

Lysing Matrix for Sample Grinding

Optimal cell disruption for any sample type



*Dirty, tiny or tough samples?
No problem.*

Lysing Matrix - Optimal Cell Disruption for Any Sample Type

FastPrep® Lysing Matrix makes 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. Lysing Matrix 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 and composition optimized according to sample type
- 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® Lysing Matrix tubes range from low to high impactation, breaking down any sample type whether the cell walls are hard or soft. Sample types include, but are not limited to, human, animal, and plant tissues; microorganisms like bacteria, yeast and fungi; soil; feces; plus insects and worms.

Impact-resistant Lysing Matrix 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 the Lysing Matrix tubes in conjunction with our FastPrep instruments to ensure easy grinding, lysing, and homogenization of any sample type in seconds.



Lysing Matrix	Matrix Composition	Lysing Matrix	Matrix Composition
● A	Garnet matrix and 1/4 inch banded stellites	○ 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 Ytria-stabilized zirconium oxide beads
● H	2 mm glass beads and 2 mm yellow zirconium oxide beads	● Z	2 mm diameter Ytria-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 as 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.

Performance: medium shear, medium to high impaction
Sample Characteristics: hard, brittle cell wall, large cell size.



Matrix J

Matrix F

Matrix G

Performance: high shear, high impaction,
Sample Characteristics: dense, elastic cell wall, medium to large cell size.



Matrix A

Matrix M

Matrix SS

Less Aggressive

Lower Density
Less Hardness

Matrix C

Matrix B

Matrix E



Performance: low shear, medium impaction
Sample Characteristics: soft cell wall, small cell size.

More Aggressive

Angular Shape
Larger Size

Matrix H

Matrix D

Less Aggressive

Spherical Shape
Smaller Size

Matrix Z

Matrix I

Matrix K

Matrix Y



Performance: low shear, high impaction,
Sample Characteristics: hard, brittle cell wall, small to large cell size.

More Aggressive

Higher Density
More Hardness

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	•			•									•	•		•	
	Skin	•			•													
	Nail													•				
	Tail, Ear	•												•				
Unique Samples	Vascular tissue	•			•												•	
	Hair													•				
	Bone	•										•	•	•	•			
	Tumor	•												•				
	Mammalian cell	•			•												•	
	Infected tissue (isolation of viruses or virus)													•				
	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	
Leaf		•			•		•	•									•	
Seed		•					•	•	•	•			•	•	•			
Root		•					•	•						•				
Needle		•					•	•					•	•				
Wood		•					•	•	•	•								
Stem, Flower		•			•		•	•									•	
Insects & Worms		A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	Z	
Tick, Fly		•			•				•	•							•	
Nematode		•		•	•												•	
Bee, Mosquito		•			•												•	

Lysing Matrix Tubes

Pre-aliquoted Tubes:

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

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

Lysing Matrix Tubes

Pre-aliquoted Tubes:

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

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



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
Lysing Matrix C Bulk	1 kg	116540429
	500 g	116540432
Lysing Matrix D Bulk	1 kg	116540433
	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
0.3 mm Glass Beads	500 gm	116540446
	1 kg	116540447
0.5 mm Glass Beads	500 gm	116540448
	1 kg	116540449
2.0 mm Glass Beads	1 kg	116540441
4 mm Glass Beads	100 beads	116914801
0.8 mm Zirconium Silicate Beads	1 kg	116540443
2.0 mm 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

Empty Tubes & Caps:

Description	Pack Size	Cat. No.
Empty FastPrep® Tubes (NON-SKIRTED) (CAPS NOT INCLUDED)	500 x 2 mL	115076200
	1,000 x 2 mL	115076400
	5,000 x 2 mL	115076600
Caps (Option: Orange, Purple, Blue, Red, Green, Clear)	500 each	11506X002
	1000 each	11506X005
	5000 caps	11506X010

Metal Lysing Matrix Tubes:

Application

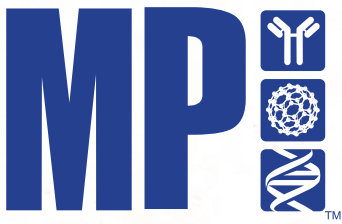
- Dry grinding very tough or hard samples where heat generated can damage plastic tubes
- Cryogenic dry grinding where severe cold temps (dry ice or LN2) can damage plastic tubes
- Milling or grinding non-biological samples where plastic contamination is of concern
- Sample processing with solvents or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



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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MP Biomedicals

Americas: 800.854.0530 | custserv@mpbio.com
 Europe: 00800.7777.9999 | custserv.eur@mpbio.com
 Japan: 03.6667.0730 | sales.japan@mpbio.com
 Singapore: 65.6775.0008 | enquiry_ap@mpbio.com
 South Korea: 82.2.425.5991 | info.korea@mpbio.com
 Australia: 61.2.8824.2100 | aus.cs@mpbio.com
 China: 86.4000.150.0680 | mpchina@mpbio.com
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 New Zealand: 64.9.912.2460 | nzsales@mpbio.com

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