materials to meet your lysing, grinding, and homogenization needs. All matrix particles are produced to the highest quality standards to ensure optimum performance. The lysing matrix particles are then dispensed into the Lysing Matrix Tubes under a rigorous set of proprietary conditions allowing complete confidence for immediate use.

For optimal performance and results we recommend using in conjunction with our FastPrep-24™ 5G Homogenizer and FastPrep® Extraction Kits. Using this combination to easily grind, lyse and homogenize any sample type in seconds. Not only is it fast and efficient but can be dependable time over time.

Lysing Matrix	Matrix Composition	Lysing Matrix	Matrix Composition
A	Garnet matrix and 1/4 inch ceramic beads	I	2 mm yellow zirconium oxide beads and 4 mm black ceramic sphere
B	0.1 mm silica spheres	J	2 mm yellow zirconium oxide beads and 1.6 mm aluminum oxide particles
C	1 mm silica spheres	K	0.8 mm zirconium silicate beads
D	1.4 mm ceramic spheres	M	1/4 inch ceramic beads
E	1.4 mm ceramic spheres, 0.1 mm silica spheres, and 4 mm glass beads	S	1/8 inch stainless steel beads
F	1.6 mm aluminum oxide particles, and 1.6 mm silicon carbide particles	SS	6.35 mm stainless steel grinding balls
G	1.6 mm silicon carbide particles and 2 mm glass beads	Y	0.5 mm diameter Yttria-stabilized zirconium oxide beads
H	2 mm glass beads, and 2 mm yellow zirconium oxide beads	Z	2 mm diameter Yttria-stabilized zirconium oxide beads

Size:

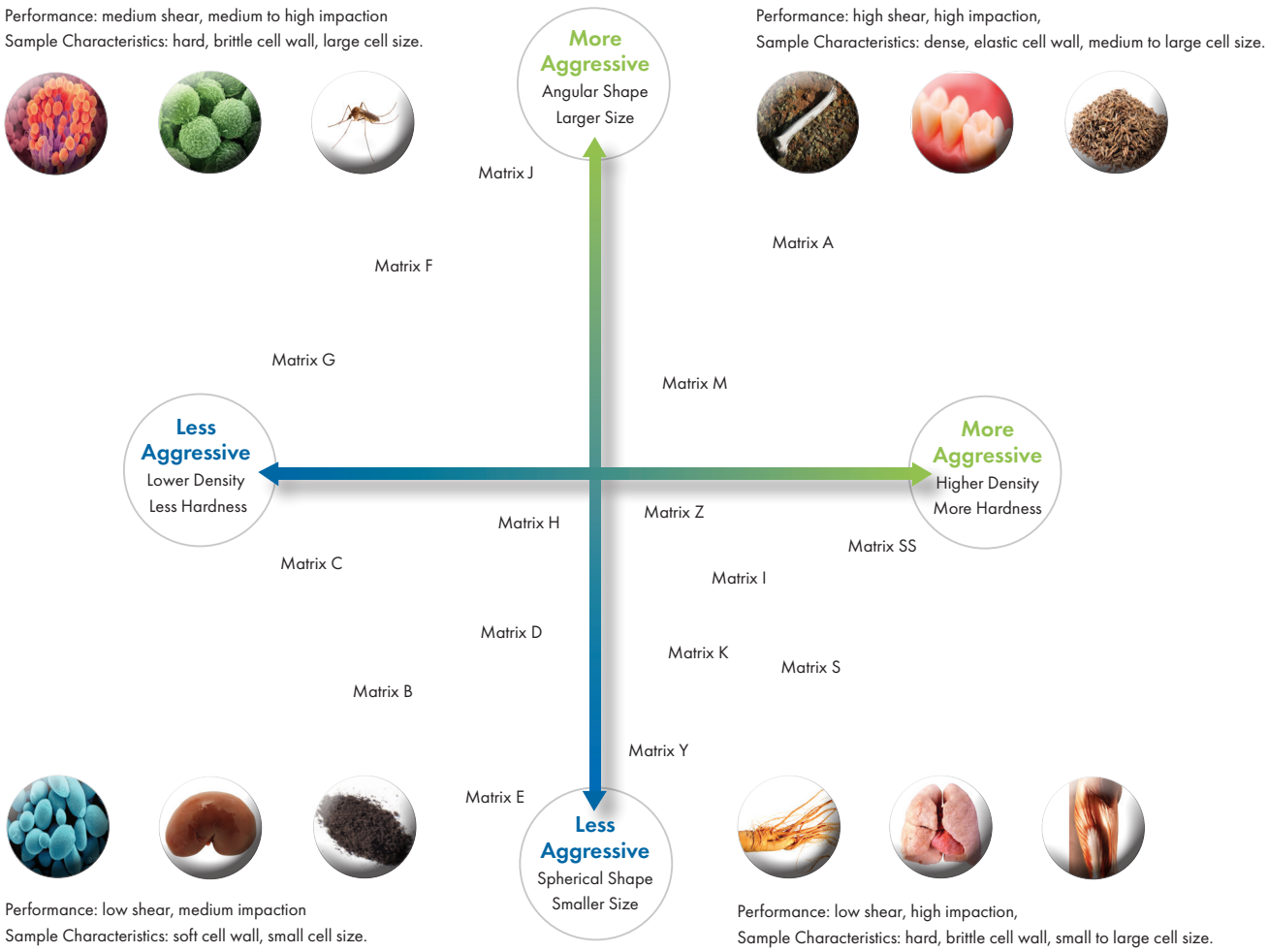
The smaller the particles used in the grinding media, the smaller the average particle size and the smaller the lowest-limiting particle size produced during pulverization. Matrix particle size should be selected based upon the size of the particles you wish to obtain in your lysate.

Shape:

The shape of the grinding media is a major determining factor in how cells are disrupted. Dull media, such spherical beads, utilize cascade impaction (hammering) as the main force for cell lysis. Sharp and angular shaped media will primarily generate mechanical shear forces (chopping and cutting) which can quickly open difficult cell walls, grind fibrous or elastic animal tissue, or crack spores or oocytes. Shear forces are preferable when isolating stable molecules such as DNA, stable proteins, structural polysaccharides and small molecules or metabolites. RNA and certain easily denatured proteins can be quickly degraded by shear forces, so care needs to be taken when using angular media. For isolation of these molecules, smooth impactor grinding media can be much more forgiving.

Hardness, Density and Composition:

The composition determines two very important qualities: hardness and density, both of which are inherent physical properties derived from the molecular composition of the matrix particle. The hardness must be greater than that of the sample being pulverized, with higher hardness values being more effective at disrupting hard and brittle cell membranes. Hardness and density values help optimize lysis efficiency while preserving the integrity of the analytes of interest.



Ready-to-Use Lysing Matrix

	Sample Type	Lysing Matrix															
	Animal & Human Tissues	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**M**	**S**	**SS**	**Y**	**Z**
Soft Tissues	Lung, Breast, Kidney, Heart, Intestine, Muscle, Spleen, Liver, Brain	•			•									•	•		•
Unique Samples	Skin	•			•												
	Nail													•			
	Tail, Ear	•												•			
	Artery	•			•												•
	Hair													•			
	Bone	•										•	•	•	•		
	Tumor	•												•			
	Mammalian cell	•			•												•
	Infected tissue (isolation of viruse)												•				
	Microorganisms	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	Z
	Bacteria (gram+ and -)	•	•				•				•						
	Yeast, Mold	•		•			•	•				•				•	
	Bacterial & Fungal spore	•	•				•	•		•	•	•			•		
	Algae	•		•				•								•	
	Virus	•	•														
	Environmental Samples	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	Z
	Soil, Marine sediment, Rhizosphere, Manure, Compost, Sludge, Feces, Wastewater					•		•	•	•							
	Plant Tissues	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	Z
	Leave	•			•		•	•									•
	Seed	•					•	•	•	•			•	•	•		
	Root	•					•	•						•			
	Needle	•					•	•					•	•			
	Wood	•					•	•	•	•							
	Stem, Flower	•			•		•	•									•
	Insects & Worms	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	Z
	Ticks, Fly	•			•				•	•							•
	Nematode	•		•	•												•
	Bee, Mosquitoe	•			•												•

Pre-aliquoted Tube:

Description	Pack Size	Cat. No.
Lysing Matrix A	50 x 2mL	116910050
	100 x 2mL	116910100
	500 x 2mL	116910500
Lysing Matrix A	25 x 4.5mL	116970025
	50 x 4.5mL	116970050
	100 x 4.5mL	116970100
Lysing Matrix A	5 x 15mL	116930005
	25 x 15mL	116930025
	50 x 15mL	116930050
Lysing Matrix A	10 x 50mL	116950010
	50 x 50mL	116950050
	100 x 50mL	116950100
	500 x 50mL	116950500
Lysing Matrix B	96-well Rack	116980001
	10 x 96-well Rack	116980010
Lysing Matrix B	50 x 2mL	116911050
	100 x 2mL	116911100
	500 x 2mL	116911500
Lysing Matrix B	25 x 4.5mL	116971025
	50 x 4.5mL	116971050
	100 x 4.5mL	116971100
Lysing Matrix B	5 x 15mL	116931005
	25 x 15mL	116931025
	50 x 15mL	116931050
Lysing Matrix B	10 x 50mL	116951010
	50 x 50mL	116951050
	100 x 50mL	116951100
	500 x 50mL	116951500
Lysing Matrix B	96-well Rack	116981001
	10 x 96-well Rack	116981010
Lysing Matrix C	50 x 2mL	116912050
	100 x 2mL	116912100
	500 x 2mL	116912500
Lysing Matrix C	25 x 4.5mL	116972025
	50 x 4.5mL	116972050
	100 x 4.5mL	116972100
Lysing Matrix C	5 x 15mL	116932005
	25 x 15mL	116932025
	50 x 15mL	116932050

Description	Pack Size	Cat. No.
Lysing Matrix C	10 x 50mL	116952010
	50 x 50mL	116952050
Lysing Matrix C	96-well Rack	116982001
	10 x 96-well Rack	116982010
Lysing Matrix D	50 x 2mL	116913050
	100 x 2mL	116913100
	500 x 2mL	116913500
Lysing Matrix D	25 x 4.5mL	116973025
	50 x 4.5mL	116973050
	100 x 4.5mL	116973100
Lysing Matrix D	5 x 15mL	116933005
	25 x 15mL	116933025
	50 x 15mL	116933050
Lysing Matrix D	10 x 50mL	116953010
	50 x 50mL	116953050
	100 x 50mL	116953100
	500 x 50mL	116953500
Lysing Matrix D	96-well Rack	116983001
	10 x 96-well Rack	116983010
Lysing Matrix E	50 x 2mL	116914050
	100 x 2mL	116914100
	500 x 2mL	116914500
Lysing Matrix E	25 x 4.5mL	116974025
	50 x 4.5mL	116974050
	100 x 4.5mL	116974100
Lysing Matrix E	5 x 15mL	116934005
	25 x 15mL	116934025
	50 x 15mL	116934050
Lysing Matrix E	10 x 50mL	116954010
	50 x 50mL	116954050
	100 x 50mL	116954100
Lysing Matrix E	96-well Rack	116984001
	10 x 96-well Rack	116984010
Lysing Matrix F	50 x 2mL	116915050
	100 x 2mL	116915100
	500 x 2mL	116915500
Lysing Matrix G	50 x 2mL	116916050
	100 x 2mL	116916100

Pre-aliquoted Tube:

Description	Pack Size	Cat. No.
Lysing Matrix H	50 x 2mL	116917050
	100 x 2mL	116917100
Lysing Matrix I	50 x 2mL	116918050
	100 x 2mL	116918100
Lysing Matrix J	50 x 2mL	116919050
	100 x 2mL	116919100
Lysing Matrix K	50 x 2mL	116920050
	100 x 2mL	116920100
Lysing Matrix M	50 x 2mL	116923050
	100 x 2mL	116923100
	500 x 2mL	116923500
Lysing Matrix M	25 x 15mL	116939025
	50 x 15mL	116939050
Lysing Matrix M	10 x 50mL	116959010
	50 x 50mL	116959050
Lysing Matrix S	50 x 2mL	116925050
	100 x 2mL	116925100
	500 x 2mL	116925500
Lysing Matrix S	5 x 15mL	116938005
	25 x 15mL	116938025
	50 x 15mL	116938050
Lysing Matrix SS	10 x 50mL	116941010
	50 x 50mL	116941050
	100 x 50mL	116941100
Lysing Matrix Y	50 x 2mL	116960050
	100 x 2mL	116960100
	500 x 2mL	116960500
Lysing Matrix Y	25 x 4.5mL	116977025
	50 x 4.5mL	116977050
	100 x 4.5mL	116977100
Lysing Matrix Y	5 x 15mL	116975005
	25 x 15mL	116975025
	50 x 15mL	116975050
Lysing Matrix Y	10 x 50mL	116976010
	50 x 50mL	116976050

Description	Pack Size	Cat. No.
Lysing Matrix Y	96-well Rack	116960001
	10 x 96-well Rack	116960010
Lysing Matrix Z	50 x 2mL	116961050
	100 x 2mL	116961100
	500 x 2mL	116961500
Lysing Matrix Z	25 x 4.5mL	116985025
	50 x 4.5mL	116985050
	100 x 4.5mL	116985100
Lysing Matrix Z	5 x 15mL	116978005
	25 x 15mL	116978025
	50 x 15mL	116978050
Lysing Matrix Z	10 x 50mL	116979010
	50 x 50mL	116979050
Lysing Matrix Z	96-well Rack	116961001
	10 x 96-well Rack	116961010

Biopulverizer System I
Cat. No. 116750200

The perfect starter pack for new FastPrep® Instrument owners.
Suitable for all sample types.
System I contains Lysing Matrix A, B, C, D, E.

Biopulverizer System II
Cat. No. 116850200

The perfect pack for processing difficult samples,such as skeletal muscle, pancreas, lung, heart, bone, seeds and spores.
System II contains Lysing Matrix F, G, H, I, J.

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Bulk Beads:

Description	Pack Size	Cat. No.
1/4" CERAMIC SPHERE	50/pk	116540034
	100 per bag	116540424
	500 each	116540412
	1000 each	116540422
Lysing Matrix A Bulk (Garnet)	200 g	116540423
	500 g	116540427
Lysing Matrix B Bulk	250 g	116540425
	500 g	116540428
	1 kg	116540429
Lysing Matrix C Bulk	500 g	116540432
	1 kg	116540433
Lysing Matrix D Bulk	500 g	116540434
Lysing Matrix Y Bulk	500 g	116540436
	1 kg	116540437
Lysing Matrix Z Bulk	500 g	116540438
	1 kg	116540439
Lysing Matrix F Bulk	500 g	116540440
0.3mm Glass Beads	500 gm	116540446
	1 kg	116540447
0.5mm Glass Beads	500 gm	116540448
	1 kg	116540449
2.0mm Glass Beads	1 kg	116540441
4 mm Glass Beads	100 beads	116914801
0.8mm Zirconium Silicate Beads	1 kg	116540443
2.0mm Yellow Zirconium Oxide Beads	1 kg	116540442
Lysing Matrix SS bulk (1/4")	1 kg	116540431
Lysing Matrix S bulk (1/8")	1 kg	116925000

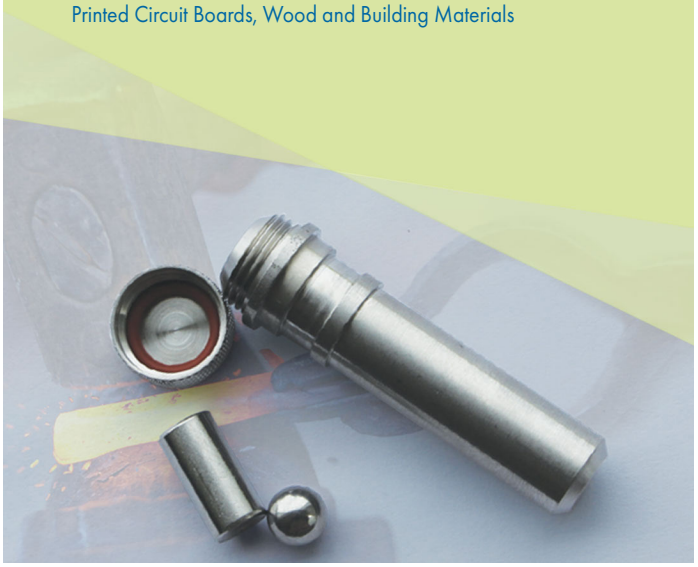
Metal Lysing Matrix Tubes:

Application

- Dry grinding very tough or hard samples where heat generated can damage plastic tubes
- Cryogenic dry grinding where severe cold temps (dry ice or LN2) can damage plastic tubes
- Milling or grinding non-biological samples where plastic contamination is of concern
- Sample processing with solvents or chemicals that are incompatible with plastics

Research Areas and Sample Types

- **Environmental and Agriculture**
  Tough seeds such as Dried Corn, Soybeans, Wheat, Tomato and Chile; Wood, Bark, Roots, animal claws and hooves
- **Forensics**
  Bone, Teeth, Hair, Fingernails, non-Biological substrates
- **Cancer and Disease**
  Tough tissues, Bone, Cartilage, Skin
- **Industrial**
  Non Biological, Rocks and Minerals, Plastics and Composites, Printed Circuit Boards, Wood and Building Materials



Empty Tubes & Caps:

Description	Pack Size	Cat. No.
Empty FastPrep® tubes (NON-SKIRTED) (CAPS NOT INCLUDED)	500x2 ml	115076200
	1,000x2 ml	115076400
	5,000x2 ml	115076600
Caps (Option: Orange, Purple, Blue, Red, Green, Clear)	500 each	11506X002
	1000 each	11506X005
	5000 caps	11506X010

Metal tubes ordering info:

Description	Pack Size	Cat. No.
Metal Lysing Tube, 2 mL, w/ Grinding Ball	2 Each	116991002
	3 Each	116991003
	6 Each	116991006
Metal Lysing Tube, 2 mL, w/ Grinding Cylinder	2 Each	116992002
	3 Each	116992003
	6 Each	116992006
Replacement O-rings for Metal Lysing Tube, 2 mL	50 Each	116990100

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