

KEY #9510 MMA BINDER

Product Information Sheet

DESCRIPTION

KEY #9510 MMA BINDER is a 100% reactive low viscosity methyl methacrylate binder resin 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, mortar and slurry 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. Flooring systems based on **KEY #9510 MMA** 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 for rapid recoat and return to service
- Good leveling and flow characteristics
- Meets USGBC LEED criteria for low VOC
- May be applied in thickness up to 2.5" using standard mix design
- Full cure in less than 60 minutes
- Use over wide temperature range—even below freezing

KEY CONSIDERATIONS

- Concrete must be dry, free of dirt, waxes, curing agents and other foreign materials
- **KEY #9510 MMA** must be mixed with self-leveling filler or blended aggregate and sealed with appropriate MMA sealer
- **KEY #9510 MMA** must be applied at minimum thickness of 30 mils (1/32") per coat unless otherwise approved by **Key Resin Technical Service**
- 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 F1869 and less than 80% RH per ASTM F2170 unless **Key Resin** moisture mitigation system is used
- MMA odor must be contained and/or ventilated with negative air flow as necessary
- Small enclosed spaces require proper negative air flow ventilation to ensure proper curing

COLOR SELECTION

KEY #9510 is supplied Clear (slight haze). Color packs are available, refer to **Key Resin Color Chart**. Color pack mix ratio is 1 pigment pack per 5 gallons resin.

COMPOSITION

100% reactive methyl methacrylate resin.

COVERAGE

KEY #9510 yield ±2.75-3.0 gallons mortar (0.33-0.4 ft³).

Coverage:	1/8"	35-38 ft ²
	3/16"	23-26 ft ²
	1/4"	17-19 ft ²
	1/2"	8-9 ft ²

APPLICATION

SURFACE PREPARATION

Surface Preparation is the most critical portion of any successful resinous flooring system application. All substrates must be properly prepared as outlined in **Key Resin Technical Bulletin #1**. Work must be performed by trained or experienced contractors or maintenance personnel. **Key Resin Technical Service** is available to answer any questions. All **Key MMA Flooring Systems** require a minimum surface profile of CSP 4-5.

INSTALLATION

(Continued on next page)

KEY #9510 is used in conjunction with fillers or blended aggregate and 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). 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.

Note: **KEY #9510 MMA** must be sealed with **KEY #9522 MMA**, **KEY #9526 MMA** or **KEY #9529 MMA**. These can be either pigmented or clear.

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Mix Ratios, Working Life, Hardening/Temperature

Temp of Resin, Air & Floor	Hardener by Volume oz/gal	Working Life (minutes)	Hardening Time (minutes)
+30°F	9 vol. oz. +0.5 v.o. #9101	~20	~60
+40°F	8 vol. oz.	~20	~60
+50°F	6 vol. oz.	~25	~55
+60°F	5 vol. oz.	~20	~50
+70°F	4 vol. oz.	~15	~35
+80°F - 90°F	3 vol. oz.	~12	~30

*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

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ADDITIVES / SPECIAL CONDITIONS

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: MUST add KEY #9101 to the MMA resin and thoroughly blend 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 MORTAR FORMULA

Yield*: ±2.75-3.0 gallons Mortar (0.33-0.4 ft³)

Material	Weight	Volume
Key #9510 MMA	8.2-10.2 lbs	1.0-1.25 gallons
Blended Mortar Aggregate	50 lbs	3.25 gallons
Pigment Pack	N/A	6.4 vol. oz.
Key #9000 MMA Hardener	Follow chart	Follow Chart

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

IMPORTANT: Use ONLY **Key BMA-50** or other properly graded aggregate blend to ensure proper through-curing. Mortar mix design **MUST** yield a resin-rich, 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.

HELPFUL HINTS

Good ventilation during the application process ensures adequate cross linking and hardening. Read, understand and follow Safety Data Sheets (SDS) and application instructions prior to use. Use only as directed. If substrate and/or material temperature is above 90°F, **DO NOT** apply material unless prepared for very short working time and possible roller marks, etc.

INSTALLATION

Add hardener to the clear resin and blend; add aggregate and pigment (if used) and mix thoroughly with jiffy mixer or mortar mixer. Blend for 1-2 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 20-30 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** must be sealed/top coated with a **Key MMA Floor System** or **KEY MMA Sealer** suitable for the intended application. Consult with **Key Resin Technical Service** for recommendations.

TECHNICAL DATA

Percent Reactive	100%
Volatile Organic Content (VOC) (EPA Method 24)	40 g/L, compliant to low VOC Rule 1113 in all 50 states
Weight/gal	8.1 lbs/gal
Viscosity @ 75°F	90-130 cps

CURE/DRY TIME

Working Life	10-15 minutes, will vary with temp. & amount of Hardener
Recoat	45-60 minutes

PHYSICAL PROPERTIES

Adhesion to Concrete	ASTM D7234	300-400+ psi (Concrete Failure, varies by concrete strength)
Compressive Strength (filled mortar)	ASTM C579	6,700-7,000 psi
Tensile Strength (filled mortar)	ASTM C307	1,275 psi

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TYPICAL SLURRY FORMULA

Yield*: ±1.6-2.0 gallons Slurry (0.2-0.27 ft³)

Material	Weight	Volume
Key #9510 MMA	8.2 lbs/gal	1.0 gallon
Key Self Leveling Filler	15-22 lbs	1.0-1.5 gallons
Key #9000 MMA Hardener	Follow Chart	Follow Chart
Key Pigment Pack	N/A	6.4 vol. oz.

INSTALLATION - SLURRY

Add hardener to the clear resin and blend; add filler and pigment (if used) and mix thoroughly with jiffy mixer. Blend for 1-2 minutes until no lumps are present. Apply mix to the primed surface using a gauge rake or notched trowel. The above mixture will yield approximately 1.6-2 gallons of slurry. The fresh slurry coat must be broadcast to excess with a wearing course of aggregate or **Key Broadcast Chips** (color flake) when installed as a single slurry system. Aggregate rates will vary from 0.25-1.0 lbs/ft² depending on type and size of aggregate, mix design, and thickness of slurry. It is recommended to broadcast 30 mesh aggregate or larger. Do not use broadcast aggregate smaller than 30 mesh or the risk of random cure problems increases. Aggregate may be natural or colored quartz, sand, aluminum oxide, emery, etc. **KEY #9510 MMA** must be sealed with **KEY #9522**, **KEY #9526** or **KEY #9529**, depending on expected service conditions.

WARRANTY

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 (1) one 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.

AVAILABILITY

Key Resin materials are available throughout the United States and a number of other countries. Contact the **Key Resin Representative** in your area for details.

TECHNICAL SERVICE

Key Resin Company provides services and consultations on material selection, specification, troubleshooting, and other information on the proper repair and protection of concrete surfaces. **Key Resin Representatives** are available to assist you. Telephone 888.943.4532 or visit www.keyresin.com.

MAINTENANCE

KEY #9510 MMA is a basecoat resin used with various **Key MMA Systems**, refer to the specific system technical data sheet or sealer product information sheet for recommended maintenance instructions, or **Key Resin Technical Bulletin #3** and **#3-A**.

STORAGE

Store **KEY #9510** in a cool and dry place, below 80°F, out of direct sunlight. Do not store near open flame or food. Shelf life is 12 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.