



KEY 9418 MMA BINDER

DESCRIPTION

KEY 9418 MMA BINDER is a 100% reactive methyl methacrylate binder resin and bodycoat for self leveling (SL), broadcasted, and troweled mortar (TM) systems. **KEY 9418 MMA** resin is ideal for decorative troweled and broadcast quartz floors and industrial surfacings subject to heavy loads and traffic. **KEY 9418 MMA Systems** are excellent for food processing areas, restaurant kitchens, laboratories, machine shops, chemical storage warehouses, animal research facilities, and numerous other applications.

KEY ADVANTAGES

- Fast Cure (60 min.) for Rapid Recoat
- UV Resistant; Non-Yellowing, Non-Chalking
- Good Leveling and Flow Characteristics
- Good Chemical Resistance
- VOC Compliant (100% Solids), Meets USGBC LEED Requirements
- Use Over Wide Temperature Range

KEY CONSIDERATIONS

- Substrate must be dry, free of dirt, waxes, curing agents and other foreign materials.
- **KEY 9418 MMA** must be mixed with SL filler or blended aggregate and sealed with appropriate MMA sealer.
- **KEY 9418 MMA** must be applied at minimum thickness of 65 mils (1/16") per coat unless otherwise approved by Key Resin Technical Service.
- Do not store outside in direct sunlight, storage temperature must be < 80°F.
- On or below grade installation must have an efficient vapor barrier under the slab (minimum 10-15 mil).
- Moisture vapor transmission must be less than 3 lbs per ASTM-F-1869 and less than 80% RH per ASTM F-2170 unless Key Resin moisture mitigation system is used.

COMPOSITION

KEY 9418 MMA is a 100% reactive methyl methacrylate resin.

COLOR SELECTION

KEY 9418 MMA is applied clear for use with decorative quartz granules or colored vinyl chips. Color packs are available for selected colors in "SL" systems. Color pack mix ratio is 1 quart pigment per 5 gallons resin. See **Key Resin MMA Color Card**.

SURFACE PREPARATION

Surface preparation is the most critical portion of any successful resinous flooring system. All substrates must be properly prepared as outlined in **Key Resin Company's Technical Bulletin #1**. In addition, **All Key MMA Flooring Systems require a minimum surface profile of CSP 4-5**, as outlined in ICRI Guideline 310.2-1997, formerly named G-03732 (available from www.ICRI.org). Work must be performed by trained or experienced contractors or maintenance personnel.

MIXING AND INSTALLATION

KEY 9418 MMA requires the addition of **KEY 9000 MMA HARDENER** to start the hardening process. The amount of hardener must be adjusted to the respective surface temperature (see table below). At temperatures below 40°F, **KEY 9101 MMA COLD TEMPERATURE ACCELERATOR** must be used in addition to the amount of hardener used at the 40°F level.

**KEY 9418 MMA Resin
Mix Ratios, Pot Life and Hardening/Temperature**

Temp. (°F) of Resin, Air & Floor Surface	Hardener by Volume (oz.) Per Gallon of 9418 Resin	Pot Life (min.)	Hardness Time (min.)
+30°F	9-10 vol. oz.	Approx. 30	Approx. 60
+40°F	7-9 vol. oz.	Approx. 30	Approx. 60
+50°F	5-7 vol. oz.	Approx. 25	Approx. 55
+60°F	4-5 vol. oz.	Approx. 20	Approx. 50
+70°F	4 vol. oz.	Approx. 15	Approx. 40
+80°F - 90°F	4* vol. oz.	Approx. 10	Approx. 40

*Do not use less than 4 oz. Key 9000 MMA Hardener by volume unless confirmed with jobsite testing. Consult with Key Resin Technical Services if performing mix ratio by weight instead of by volume.

KEY 9101 MMA COLD TEMPERATURE ACCELERATOR: At temperatures below 40°F, Key 9101 MMA Cold Temperature Accelerator must be used in addition to the amount of hardener used at the 40°F or 30°F level. As a rule of thumb, add about ½ oz by volume per gallon of resin @ 39° to 32°F, up to 2.0 oz by volume per gallon @ -20°F, increasing the quantity gradually in a consistent linear progression as the temperature decreases.

VERY IMPORTANT: KEY 9101 MMA COLD TEMPERATURE ACCELERATOR MUST be added to the MMA resin and thoroughly blended BEFORE adding the **KEY 9000 MMA HARDENER**, or hazardous decomposition may occur (i.e., violent foaming). **KEY 9101 MMA COLD TEMPERATURE ACCELERATOR** will cause yellowing, it is advised to use pigmented MMA resin versus clear to reduce the appearance of yellowing, darker colors will be less affected than lighter colors.

PHYSICAL PROPERTIES

Percent Reactive	100%, zero VOC
Appearance	Viscous Liquid
Viscosity, cps @ 73°F	280-290 cps
Weight per Gallon	8.1 lbs.
Working Life, 50°F-70°F	15-30 minutes, will vary w/temp. & amount of Hardener
Cure Rate	40-60 minutes
Recoat Time	60 minutes

KEY 9418 MMA SL SYSTEMS

KEY 9418 MMA SL is a slurry topping formulation which provides excellent wear-ability and chemical resistance. It has proven successful in food processing, warehouses, chemical storage, restaurant kitchens, laboratories, pharmaceuticals, locker rooms, clean rooms, lobbies and animal research. If used over hard surface tile such as quarry tile, it is recommended to use an additional application of **KEY 9332 MMA MEMBRANE** under **KEY 9418 MMA SL**.

The **SL System**, based on **KEY 9418 MMA Resin** and Key Self-Leveling Filler, hardens rapidly after the addition of **KEY 9000 MMA HARDENER** (50% dibenzol peroxide). **KEY 9418 SL** can be smooth or non-skid and provides excellent resistance against acidic and caustic materials. The **KEY 9418** resin is formulated for use as a binder resin only, it must be mixed with Key Self-Leveling Filler for slurries or Blended Mortar Aggregate for troweled mortars. **KEY 9418** must be topcoated with **KEY 9522**, **KEY 9526**, or **KEY 9528** depending on the expected service conditions.

FORMULATION GUIDE

KEY 9418 SL is formulated with fillers as indicated below. The amount of hardener will vary with temperature. At temperatures below 40°F **KEY #9101 MMA Cold Temperature Accelerator** must be used in addition to the hardener (about ½ vol. oz/gal. @ 32°F up to 2 vol. oz/gal. @ -20°F) while maintaining the amount of hardener powder at the 40°F level.

Typical Batching Size for “SL” Slurry

Material	% Parts by Weight	Weight	Volume
Key 9418 MMA	26.7	8.2 lbs.	1.0 gallon
Key Self-Leveling Filler	72.0	15-22.0 lbs.	1.0-1.5 gallons
Pigment Pack	N/A	N/A	6.4 vol. oz
Hardener	Varies w/temp.	Varies w/temp.	Varies w/temp.

Yield*	1.5-2.0 gallons slurry
Coverage: 1/16"	36-50 ft ²
1/8"	18-25 ft ²
3/16"	13-18 ft ²

*Note: Yield of mixed slurry will vary depending on mix design used.

APPLICATION

Add hardener to the clear resin and add dry components and mix thoroughly with a low speed mixer. Add liquid pigment and mix 1-2 minutes until no lumps are present. Apply to primed substrate using a gauge rake or trowel. After raking and loop/spike rolling, apply broadcast. The fresh basecoat may be broadcast to excess with a wearing course. Rates will vary from 0.25-1.25 lbs/ft² depending on type and size of aggregate. It is recommended to broadcast 20 mesh or larger aggregate aggregate to ensure adequate through-curing. Aggregate may be natural or colored quartz, sand, aluminum oxide, emery, etc. For other decorative floors, decorative vinyl chips and/or glass aggregate may be broadcast into the coating.

KEY 9418 SL must be top coated or sealed with **KEY 9522**, **KEY 9526** or **KEY 9528**. These can be pigmented or unpigmented. Top coating is necessary for improved scratch resistance, stain resistance and chemical resistance.

KEY 9418 TM SYSTEMS

KEY 9418 TM can be a decorative topping formula with colored quartz or industrial mortar using blended mortar silica aggregate. Used in food and beverage processing, restaurant kitchens, laboratories, animal rooms, pharmaceuticals, locker rooms, grocery stores and/or areas requiring a decorative heavy duty surface or heavy duty mortar. If applied over hard tile such as quarry tile, use the flexible **KEY 9332 MMA Membrane** under **KEY 9418 TM**.

KEY 9418 TM systems are formulated with graded aggregates containing no silica flour and must be troweled. The use of colored quartz granules and aggregates provides the decorative effects. **KEY 9418 TM** must be top coated or sealed with **KEY 9522**, **KEY 9526** or **KEY 9528**, depending on expected service conditions. These can be pigmented or unpigmented. Top coating is necessary for improved scratch resistance, stain resistance and chemical resistance.

FORMULATION GUIDE

Typical batching of **KEY 9418 TM** is listed below. The amount of hardener will vary based on the substrate temperatures, be aware that for temperatures <40°F the material will be stiff and difficult to trowel.

Typical Batch Formula for Troweled Quartz

Material	% Parts by Weight	Weight	Volume
Key 9418	24.0	8.2 lbs.	1 gallons
Blended Quartz Plus Cove Powder	76.0	26.0 lbs. 2.0 lbs.	2 gallons 1 pint
Hardener	Varies w/temp.	Varies w/temp.	Varies w/temp.

Yield*	± 2 gallons Mortar
Coverage: 1/8"	24-25 ft ²
3/16"	18 ft ²
1/4"	12-13 ft ²

*Note: Yield of mixed mortar will vary depending on mix design used.

Typical Batch Formula for Blended Mortar Aggregate

Material	% Parts by Weight	Weight	Volume
Key 9418	14.0	8.2 lbs.	1 gallon
Blended Mortar Aggregate	85	50.0 lbs.	3.25 gallons
Pigment Pack	N/A	N/A	6.4 vol. oz
Hardener	Varies w/temp.	Varies w/temp.	Varies w/temp.

Yield*	± 3 gallons Mortar
Coverage	
1/8"	35 ft ²
3/16"	25 ft ²

*Note: Yield of mixed mortar will vary depending on mix design used.

APPLICATION

Add the hardener to the clear resin followed by the dry aggregates and mix thoroughly for 1-2 minutes until no lumps are present. Apply mixture to the primed substrate using a rake and then smooth with a trowel. After troweling, surface may be broadcast, if necessary. After curing, remove any excess broadcast and apply the proper sealer. **KEY 9418 TM** must be top coated or sealed with **KEY 9522**, **KEY 9526** or **KEY 9528**, depending on expected service conditions. Top coating is necessary for improved scratch resistance, stain resistance and chemical resistance.

AVAILABILITY

Key Resin materials are available throughout the United States, Canada, Mexico and a number of other countries. Contact the **Key Representative** in your area. Telephone (888)943-4532 or visit www.keyresin.com.

MAINTENANCE

KEY 9418 MMA is a basecoat resin used with various **Key MMA Systems**, refer to specific system data sheet or sealer data sheet for recommended maintenance.

STORAGE

Store in a cool and dry place, below 80°F, out of direct sunlight. Do not store near open flame or food. Shelf life is 6 months in the original unopened containers. After extended storage: Additives and fillers can separate with storage, materials should be inspected for any visible signs of settlement, polymerization, or paraffin coagulation (clumps, strands). Thoroughly mix pails or drums (use a drum mixer, do not rely on rolling drum on floor) and pour into new containers to inspect resin before use.

HELPFUL HINTS

Adequate cross ventilation should be provided. Good ventilation during the application process ensures good cross linking and hardening. Read, understand and follow Material Safety Data Sheets and Application Instructions prior to use. Use only as directed. If substrate and/or material temperature is above 90°F, DO NOT apply material.

TECHNICAL SERVICE

Key Resin Company and **KRC Associates, Inc.** provide services and consultations on material selection, specification, troubleshooting, and other information on the proper repair and protection of concrete surfaces. **Key Resin Sales/Technical Representatives** are available to assist you. Telephone (888)943-4532 or visit www.keyresin.com.

WARRANTY

Information regarding Key Resin brand MMA resins and systems is based upon extensive research and experience in the field of applied engineering by the manufacturer **Plasti-Chemie GMBH International**. By making such information available, Key Resin does not thereby assume any liability beyond express terms of our standard limited material warranty. Key Resin does not warrant the accuracy or completeness of any such information, whether conveyed orally or in writing, but to the best of our knowledge believe it to be accurate. We reserve the right at any time and without notice to update or improve our products and process and our information concerning the same. By Key Resin making this information available does not relieve the purchaser or user from his obligation to verify the suitability of our products and processes for the intended use or application. The purchaser and user likewise have the responsibility to ensure that the purchase, use or application does not infringe upon patent rights or other rights of third parties. **Key Resin Company ("Key")** warrants for a period of one (1) year that its products will be free of manufacturing defects and will be in conformity with published specifications when handled, stored, mixed, and applied in accordance with recommendations of **Key**. If any product fails to meet this warranty, the liability of **Key** will be limited to replacement of any non-conforming material if notice of such non-conformity is given to **Key** within one (1) year of delivery of materials. **Key** may in its discretion refund the price received by **Key** in lieu of replacing the material. No customer, distributor, or representative of **Key** is authorized to change or modify the published specifications of this warranty in any way. No one is authorized to make oral warranties on behalf of **Key**. In order to obtain replacement or refund the customer must provide written notice containing full details of the non-conformity. **Key** reserves the right to inspect the non-conforming material prior to replacement. EXCEPT FOR THE EXPRESSED WARRANTY STATED ABOVE, THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE. **KEY'S** OBLIGATION SHALL NOT EXTEND BEYOND THE OBLIGATIONS EXPRESSLY UNDERTAKEN ABOVE AND **KEY** SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO THE PURCHASER OR ANY THIRD PARTY FOR ANY LOSS, COST, EXPENSE, DAMAGE OR LIABILITY, WHETHER DIRECT OR INDIRECT, OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.