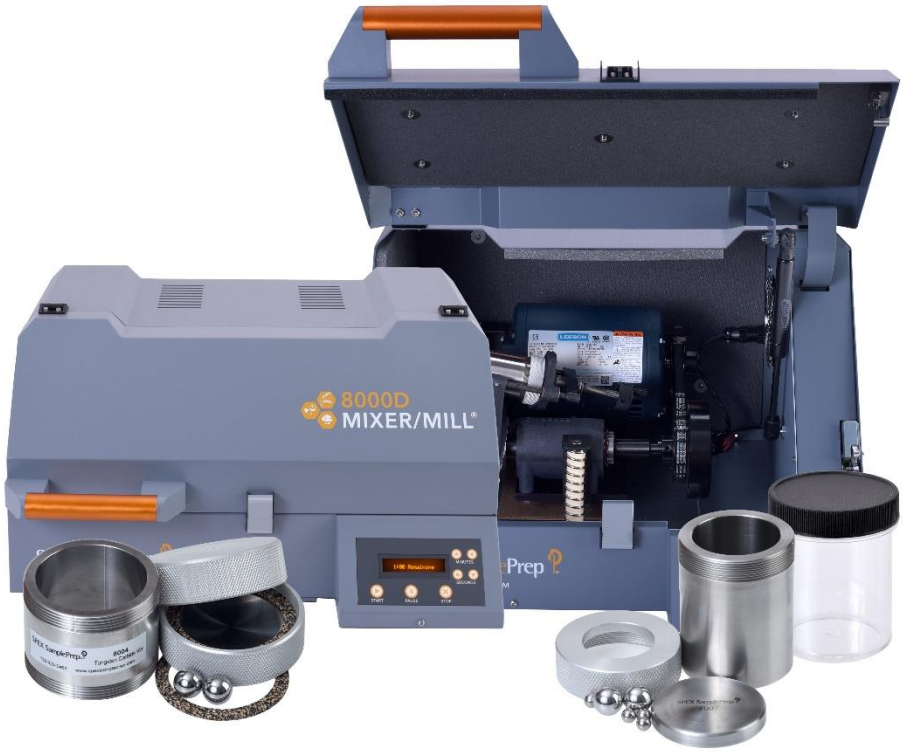

Mixer/Mill® Accessories

SPEX® SamplePrep®

Table of Contents

CONTACT US

SPEX SamplePrep

65 Liberty Street
Metuchen, NJ 08840 USA
Tel: +1 (732) 623-0465
Toll Free: +1 855-GET-SPEX (855-438-7739)
sampleprep@spex.com
www.spexsampleprep.com

CAUTION

Hazardous materials are not appropriate for use with the Mixer/Mill®. Reactive materials can generate heat and pressure and are not suitable for use in a closed vessel such as a Mixer/Mill® vial. SPEX SamplePrep® is available to offer guidance to our customers. However, users are responsible for knowledge and understanding of the potential hazards of the material with which they are working.

SPEX grinding vials are not hermetically sealed. Purging a vial with an inert gas prior to grinding will not ensure exclusion of oxygen. If an inert atmosphere is required, placing the entire Mixer/Mill® into a glove box is recommended.

CARE AND CLEANING

Mixer/Mill® Vials should be cleaned before use to remove any surface residue remaining from the manufacturing process.

In general, Mixer/Mill® vials can be cleaned with an abrasive. SPEX SamplePrep® recommends using household cleanser (such as Ajax® or Comet®) and water or a mixture of clean sand, household dishwashing detergent, and water.

Fill the vial no more than half way and add the grinding balls. Close the vial and run it in the Mixer/Mill® for approximately 5 minutes. After removing the vial from the Mixer/Mill®, open it and discard the contents. Repeat this process once or twice, using a fresh quantity of the cleansing mixture each time. Finally, rinse the vial with clean water and dry thoroughly.

***Note*: It is particularly important to dry steel or stainless steel vials immediately and thoroughly to prevent corrosion. Although stainless steel vials are corrosion-resistant, they are not corrosion-proof and can rust if not dried after washing.**

Another good technique is to run and discard a small sample of the material to be analyzed prior to running the actual analytical sample. This will help to remove any residues without introducing new contaminants. These techniques can also be used to clean vials between sample runs to prevent cross-contamination. Keep the threads clean with each use.

MIXING AND GRINDING

Mixing is usually done in a plastic vial with plastic balls. Depending on the nature and amount of material to be mixed, one or several balls may be used. Do not use a small amount of material and more than one or two balls; the impact may break the bottom of the plastic vial. Keep the number of balls to a minimum.

For samples that cake during mixing, a slurry with water or alcohol may be helpful. The sample may be dried afterward by heating plastic vials in a very low temperature oven. If caking is due to static charge, a small amount of cellulose (10%) can be added to the vial.

Grinding is commonly done in metallic or ceramic containers: steel, tungsten carbide, alumina, zirconia, silicon nitride, and agate. Dry grinding is the simplest approach and is most often used. The criteria for container selection are usually those of grinding efficiency versus trace contamination; steel and tungsten carbide grind more rapidly than ceramics or agate, but should be avoided if analyzing the sample for the metals that comprise the vial. Tungsten carbide, alumina ceramic, zirconia ceramic, silicon nitride, and agate vials are not warrantied against breakage.

The best vials for wet grinding are the *(#8001)* and *(#8007)* steel vials, *(#8004)* Tungsten Carbide, and *(#8020)* polycarbonate vial: all have gaskets and screw caps and are watertight. The *(#8003)* Alumina vial has optional clamps *(#8015)* for slurry grinding. The *(#8005)* Zirconia vial and *(#8008)* Silicon Nitride vials will hold liquid as long as they are tightly clamped into the mill. The *(#8014)* Agate vial is not suitable for use with liquids.

***Caution*: Always use grinding balls that match the material of the container, e.g. steel balls for a steel container, agate balls for an agate container, etc. This will limit contamination. An inappropriate choice of balls, such as tungsten carbide balls in an alumina container, can damage the container.**

VIALS AND VIALS SETS

METAL, CERAMIC AND AGATE VIALS

8001 Hardened Steel Vial Set, 65 mL

Hardness, MoHS = 5 ½ - 6. Rockwell: C = 60 – 65.
Major Elements: Fe and Minor Elements: Cr, Si, Mn, C
For wet or dry grinding/mixing. Vial size 2 ¼ in. (5.7 cm) diameter x 3 in. (7.62 cm) long. Vial body and cap liner is hardened tool steel. Set includes screw-on cap with O-ring to allow wet or dry grinding/ mixing, two ½ in. and four ¼ in. steel balls. Grinding load 5-20 g; mixing load approx. 30 ml.

***Caution*: Avoid halide-releasing compounds as they corrode steel.**

8001LC Hardened Steel Vial Set, 65 mL

Same vial as *(#8001),* but the steel contains less chromium (0.2%).

<u>Important</u>: Due to the low chromium content the (*#8001LC)* Hardened Steel Vial is prone to rust rapidly if left in contact with water or moisture. It is not recommended to wet grind in an aqueous solution with the (*#8001LC) vial*. If surface rust does occur follow the cleaning process to remove it. Store cleaned vials in a dry environment.

8003 Alumina Ceramic Vial Set, 45 mL

Hardness, MoHS = 9
Major Elements: Al and Minor Elements: Si, Ca, Mg
Vial size 2¼ in. (5.7 cm) diameter x 2¾ in. (7.0 cm) long. High purity 99.5% alumina ceramic vial body (*#10008*) and two slip-on caps (*#22554*) with one ½ in. ball (*#8003A*); set includes eight corprene gaskets (*#10009*). Grinding load 5 - 15 g; mixing load approximately 20ml.

Since alumina is fragile, the (*#8003)* vial is sold without a warranty against breakage. Extreme care must therefore be taken to prevent breakage. Starting sample size should be ¼ in. Sample quantity should be between 5 and 15 g of a material that can reasonably be expected to be ground by ceramic. Do not use more than one 1/2" diameter (*#8003A)* ball.

When grinding a slurry (solid sample with a liquid grinding aid), use the (*#8015)* Clamp Set to secure the vial end caps. This prevents leakage and damage to the vial.

8004 Tungsten Carbide Vial Set, 55 mL

Hardness, MoHS = 8 ½
Major Elements: W, C, Co and Minor Elements: Ta, Ti, Nb
For wet or dry grinding/mixing. Vial size 2 ¼ in. (5.7 cm) diameter x 2 ½ in. (6.35 cm) long. Tungsten carbide-lined body, two screw-on tungsten carbide-lined caps (*#32599*), two 7/16 in. tungsten carbide balls (*#8004A*), and eight corprene gaskets (*#10010*). Grinding load 5 - 15 g, mixing load approximately 25 ml.

Tungsten carbide is an extremely hard, but also very brittle material. Care must therefore be taken to prevent breakage. Starting sample size should be ¼ in.

Clean the threads of the aluminum caps often, to keep them from jamming. Do not drop the caps on edge, as this can bend the aluminum shell and make them difficult to use. Because tungsten carbide is fragile, the (*#8004)* vial is sold without a warranty against breakage.

8005 Zirconia Ceramic Vial Set, 45 mL

Hardness, MoHS = 8 ½
Major Elements: Zr and Minor Elements: Y, Hf, Mg
For wet or dry grinding/mixing. Vial size 2 ¼ in. (5.7 cm) diameter x 2 5/8 in. (6.67 cm) long. Solid zirconia ceramic vial (*#35380*), cap (*#35379*), and two 1/2 in. balls (*#8005A*); seven corprene gaskets (*#10009*). Grinding load approximately 5-15 g; mixing load approximately 25 ml.

Since zirconia is fragile, the (*#8005)* vial is sold without a warranty against breakage. Proper use includes observing these precautions:

- To prevent damage, always use a gasket, and do not run the vial empty or with a very small sample. We recommend a minimum sample weight of 5 grams, or a minimum sample volume of 5 ml.
- Do not use mineral acids with zirconia ceramic, either as a slurry component or cleaning agent. Mineral acid (notably dilute HCl) can rapidly erode the vial.
- Do not clean or dry zirconia ceramic at elevated temperatures (121°C), as in an autoclave or drying over. Repeated or prolonged exposure to heat and/or steam can weaken it.

8007 Stainless Steel Vial Set, 65 mL

Hardness, MoHS = 5 – 5 ½. Rockwell: C = 55 – 60.
Major Elements: Fe, Cr and Minor Elements: Ni, Mn, S, Si
Vial size 2 ¼ in. (5.7 cm) diameter x 3 in. (7.62 cm) long. Vial body and cap liner made of hardened 440C stainless steel. Two ½ in. and four ¼ in. stainless steel balls are included. Set includes screw-on cap with O-ring to permit wet or dry grinding/mixing. Grinding load 5 - 20 g; mixing load approximately 30 ml.

8008 Silicon Nitride Vial Set, 45 mL

Hardness, MoHS = 8 ½ +
Major Elements: Si and Minor Elements: Y, Al, Fe, Ca
For wet or dry grinding/mixing. Vial size 2 ½ in. (5.7 cm) diameter x 2 11/16 in. (6.8 cm) long. Solid silicon nitride vial (*#38412*), cap (*#38413*), and two ½ in. balls (*#8008A*); seven corprene gaskets (*#10009*). Grinding load approximately 5 - 15 g; mixing load approximately 25 mL.

Since silicon nitride is fragile, the (*#8008)* vial is sold without a warranty against breakage. Extreme care must therefore be taken to prevent breakage. Starting sample size should be ¼ in. Sample quantity should be between 5 and 15 grams of a material that can reasonably be expected to be ground by silicon nitride.

8009 Round-Ended Hardened Steel Vial Set, 35 mL

Hardness, MoHS = 5 ½ - 6. Rockwell: C = 60 – 65.
Major Elements: Fe and Minor Elements: Cr, Si, Mn, C
For wet or dry grinding/mixing. Vial size 2 3/8 in. (6.0 cm) diameter x 3 in. (7.62 cm). Hardened steel vial body has grinding chamber with rounded ends for more efficient grinding/mixing. Includes screw-on cap and O-ring for wet or dry use, two 1/2 in. and four 1/4 in. steel balls. For the finest results use (*#8009B)* 1 in. steel ball. Grinding load 3-10 g; mixing load approximately 25 mL.

SPEX SamplePrep

8009SS Round-Ended Hardened Stainless Steel Vial Set, 35 mL

Same vial as (*#8009)*, but made of stainless steel.

8014 Agate Vial Set, 45 mL

Hardness, MoHS = 6 - 7

Major Elements: Si and Minor Elements: Al, Na, Fe, K, Ca, Mg

For dry grinding and mixing. Vial size 2 ¼ in. (5.7 cm) diameter x 2 ¾ in. (7.0 cm) long. All-agate vial body (*#22558*), two slip-on caps (*#22557*), two ½ in. agate balls (*#8014A*), and eight corprene gaskets (*#10009*). Grinding load 3 - 10 g; mixing load approximately 20 mL.

The (*#8014)* Agate Grinding Vial Set is used when organic and metallic contamination are equally undesirable. Its high polish and resistance to wear are advantageous in grinding with a minimum of transfer loss.

Since agate is fragile, the (*#8014)* vial is sold without a warranty against breakage. Extreme care must therefore be taken to prevent breakage. The following suggestions for use are based on experience, and should be followed to minimize the chances of damage.

Several factors are critical to avoid damaging the (*#8014)* Agate Vial in use:

- Samples should be crushed to 3mm or below, prior to milling.
- Samples should be brittle enough to be readily pulverized.
- "Difficult" samples (ceramics, metals, abrasives, etc.) should be avoided.
- The amount of sample should be 3 – 10 grams.
- The vial should always be used with gaskets, one to a cap.
- The vial should be held together during handling to prevent the caps from loosening.

3114 Stainless Steel Vial Set, 2.5 mL

½ in. (12.7 mm) diameter x 1 in. (25.4 mm) long. Made of 303 stainless steel; includes slip-on cap and ¼ in. steel ball; grinding load 0.2 - 0.5 g, mixing load 1 mL. Must be used with (*#8010)* Adapter.

3117 Hardened Tool Steel Vial Set, 2.5 mL

½ in. diameter (12.7 mm) x 1 in. (25.4 mm) long. Made of tool steel. Includes slip-on cap and ¼ in. steel ball. Grinding load 0.2 - 0.5 g, mixing load 1 ml. Must be used with (*#8010)* Adapter.

3120 Agate Vial Set, 3.5 mL

Agate vial in a Delrin vial case 7/8 in. (22.2 mm) diameter x 2 in. (50.8 mm) long. Includes one ¼ in. (6.35 mm) agate grinding ball *(#3118A).* One flat gasket for lid. Grinding load 0.5 - 1.0 g; mixing load 2 mL.

3127 Hardened Tool Steel Vial Set, 5 mL

¾ in. (19.1 mm) diameter x 1-7/8 in. (47.6 mm) long. Made of tool steel; includes center cylinder with two slip-on caps and ¼ in. steel ball. Grinding load 0.3 - 1.0 g, mixing load
2 mL. Must be used with *(#8011)* Adapter.

5004 Tungsten Carbide-Lined Steel Vial Set, 5 mL

3/4 in. (19.1 mm) diameter x 2 1/8 in. (54 mm) long. Includes two slip-on Delrin caps with tungsten carbide inserts, six disposable methacrylate center cylinders, and two 5/16 in. (7.9 mm) tungsten carbide balls. Grinding load 0.5 - 1.5 g; mixing load 3 mL.

PLASTIC VIALS

3111 Polystyrene Vial, 2.5 mL

½ in. (12.7 mm) diameter x 1 in. (25.4 mm) long. Made of polystyrene; includes a slip-on polyethylene cap; grinding load 0.2-0.5 g, mixing load 1 ml. Use *(#3112)* or *(#3119)* plastic balls. Sold in units of 100. Must be used with *(#8010)* Adapter.

3116 Polystyrene Vial, 5 mL

½ in. (12.7 mm) diameter x 2 in. (50.8 mm) long. Made of polystyrene; includes a slip-on polyethylene cap; grinding load 0.2 - 0.5 g, mixing load 1 mL. Use *(#3112)* or *(#3119)* plastic balls Sold in units of 100. Must be used with *(#8010)* Adapter.

3116PC Polycarbonate Vial, 5 mL

½ in. (12.7 mm) diameter x 2 in. (50.8 mm) long. Made of polycarbonate; includes a slip-on polyethylene cap; grinding load 0.2 - 0.5 g, mixing load 1 mL. Use *(#3112)* or *(#3119)* plastic balls Sold in units of 100. Must be used with *(#8010)* Adapter.

6133 Polypropylene Vial, 12 mL

¾ in. (19.1 mm) diameter x 2 in. (50.8 mm) long. Made of polypropylene with attached flip-cap. Use *(#3112)* or *(#8006A)* plastic balls. Sold in units of 100. Must be used with *(#8011)* Adapter.

6133PC-T Polycarbonate Vial, 12 mL

¾ in. (19.1 mm) diameter x 2 in. (50.8 mm) long. Reinforced polycarbonate vial with slip-on polyethylene cap. Holds one (14 mm) steel grinding ball *(#6133B)*. Grinding load per vial 1 - 3 g. Not recommended for liquids. Sold in units of 100. Must be used with *(#8011)* Adapter.

6134 Plastic Vial, 35 mL

1 in. (25.4 mm) diameter x 3 in. (76.2 mm) long. Made of polypropylene with attached flip-cap. Suitable for slurry grinding. Use *(#3112)* or *(#8006A)* plastic balls. Sold in units of 100. Must be used with *(#8017)* Adapter.

6135 Plastic Vial, 75 mL

1 ½ in. (38.1 mm) diameter x 3 in. (76.2 mm) long. Made of polypropylene with attached flip-cap. Suitable for slurry grinding. Use *(#3112)* or *(#8006A)* plastic balls. Sold in units of 100. Must be used with *(#8016)* Adapter.

8002 Plastic Vial, 135 ml

½ in. (12.7 mm) diameter x 1 in. (25.4 mm) long. Made of polystyrene; includes a screw-on polyethylene cap; grinding load 0.2 - 0.5 g, mixing load 1 ml. Use *(#3112)* or *(#8006A)* plastic balls. Sold in units of 100.

8020 Thick-Walled Polycarbonate Jar Set, 75 mL

Jar size 2 in. (50.8 mm) diameter x 3 in. (76.2 mm) long. Polycarbonate body with screw-on cap and rubber gasket. Supplied with two ½" and four 3/8" methacrylate balls. Can also be used with *(#8007B)* stainless steel ball set. Recommended mixing/grinding load 10 - 30 g: ideal for soft to medium hard materials. Suitable for slurry grinding up to 40 mL.

BIOTECHNOLOGY APPLICATION VIALS

2310 Reinforced Tube, 2 mL

Reinforced polypropylene, Self-standing 2 mL microfuge tube with screw-on polyethylene cap. 25/64 in. diameter x 1 27/32 in. long (10 mm x 47 mm). Not pre-cleaned. Grinding load per vial 1 mL. Sold in units of 200. Must be used with *(#8018)* Adapter.

2240-PEF Pre-Cleaned Polyethylene Vial Set, 5 mL

Frosted polyethylene vial with screw-on polyethylene cap. ½ in. diameter x 2 in. long (12.7 mm x 50.8 mm), preloaded with one 3/8 in. steel ball (*#2155*). Grinding load per vial 1.5 mL. Set of 24 vials sold as case of 10. Must be used with *(#8019)* Adapter.

Preloaded 2 ml Vial Sets, Pre-Cleaned

The 2 ml vial sets listed in Table 2. are pre-cleaned and pre-loaded with grinding media. Must be used with *(#8018)* Adapter.

TABLE 1 - VIAL REFERENCE

PART NUMBER	VIAL DESCRIPTION
3111	Polystyrene Vial, 2.5 mL
3114	Stainless Steel Vial, 2.5 mL
3116	Polystyrene Vial, 5 mL
3117	Hardened Tool Steel, 2.5 mL
3120	Agate Vial, 3.5 mL
3127	Hardened Tool Steel Vial, 5 mL
5004	Tungsten Carbide Vial, 5 mL
6133	Polypropylene Vial, 12 mL
6133PC-T	Polycarbonate Vial, 12 mL
6134	Polypropylene Vial, 35 mL
6135	Polypropylene Vial, 75 mL
8001	Hardened Steel Vial, 65 mL
8001LC	Low Chromium HS Vial, 65 mL
8002	Polystyrene Vial, 135 mL
8003	Alumina Ceramic Vial, 45 mL
8004	Tungsten Carbide Vial, 55 mL
8005	Zirconia Ceramic Vial, 45 mL
8007	Stainless Steel Vial, 65 mL
8008	Silicon Nitride Vial, 45 mL
8009	Round-Ended Hardened Steel, 35 mL
8009SS	Round-Ended Stainless Steel, 35 mL
8014	Agate Vial, 45 mL
8020	Polycarbonate Jar, 75 mL

TABLE 2 – PRELOADED VIALS

PART NUMBER	GRINDING MEDIA	SUGGESTED USE
2301-100MB	100 µm Silica Beads (1200 mg)	Economical bead for disrupting bacteria
2302-100AW2	100 µm Zirconium Beads, acid washed	Suitable for bacteria
2302-200AW	200 µm Zirconium Beads, acid washed	Suitable for bacteria and small yeast (e.g. Pichia)
2302-1000AW	1.0 mm Zirconium Beads	Suitable for fine soil samples
2302-1400AW	1.4 mm Zirconium Beads	Suitable for small tissue samples and biomass
2302-1700AW	1.7 mm Zirconium Beads	Effective for large tissue samples and plant materials
2302-3000AW	3.0 mm Zirconia Beads	Good for larger tissue samples. Excellent chemical resistance to organics.
2302-6000AW	6.0 mm Zirconium Oxide	Effective for large tissue samples
2303-MM1	500 µm Garnet & a 6 mm Zirconia Satellite	General sample shredding
2303-MM2	800 µm & 1.4 mm Zirconium Beads, acid washed	Mycelium & soft leaves
2303-MM3	100 µm Silica, 1.4 mm Zirconium & a 4 mm Silica Bead, acid washed	Biofilms & plant tissue.
2304-100AW	100 µm Silica Beads (600mg)	Suitable for bacteria
2304-400AW	400 µm Silica Beads	Idea for yeast (e.g. Saccharomyces)
2304-800AW	800 µm Silica Beads	Suitable for mold & pollen
2305-2800SS	2.8 mm Stainless Steel	Effective for tissue samples

GRINDING BALLS

2151 Grinding Balls, 1/8 in. (3 mm)
Made of 440C stainless steel. Sold in bags of 100.

2154 Grinding Balls, 1/4 in. (6.35 mm)
Made of 440C stainless steel. Sold in bags of 100.

2186 Grinding Balls, 15/64 in. (6 mm)
Made of zirconia ceramic. Sold in bags of 100.

6133B Grinding Ball, 9/16 in. (14 mm)
Made of 440C stainless steel. Sold in bags of 100.

3112 Methacrylate Balls, 3/8 in. (9.5 mm)
Fits in all SPEX plastic vials. Sold in bags of 100.

3114SB Stainless Steel Ball Set, ¼ in. (6.35 mm)
Made of 440C Stainless Steel. Used with *(#6114)* vial. 4 balls per set.

3117B Hardened Tool Steel Ball Set, ¼ in. (6.35 mm)
Hardened Steel. Used with *(#6117)* and *(#3127)* vials. 4 balls per set

3118A Grinding Balls, 1/4 in. (6.35 mm)
Made of agate. Used with *(#3120)* Agate vial.

3119 Methacrylate Balls, 1/8 in. (3.2 mm)
Fits in all SPEX plastic vials. Sold in bags of 100.

5004A Grinding Balls, 5/16 in. (7.9 mm)
Made of tungsten carbide. Used with the (*#5004)* Tungsten Carbide vial. 4 balls per set.

8001B Hardened Steel Ball Set
Two ½ in. (12.7 mm) and four ¼ in. (6.35 mm). Used with (*#8001)* and (*#8009)* vials.

8003A Alumina Ceramic Ball, ½ in. (12.7 mm
Made of alumina ceramic. Used with (*#8003)* vial.

8004A Tungsten Carbide Ball, 7/16 in. (11.2 mm)
Made of tungsten carbide. Used with the (*#8004)* and (*#8004SS)* Tungsten Carbide vials.

8006A Methacrylate Balls ½ in. (12.7 mm)
Fits in (*#6133*, *#6134*, *#6135*, *#8002* , *#8020)* plastic vials. Sold in bags of 100.

8007B Stainless Steel Ball Set
Stainless Steel. Two ½ in. (12.7 mm) and four ¼ in. (6.35 mm). Used with (*#8007)* vial.

8008A Silicon Nitride Ball ½ in. (12.7 mm)
Made of silicon nitride. Used with (*#8008)* vial.

8009B Steel Ball 1 in. (25.4 mm)
Steel. Use only with *(#8009)* vial.

8014A Agate Ball ½ in. (12.7 mm
Made of agate. Use with *(#8014)* Agate vial.

BIOLOGICAL GRADE GRINDING BEADS

Molecular Biology Grade Grinding Beads are treated to inactivate contaminating enzymes and have been tested accordingly. Low Binding Grinding Beads are coated to reduce non-specific binding of nucleic acids and proteins, and are used for lysing dilute samples of cells. Acid Washed Grinding Beads are treated to remove fine particles and contaminants. SPEX SamplePrep® offers all three grades in sizes ranging from 100 to 1000 µm.

2160 Silica Grinding Beads (800-1000 µm)
Acid washed grinding beads. 200 g bottle.

2162 Low Binding Silica Grinding Beads (800 µm)
Acid washed and chemically treated to keep samples from binding to titer plate wells. 200 g bottle.

2165 Silica Grinding Beads (400-600 µm)
Acid washed grinding beads. 200 g bottle.

2166 Silica Grinding Beads, Molecular Biology Grade (400-600 µm)
Acid washed RNase/DNase-free treated grinding beads. 200 g bottle.

2167 Low Binding Silica Beads (400 µm)
Acid washed and chemically treated to keep samples from binding to titer plate wells. 200 g bottle.

2168 Low Binding Silica Beads (100 µm)
Acid washed and chemically treated to keep samples from binding to titer plate wells. 200 g bottle.

2180 Zirconia Grinding Beads, Molecular Biology Grade (200-400 µm)
Made of silicon nitride. Used with (*#8008)* vial.

2181 Low Binding Zirconia Beads (100 µm)
Acid washed and chemically treated to keep samples from binding to titer plate wells. 250 g bottle.

2182 Low Binding Zirconia Beads (200 µm)
Acid washed and chemically treated to keep samples from binding to titer plate wells. 250 g bottle.

VIAL HOLDERS

Special adapters enable simultaneous running of multiple samples or hold vials that are too small for the standard Mixer/Mill® clamp.

8010 Multiple Sample Adapter
Holds seven vials; (*#3111*, *#3114*, *#3116*, and *#3117)*

8011 Multiple Sample Adapter
Holds four vials; (*#3118*, *#3127*, *#6133*, *#6133PC-T)*

8012 Vial Clamp Adapter for the 8000D Mixer/Mill®
Only required when running the (*#8010* and *#8011)* adapters in the 8000D Mixer/Mill®

8016 Adapter for the 6134 Vial
Holds one vial

8017 Adapter for the 6135 Vial
Holds one vial

8018 Adapter for Standard 2 ml Vial

Holds seven vials; (*#2310)* and vials listed in Table 2.

8019 Adapter for the 2240-PEF Vial, 5 ml

Holds seven vials; (*#2240-PEF*, *#2241-PEF-200)*

GASKETS AND O-RINGS

Viton® - A fluoroelastomer that has good resistance to oils and most other fluids. Known chemicals to avoid that will degrade gasket are ketones, ethers, esters, amines, strong bases (NaOH) and Acetic Acid. Incompatible with Vertrel® XF.

- ***#51746*** standard O-ring for (*#8001*, *#8007*, *#8009)*
- ***#39322*** standard gasket for (*#8004SS)* and optional gasket for (*#8004)*
- ***#39515*** optional gasket for (*#8003*, *#8005*, *#8008*, *#8014)*

Corprene - A combination of cork and neoprene that has good resistance to oils, solvents, and most other fluids. Known chemicals to avoid are organic solvent, strong acids and bases. Incompatible with Vertrel® XF.

- ***#10009*** standard gasket for (*#8003*, *#8005*, *#8008*, *#8014)*
- ***#10010*** standard gasket for (*#8004)* and optional gasket for *(#8004SS)*

EPDM - Ethylene propylene diene monomer that has good resistance to phosphate esters, ketones, alcohols, and most other fluids. Known chemicals to avoid are fuel oils and acids. Recommended for use with Vertrel® XF.

- ***#40002*** optional gasket for (*#8004*, *#8004SS)*
- ***#40004*** optional gasket for (*#8003*, *#8005*, *#8008*, *#8014)*
- ***#51715*** optional O-ring for (*#8001*, *#8007*, *#8009)*

Teflon® - Synthetic fluoropolymer that has great resistance to a wide a range of chemicals.

- ***#51714*** optional O-ring for (*#8001*, *#8007*, *#8009)*

BINDERS

Binders are usually blended with the sample after pulverizing and before pressing a disc for XRF Analysis. Their use should lead to a stable, crumble-proof sample disc achieved with a minimum of dilution, and contamination.

3642-150 Prep-Aid Cellulose Binder
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
150 g c4ontainer.

3642-450 Prep-Aid Cellulose Binder
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
50 g container.

3644-150 Prep-Aid UltraBind®
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
150 g container.

3644-450 Prep-Aid UltraBind®
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
450 g container.

3644-500T Prep-Aid UltraBind®
Each tablet weighs 0.5 g. Recommend blending with sample at 10 to 15% by weight.
500 tablets per container.

3646-150 Prep-Aid Paraffin Binder
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
150 g container.

3646-450 Prep-Aid Paraffin Binder
< 20 µm powder. Recommend blending with sample at 10 to 15% by weight.
450 g container.

GRINDING AID

3650 Prep-Aid Vertrel® XF
A liquid fluorocarbon grinding aid. Improves the grinding results. Prevents caking, reduces contamination, and evaporates after grinding without leaving any residue.
1 QT bottle.

AXT PTY LTD
Authorised Distributor
SPEX SamplePrep
Australia & New Zealand

1/3 Vuko Place
Warriewood
NSW 2102 Australia

+61 (0)2 9450 1359
axt.com.au
info@axt.com.au