

# KEY #9114 MMA CRACK SEALER

Product Data Sheet



## DESCRIPTION

**KEY #9114 MMA CRACK SEALER** is a 100% reactive ultra-low viscosity methyl methacrylate resin used as a penetrating crack sealer or to fortify extremely porous concrete substrates. **KEY #9114** is typically used on bridge decks, parking structures or as a general penetrating sealer to prevent moisture intrusion. **KEY #9114** is a reactive methacrylate resin, which hardens rapidly with the addition of **KEY #9000 MMA HARDENER**, even at low temperatures.

## KEY ADVANTAGES

- Fast cure for rapid recoat and return to service
- Ultra-low viscosity for excellent absorption into concrete
- Protects against water penetration into hairline cracks
- Meets USGBC LEED criteria for low VOC
- Full cure in less than 60 minutes
- Use over wide temperature range—even below freezing

## KEY CONSIDERATIONS

- Substrate must be dry and free of dirt, waxes, curing agents and other foreign materials
- 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. For higher moisture levels, **consult with Key Resin** for recommendations
- Priming with **KEY #9112 MMA PRIMER** is required if applying **Key MMA Floor Systems**
- MMA odor must be contained and/or ventilated with negative air flow as necessary

## COLOR SELECTION

**KEY #9114** is supplied clear.

## COMPOSITION

100% reactive methyl methacrylate resin.

## COVERAGE

**KEY #9114** will vary depending on porosity of substrate and quantity of cracks. 80-100 ft<sup>2</sup>/gallon/coat is a suggested starting point. Two coats may be necessary on very porous substrates.

## 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**. Shot blast substrate lightly (brush blast) to remove laitance and expose surface cracks. Clean out cracks with oil-free compressed air, hairline cracks (<4 mils width) may have latent moisture, use a propane torch to flame the concrete at a rate of 10 feet per minute or as needed to dry out cracks. Allow surface to cool to ambient temperature, immediately begin to apply sealer. 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.

### MIXING/INSTALLATION (Continued on next page)

**KEY #9114** 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 or 30°F level. For complete installation instructions, contact **Key Resin Technical Service**.

### KEY #9114 MMA CRACK SEALER RESIN

Mix Ratios, Working Life, Hardening/Temperature

Temp of Resin, Air & Floor	Hardener by Volume oz/gal	Working Life (minutes)	Hardening Time (minutes)
+30°F	13 vol. oz. +0.5 v.o. #9101	~15	~60
+40°F	13 vol. oz.	~15	~60
+50°F	9 vol. oz.	~12-16	~45-50
+60°F	6 vol. oz.	~15-20	~45-50
+70°F	4 vol. oz.	~15-20	~45-50
+80°F	2* vol. oz.	~20-25	~45-50
+90°F-105°F	2* vol. oz.	~5-10	~25-30

\*Do not use less than 2 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 at 39° to 32°F, up to 2.0 oz by volume per gallon at -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, but this will have no effect with a penetrating sealer as long as a resin-rich surface film is not created.

## INSTALLATION

Inspect underside of elevated decks for evidence of full depth cracks that may require additional treatment to prevent draining of resin. Cracks greater than 1/8" width should be repaired individually prior to application of flood coat. Fill 1/8" or larger cracks with loose sand and pour small quantity of mixed **KEY #9114 MMA CRACK SEALER** into the crack and spread with a paint brush, allow to cure before applying flood coat. **KEY #9114 MMA CRACK SEALER** is spread evenly on the surface as a flood coat with a squeegee or rollers and allowed to absorb completely into the concrete substrate. Do not allow to form puddles. Coverage rate will vary depending on the porosity of the concrete and quantity of cracks. For estimating purposes evaluate the substrate with a test patch whenever possible, or use 80-100 ft<sup>2</sup>/gallon/coat as a general guide, assume two coats on very absorbent surfaces. Apply subsequent applications of resin only after the previous application is completely hardened. There should be very little resin film on the surface upon completion.

## HELPFUL HINTS

Adequate cross ventilation should be provided. Good ventilation during the processing ensures a good 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.

## AVAILABILITY

Key Resin materials are available throughout the United States, Canada, 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](http://www.keyresin.com).

## TECHNICAL DATA

Percent Reactive	100%
Volatile Organic Content (VOC) (EPA Method 24)	69 g/L, compliant to low VOC Rule 1113 in all 50 states
Weight/gal	8.4 lbs/gal
Viscosity @ 75°F	5-15 cps

## CURE/DRY TIME

Working Life	5-25 minutes, will vary with temp. & amount of Hardener
Recoat	25-60 minutes
Full Cure & Max. Resistance	1 hour, will vary with temp. & amount of Hardener

## PHYSICAL PROPERTIES

Compressive Strength	ASTM D638	12,500-12,700 psi
Elongation	ASTM D638	4.5-5.0%
Flexural Strength	ASTM D638	11,100-11,500 psi
Hardness, Shore D	ASTM D2240	>80
Tensile Strength	ASTM D638	7,800-8,000 psi
Water Absorption	ASTM D570	0.75-0.8 %/24 hrs
Adhesion to Concrete	ASTM D7234	300-400+ psi (Concrete Failure, varies by concrete strength)
Glass Transition (T <sub>g</sub> )	ASTM D7028	155-158°F (68-70°C)

## STORAGE

Store **KEY #9114** 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.

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## 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.

Rev 6/26/2020 v1.0

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