



KEY 9510 MMA BINDER

DESCRIPTION

KEY 9510 MMA is a 100% reactive, low viscosity, flexible methyl methacrylate resin for use as a binder for troweled mortars, polymer concrete, and slurries. The resin is ideal for making repairs and to change the slope on floors, bridge decks and joint headers.

The polymer concrete and mortar systems based on **KEY 9510 MMA** harden rapidly after the addition of hardener powder. The polymer concrete and mortar systems are suitable for indoor and outdoor areas subject to heavy vehicular and equipment traffic.

KEY ADVANTAGES

- Fast Cure (60 min.)
- Flexible and Resistant to Aging
- Can be Used for Repair Depths Up to 2.5 Inches Using Standard Mix Design
- Use Over Wide Temperature Range – Even Below Freezing
- VOC Compliant, Meets USGBC LEED Requirements

KEY CONSIDERATIONS

- Concrete must be dry, free of dirt, waxes, curing agents and other foreign materials.
- 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. For higher moisture levels, consult with Key Resin for recommendations.
- Mortar mix design **MUST** yield a resin-rich mortar, pourable consistency, which has a resin-rich surface after troweling. A mortar with a resin-lean, dry consistency may have cure problems.

COMPOSITION

KEY 9510 MMA is a 100% reactive methyl methacrylate resin.

COLOR SELECTION

KEY 9510 MMA is supplied clear. Color packs are available for selected colors. 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.

KEY 9510 MMA RESIN DATA

Appearance	Bluish tint, low viscosity
Viscosity @ 75°F	140-150 cps
Weight per Gallon	8.1 lbs.
Percent Reactive	100%, zero VOC
Pot Life (working time) 73°F	20-25 minutes
Compressive Strength (filled mortar)	3,500-4,000 psi
Tensile Strength (filled mortar)	800-1,000 psi
Bond Strength	300-400+ psi (100% concrete failure)

FORMULATION GUIDE

KEY 9510 MMA/PC (Polymer Concrete) requires the addition of **KEY 9000 MMA HARDENER** to initiate the hardening process. The amount of hardener must be adjusted based on 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 or 30°F level.

KEY 9510 MMA Resin Mix Ratios, Pot Life and Hardening/Temperature

Temp. (°F) of Resin, Air & Floor Surface	Hardener by Volume (oz.) Per Gallon of 9510 Resin	Pot Life (min.)	Hardening Time (min.)
+30°F	9-11 vol. oz.	Approx. 30 min.	Approx. 60 min.
+40°F	8-9 vol. oz.	Approx. 25 min.	Approx. 55 min.
+50°F	7-8 vol. oz.	Approx. 20 min.	Approx. 45 min.
+60°F	5-7 vol. oz.	Approx. 20 min.	Approx. 45 min.
+70°F	4-5 vol. oz.	Approx. 20 min.	Approx. 45 min.
+80°F - 90°F	3-4 vol. oz.	Approx. 15 min.	Approx. 45 min.

*Do not use less than 3 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.**

Typical Batch Formula for Blended Mortar Aggregate (PC)

Material	% Parts by Wt.	Typical Batch Wt.	Volume
Key 9510 MMA	14.0	8.1 lbs.	1 gallon
Blended Mortar Aggregate	85.0	40-50 lbs.	2.5-3.25 gallons
Pigment Pack	N/A	N/A	6.4 vol. oz.
Hardener	Varies with temp.	Varies with temp.	Varies with temp.

Yield*: ±2.5-3.0 gallons Mortar (0.33-0.4 ft³)

Yield*	±2.5-3.0 gallons Mortar
Coverage	
1/8"	28-35 ft ²
3/16"	20-25 ft ²
1/4"	14-18 ft ²
1/2"	7-9 ft ²

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

IMPORTANT: Mortar mix design MUST yield a resin-rich mortar, pourable consistency, which has a resin-rich surface after troweling. A mortar with a resin-lean, dry consistency may have cure problems.

The above mix design formulation permits installation up to 2.5 inches in one placement. For thicknesses greater than ½ inch, additional aggregate may be added to reduce the resin content and lower the shrinkage. The addition of 75% aggregate allows for installation of up to 4 inches in one placement.

Addition of Aggregate for Greater than ½ inch. Additional Aggregate per Gallon of Resin

Thickness of Placement	Aggregate Size	Weight %	Weight	Volume	Yield
<1/2 inch	-	-	-	-	0.33-0.4 ft ³
½ - 1 inch	1/8" x 1/16"	25%	12.0 lb.	0.9 gal.	0.42-0.49 ft ³
1 – 2 inch	1/16" x 3/8"	50%	24.0 lb.	1.8 gal.	0.5-0.57 ft ³
>2 inches	3/8" x 5/8"	75%	36.0 lb.	2.7 gal.	0.56-0.63 ft ³

APPLICATION

KEY 9510 MMA and hardener powder are mixed and blended with the fillers and aggregates for 3 minutes until no lumps are present. Add the additional aggregates to extend the mortar. **IMPORTANT:** Mortar mix design **MUST** yield a resin-rich mortar, pourable consistency, which has a resin-rich surface after troweling. Apply mortar to the primed surface using a trowel. If excessive resin forms on the surface of the mortar while troweling, it is optional to lightly broadcast 20 mesh silica sand into the resin. A mortar with a resin-lean, dry consistency may have cure problems, resulting in isolated sticky areas that do not cure completely. Any areas that do not cure hard must be removed, spot primed, and replaced with resin-rich mortar before application of sealer. **KEY 9510 MMA/PC** mortar must be sealed/top coated with a **KEY MMA Floor System** or **KEY MMA Sealer** suitable for the intended application. Consult with Key Resin for recommendations.

AVAILABILITY

Key Resins 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.

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.

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