ROADWARE CONCRETE REPAIR PRODUCTS





Road-tough repairs for concrete floors, decks, slabs and surfaces. Just flood cracks, spalls, joints, or holes with Roadware 10 Minute Concrete Mender[™], MatchCrete[™], or Roadware 10 Minute Flexible Cement II.[™]

In minutes you'll be back in service with a tough polymer concrete that stays in place permanently.



ROADWARE 10 MIN







www.concretemender.com

Concrete Repair (structural)

- Cracks
- Spalls
- Anchoring
- Slab Bonding
- Joint Rehab
- Polished Floors

Interior Decorative Concrete Repair

- Cracks
- Spalls
- Color Matching
- Polishing Floors

ROADWARE 10 MINUTE CONCRETE MENDER[™]

ROADWARE CONCRETE MENDER^M Off-White

Exterior UV Stable Concrete Repair

Cracks

- Spalls
- Exposed Aggregate
- Color Matching
- Decorative Concrete Repair
- Polished Floors

Concrete Repair (exterior / slight movement)

- Cracks
- Spalls
- Control Joints
- Electrical Encapsulate
- Airport Lighting

ROADWARE MatchCrete[™] GLEAR

ROADWARE

FLEXIBLE CEMENT II[™]



Page 3

ROADWARE 10 MINUTE CONCRETE MENDER[™]



Industrial Floors

Repair cracks and spalls, plus control joints more than one year old. Tough enough for the heaviest lift truck service.

Cold Storage

Repair frozen concrete below -20F. It will take a few hours to cure, but the repair will last. See website for special techniques.

Anchoring

Anchor bolts and repair railing mounts quickly and easily.

Structural Repair

Concrete Mender[™] is a structural repair that can bond a slab back together and transfer dynamic loads. Use caution when repairing exterior concrete or re-cracking may occur.

80300 300x300ml cartridge 80020 Two Gallon Kit 80050 Ten Gallon Kit 1005 Static Mixer 24 element 1105 Flow Restrictor 1006-14/15/18 Needle Tip Mixer 5300 600ml Application Gun

Roadware 10 Minute Concrete Mender[™] is a two-part polyurethane that penetrates deep into concrete to make permanent repairs. At less than 8 cps. **Concrete Mender** actually injects itself into the matrix of the concrete and shores up the existing concrete as well as making the repair. Concrete Mender eliminates the bond line and Microdowles into the concrete. Cures grey.

Delaminations

Unique Microdoweling[™] action can penetrate deep into concrete cracks. Use to rebond delaminated slabs.

Polishing

Concrete Mender may be honed and polished without gumming up the pads or smearing into the surface.

Floor Coating Prep

Repair cracks, spalls, and joints prior to floor coating. Compatible with most industrial floor coating systems.

Exterior Repairs

Concrete Mender cures grey, but will turn buff/yellow when exposed to sunlight over time. Coat exterior repairs with MenderBlender[™] or similar material if needed.







Roadware Incorporated 381 Bridgepoint Way South Saint Paul, MN 55075 800-522-7623 www.roadware.us

ROADWARE CONGRETE MENDER® Off-White



Match Colors

By adding small amounts of dry color pigment to the sand, many different colors can be made. Use colored sand for deeper color effect.

Polishing

Polyurethane formula may be honed and polished without gumming up the pads or smearing into the surface. Use with natural or colored sand for repairs that blend into the surrounding concrete when polished.

Retail Floors

Repair cracks and spalls plus control joints more than one year old. Tough enough for the heaviest lift truck service. Match color to colored concrete in retail settings.

Structural Repair

Off-white Concrete Mender is a structural repair that can bond a slab back together and transfer dynamic loads. Use caution when repairing exterior concrete or re-cracking may occur.

70300 300x300ml cartridge 70020 Two Gallon Kit 70050 Ten Gallon Kit 1005 Static Mixer 24 element 1105 Flow Restrictor 1006-14/15/18 Needle Tip Mixer 5300 600ml Application Gun Roadware Off-white Concrete Mender™ had all the same Microdoweling™ properties as 10 Minute Concrete Mender™ except it cures to an off-white color. Use Off-white Concrete Mender™ as a base to accept dry pigments and colored sand to make an unlimited number of repair colors.

MatchCrete Concrete Mander, silica sand and dry shake color,

MatchCrete Concrete Monder, silica sand, and red pigment.

MatchCrete Concrete Mender silica sand and dark buff pigment

MatchCrete ¹¹ Concrete Mender ind concrete sand.

Decorative Concrete

Repair cracks and spalls under decorative concrete overlays. Off-white color reduces the chance of UV color bleed through.

Exterior Repairs

Off-White Concrete Mender cures off white, but will turn buff yellow when exposed to sunlight over time. Darker pigmented material will mask this effect. For UV color stable repairs see Roadware MatchCrete[™] Clear.



ROADWARE.US

ROADWARE MatchCrete™ CLEAR



Match colors.

By adding small amounts of dry color pigment and sand, many different colors can be made. Use colored sand for deeper color effect.

Exterior Repairs

MatchCrete[™] Clear cures clear and will stay clear under sunlight. MatchCrete[™] Clear is a structurally solid material. Use caution when repairing exterior concrete or recracking may occur.

Polished Concrete

MatchCrete[™] Clear may be polished in several hours. Use before or after polishing for repairs that will not distract from the polished concrete look.

Moisture

Concrete and sand need to be dry before application.



71105 50ml cartridge w/needle tip 5150 50ml Application Gun 71300 300x300ml cartridge 71020 Two Gallon Kit 1005 Static Mixer 24 element 1105 Flow Restrictor 1006-14/15/18 Needle Tip Mixer 5300 600ml Application Gun

Roadware Match-Crete™ Clear is a two component aliphatic polyurethane for repairing cracks, spalls, and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative or shade of concrete surface. MatchCrete™ Clear will not significantly change color with exposure to sun-



light over time.

Exposed Aggregate MatchCrete™ Clear cures clear so repairing exposed aggregate concrete is easy.





ROADWARE FLEXIBLE CEMENT II™



Exterior Repairs Use Flexible Cement II[™] repair cracks and protect control joints in parking structures, bridge decks, loading docks, and many

types of structural concrete.

Control Joints Use in industrial floors to protect saw-cut control joints from wheel traffic damage.

Cove joints

Use Flexible Cement II[™] to seal cove joints where the floor meets a structural wall.

Electrical Podding Seal electrical loops and embedded lighting systems.

Thresholds Repair concrete thresholds with high thermal differentials.

Moisture

Flexible Cement II[™] is tolerant of surface moisture when applied. Concrete should be as dry as practical to insure a good bond.

91300 300x300ml cartridge 91020 Two Gallon Kit 91050 Ten Gallon Kit 1036 Static Mixer SQ 24 element 5300 600ml Application Gun



Roadware Incorporated 381 Bridgepoint Way South Saint Paul, MN 55075 800-522-7623 www.roadware.us

Repairs are tough and can handle heavy industrial traffic.

Roadware Flexible

for repairing low

control joints.

High Traffic

Cement II™ is a semi-

flexible polyurethane

movement cracks and



Concrete Bonding Flexible Cement II[™] is an excellent flexible adhesive for bonding metal, wood, and synthetic materials to concrete. Use to bond moldings and tack strips to concrete floors. Bonds asphalt to concrete.

Save time and money with a crack repair system that fully cures in 10 minutes!

Free Demonstration* Call Today!

Roadware 10 Minute

Concrete Mender™ "The advanced concrete repair material that repairs concrete from the inside out."

Now you can repair cracks and spalls to a smooth finish in a fraction of the time it takes with ordinary products. Roadware 10 Minute Concrete Mender[™] is a revolutionary new two-part hybrid urethane for repairing concrete. It's nearly water thin for deep penetration and it won't pop out like epoxy because it never gets brittle.

NO WASTE APPLICATION

Roadware 10 Minute Concrete Mender[™] is packaged in uniquely designed ratio-packs that completely mix the material at the point of application. No unused material. Difficult repairs are now simple, just clean the area, prime with 10 Minute Concrete Mender, add manufactured sand, and flood with additional 10 Minute Concrete Mender. In 10 minutes you'll get a tough 4500 psi polymer concrete that will stay in place permanently. This concrete core sample shows the extent of penetration into concrete when photographed under UV light.

GREAT FOR ALL INDUSTRIAL FLOORS.

Roadware 10 Minute Concrete Mender[™] is extremely tough and will withstand even the harshest punishment. Great for freezers... may be applied at temperatures as low as -20° F with excellent results. High chemical resistance, perfect for containment areas. Re-coat in 10 minutes, will accept primers and industrial

coatings in just 10 minutes after application. Now prepwork and coatings can be applied in the same day!

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*Free in-floor demonstration valid for qualified customers from participating local distributors only



ROADWARE **10 MINUTE** CONCRETE **MENDER**TM

Large repairs are easy with Roadware 10 Minute Concrete Mender[™]







the sand as well. **Roadware MatchCrete**[™] Clear is a two-part aliphatic polyurethane for repairing cracks, spalls,

called Microdoweling[™].

10 MINUTE CONCRETE MENDER

Spalled Control Joint

Damaged Joint Headers

and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative or shade of concrete surface. MCC will not significantly change color with

Roadware Flexible Cement IITM, A moisture tolerant two part urethane used for repairing cracks and control joints subject to deflection, movement, and thermal expansion or contraction. Flexible Cement II is perfect for protecting control joints in new construction.



Roadware Incorporated 381 Bridgepoint Way South Saint Paul, MN 55075 800-522-7623 www.concretemender.com

Locally available from:



Posts and Anchors MINUTE CONCRETE MENDER

Roadware 10 Minute Concrete Mender[™] is a two-part polyurethane

that penetrates deep into concrete to make permanent repairs. At only 8.6 cps

and a surface tension one third of water, Concrete Mender actually injects itself

Roadware Concrete Mender[™] Off-White is a two-part polyurethane with the exact same physical properties as Roadware 10 Minute Concrete Mender[™] with the exception that it cures to a neutral off-white color. This allows the material to easily accept the color of the fill sand. For a wider range of colors, dry powdered pigments may be added to

exposure to sunlight over time.







Protect your floors with a concrete repair system that fully cures in 10 minutes!

Now you can repair cracks and spalls to a smooth finish in a fraction of the time it takes with ordinary products. Roadware 10 Minute Concrete Mender[™] is a revolutionary new two-part hybrid urethane for repairing concrete. It's nearly water thin for deep penetration and it won't pop out like epoxy because it never gets brittle.

NO POT-MIXING AND NO WASTE.

Roadware 10 Minute Concrete Mender[™] is packaged in uniquely designed ratio-packs that completely mix the material at the point of application. No pot-mixing and no unused material. Difficult repairs are now simple, just clean the area, prime with 10 Minute Concrete Mender, add manufactured sand, and flood with additional 10 Minute Concrete Mender. In 10 minutes you'll get a tough 4500 psi polymer concrete that will stay in place permanently.







Roadware 10 Minute Concrete Mender™ "The advanced concrete repair material that repairs concrete from the inside out."



This concrete core sample shows the extent of penetration into concrete when photographed under UV light.

GREAT FOR ALL INDUSTRIAL FLOORS.

Roadware 10 Minute Concrete Mender[™] is extremely tough and will withstand even the harshest punishment. Great for freezers... may be applied at temperatures as low as -20° F with excellent results. High chemical resistance, perfect for containment areas. Re-coat in 10 minutes, will accept primers and industrial coatings in just 10 minutes after application. Now prep-work and coatings can be applied in the same day!



Roadware Incorporated 381 Bridgepoint Way South Saint Paul, MN 55075 800-522-7623 www.roadware.us

SAFETY Smooth floors are safe floors.

Cracked and uneven floors are a leading cause in workplace accidents. Trips, falls, and tipped loads can lead to life changing accidents that can cause a really bad day for your entire organization. Keeping floors in good repair with **Roadware 10 Minute Concrete Mender™** will help maintain a safe workplace.

OPERATIONS

A workspace that looks good, will work good.

Your floors support your entire operation. Clear and smooth floors free from cracks and spalls are more productive and bring confidence to your entire team. **Roadware 10 Minute Concrete Mender™** can permanently repair cracks, spalls and joints. No more disappointing repairs that last only a few weeks. Retail operators like Wal•Mart, Home Depot, and Target spend millions of dollars to make their floors look good. They know that good looking floors and good looking stores lead to greater revenue. The same is true for warehouse floors and production floors. Your team will feel better, will be more productive, and will work better.

PROFITABILITY

Bad floors steal money.

Floors with cracks and spalls steal money from the bottom line. Just think about all the costs related to floor issues.

- · Workers Comp claims attributed to accidents.
- Workers Comp claims due to repetitive stress injury of fork truck drivers.
- Fork truck maintenance and repair.
- · Damage from tipped loads.
- Contaminated product from loose debris in floor cracks.
- Damage floors will get worse if not addressed quickly.
- Higher cleaning costs.

PRODUCTIVITY Smooth floors are productive floors.

Floors with cracks and spalls can slow down your operation. When a fork truck has to slow down for a spalled control joint, productivity suffers. When a team member needs to summon help to push a cart through a threshold, productivity suffers. Using **Roadware 10 Minute Concrete Mender™** to repair floor bottlenecks that slow everything down will help productivity.













Cold Environment Application Techniques 10 Minute Concrete MenderTM & Flexible Cement IITM



Cold environments such as walk-in freezers and extreme northern climates pose difficult challenges for repairing concrete. In temperatures less than 0° F, most repair materials become unworkable and may take many hours to set and cure. Roadware Polyurethanes have been used in temperatures as low as -20°F below freezing. Listed below are some problems and solutions for working in cold environments.

Cold Environment Challenges

Frost: Frozen moisture in the concrete will act as a barrier between the repair material and the pours of the concrete. Most repair materials will try to bond to the frost coated concrete. When the temperature increases, the frost melts and so does the bond.

Working Conditions: Working with materials in the cold is challenging to both man and materials. Mixing epoxies or mortars in the cold is especially challenging. As the temperature decreases, the viscosity and flow rate of these materials increase making them harder to mix and much more difficult to work with.

Curing: With most materials, cure times in cold environments are extended significantly. A product that normally cures in an hour at room temperature may take as much as 12 hours in a cold environment. Some materials may not cure at all before actually freezing solid.

ROADWARE Solutions

The extremely low viscosity and rapid cure times of Roadware 10 Minute Concrete Repair products make them excellent for cold environment application. Successful repairs are routinely made at temperatures below -20°F in freezer floors.

Preparation: Prepare cracks, joints, and spalls according to standard recommended methods. Make every effort to remove any moisture from the repair area. A propane torch or heat gun is very helpful in removing frost and moisture. In extreme cold, it is necessary to heat up the concrete prior to application.

Application: Keep material and sand or aggregate warm. Place materials in a warm area (between 70°F and 90°F) prior to application. Warm cartridges mix better, flow easier, and cure faster. Apply material as directed. It is a good practice to pre-wet all concrete surfaces with material before the introduction of sand. This insures full penetration and a strong bond.

Curing: Roadware materials are designed to cure in approximately 10 minutes when all components involved are at 70° F. In cold environment, the cure time depends on the temperature of the material, the temperature of the sand or aggregate if used, the volume of the repair, and the temperature of the concrete. Below is a chart of approximate cure times at various temperatures and conditions.

Storage: Roadware material should be stored between 60°F and 80°F. Material stored in extremely cold environments should be slowly brought up to room temperature before use. It may be necessary to agitate material subject to extreme cold prior to mixing. Call Roadware Technical Services for further instructions (800-522-7623).



Note: Actual cure times will vary according to repair volume and material, aggregate, and work site temperatures. Cure time may be accelerated by heating the concrete and the sand or aggregate. This chart will serve as a guide to cure times.





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HOADWARE 10 MINUTE CONCRETE MENDER™ BULK SPALL AND CRACK REPAIR APPLICATION GUIDE







NO

ROADWARE 10 MINUTE CONCRETE MENDERTM BULK APPLICATION INSTRUCTIONS









Preparation

Use a dry diamond blade to remove all loose debris and clean the repair down to solid concrete. For high traffic areas, carve a small edge around the repair with the diamond blade to create a solid transition. Use a shop vacuum to remove dust and debris. Always use appropriate safety equipment when cutting concrete. The concrete surface and sand must be dry before making repairs. Ambient application temperature range is -35°F to 100°F. See Roadware for below freezing application instructions.



1 to 1 Ratio

3) The mixing ratio is one part side (A) to one part side (B) by volume. Do not alter this ratio.

Pictured above is 4 oz. of Side (A) and 4 oz. of side (B) for a total of 8 oz. when mixed together.



Mix 10 Seconds

4) Pour one side into a larger mixing bucket and add the other side to it. Mix by hand or a slow speed drill mixer for about 10 seconds.







Tools and Supplies

Getting Started: Always use safety glasses when working with any concrete repair project. Always read the label on the container and follow all safety instructions. FOR PROFESSIONAL USE ONLY

You will need buckets, a margin trowel, a finishing stone, and 30-40 grit manufactured silica sand, available from your Roadware Distributor, or equivalent. Do not use beach sand, concrete sand, or most natural sands unless directed.





1/2 Part Side (A) 1/2 Part Side (B)

1) Measure one part of side A into a container. For this batch we are using 4 oz. (118 ml).

We do not recommend batches larger than 64 oz. per side due to fast setting nature of Roadware 10 Minute Concrete Mender™. 2) Measure one part of side B into a container. For this batch we are using 4 oz. (118 ml).

We do not recommend batches larger than 64 oz. per side due to fast setting nature of Roadware 10 Minute Concrete Mender[™].





Add 2 Parts Sand

5) Pour 16 oz. of silica sand by volume into the 8 oz. of mixed liquid Concrete Mender[™].



Mix

6) Mix by hand until well blended. Up to 4 oz. of additional sand may be added to get the desired consistency.



Check Consistency

7) Tap the side of the bucket to check for the proper consistency. If the top surface looks wet, you have it just right.



Place

8) Working quickly, place the mixed material into the repair area. The entire batch must be used within 5 minutes or less, depending on the batch size and temperature.



Check Saturation

9) Trowel back some material and make sure the Concrete Mender is wetting out the surface of the concrete. If the surface is not solid or the concrete is of poor quality, you may need to "prime" the surface with pure mixed liquid Concrete Mender[™].



Trowel Once

10) Continue to make the repair. Use the entire batch before it sets. Do not attempt to "fix" a dry or setting batch by adding more liquid. Do not overwork the material. Just a once over with a clean trowel and let the material set.



Finish in 10 Minutes



Blend In



ROADW/

Open for Traffic





Roadware 10 Minute Concrete Mender[™] is ultra-thin for deep penetration that Microdowels into concrete and won't pop out like epoxy.

ROADWARE CONCRETE REPAIR PRODUCTS COVERAGE CHART

ROADWARE 10 MINUTE CONCRETE MENDER™

Approximate	e yield with 40-30	silica sand mix	ked 2 parts sand to 1 part li	iquid.
SIDE A	SIDE B	SAND	MIXED MATERIAL	CUBIC INCHES
4 OZ	4 OZ	16 OZ	17.5 OZ	32
8 OZ	8 OZ	32 OZ	35 OZ	64
16 OZ	16 OZ	64 OZ	70 OZ	128
1/2 GAL	1/2 GAL	2 GAL	2.2 GAL	508
1 GAL	1 GAL	4 GAL	4.4 GAL	1016
General forr	nula for higher sa	and content: (lic	uid + sand)0.733	

ROADWARE MICRODOWELING

Exclusive slab to slab Microdoweling[™] action, provided by Roadware 10 Minute Concrete Mender[™], links concrete slabs together, restores aggregate interlock, and allows for full-traffic, dynamic-load transfer, in 10 Minutes. This Microdoweling[™] action is more compatible with concrete and more effective than epoxy injection. Millions of micro-dowels penetrate the concrete and then bond, side by side, broken and jointed slabs. Hairline cracks, delamination cracks, irregular cracks, spalled control joints and variable depth spalls are quickly repaired with this amazing technology.



This concrete core sample shows the extent of penetration into concrete when photographed under UV light.

ORDERING INFORMATION ROADWARE 10 MINUTE CONCRETE MENDER™

- 80105 50ml mini-cartridge
- 80300 300x300ml twin-cartridge
- 80020 2 gallon kit in one gallon containers
- 80050 10 gallon kit in five gallon cans

ROADWARE CONCRETE MENDER™ Off-white

- Use for color matching, tinting, and polished concrete floors.
- 70105 50ml mini-cartridge
- 70300 300x300ml twin-cartridge
- 2 gallon kit in one gallon containers
- 70050 10 gallon kit in five gallon cans

For more information including: Product Data Sheets Instructional Videos MSDS Sheets Specifications Featured Applications Online Product Estimator

Visit the Roadware website at: www.roadware.us Made in the U.S.A.





1-800-522-7623 381 Bridgepoint Way South St. Paul, MN 55075 www.roadware.us

ROADWARE **CONCRETE MENDER™** OFF-WHITE



Use Roadware Concrete Mender™ Off-white, natural sand, and grinding dust to make a repair that looks like polished concrete

Concrete polishing lets the natural beauty of stones, sand, and rock shine through. Your repair product should as well.

Description:

Roadware Concrete Mender™ Off-white is a twopart polyurethane with the exact same physical properties as Roadware 10 Minute Concrete Mender[™] with the exception that it cures to a neutral off-white color. This allows the material to easily accept the color of the fill sand. For a wider range of colors, grinding dust or dry powdered pigments by be added to the sand as well.

Features:

- Twin cartridge pin-point application for small cracks and joints.
- Bulk bucket mix application for spalls and large area treatment.
- Cures in a wide temperature range from -20F to 100F (-28C to 39C).
- Worldwide network of trained distributors.

Benefits:

- Repairs may be polished in 10 to 15 minutes.
- Repairs will not gum up, tear-out, or smear into the surrounding surface when polished.
- Use with a variety of sands and pigments to achieve different colors and textures.
- Microdoweling[™] action gets in deep and repairs the concrete from the inside out.

Uses:

- Repair cracks.
- Repair spalls.
- Fill divots, pop outs, and bolt holes.
- Fill spalled control joints.
- Surface filler prior to polishing.
- Polished concrete repair.



Make your own colors by adding sands, grinding dust, dry pigments or aggregate. Match most any color, grain or texture.

A little goes a long way: One gallon of Concrete Mender[™] blended with two gallons of 40-30 grit sand yields 2.2 gallons of repair material.

Technical Information:

Cure time @ 72° F. (22° C)		10 mins.
Hardness @ 72° F. (22° C)		72D
Compressive Strength (with s	and)	4500 psi
Elongation:		6%
Tensile Strength:		4475 psi
Bond Strength ASTM 882-99:		1984 psi
Viscosity (at application)		<9 cps
Surface Tension (Wilhelmy Pla	ate)	0.026n/m
V.O.C.(mixed):		5.5 g/l
Solids:		98%
Mixing Ratio:		1:1
Yield (1 gal with 2 gal 4030 sa	and)	2.2 gal
Cured Color:	Natural C	Off-white
Packaging:		
50 ml mini cartridge	12/case	#70105
300 x 300 ml cartridge	12/case	#70300
Two Gallon Kit		#70020
Ten Gallon Kit		#70050
The above technical information is base	d on typical r	properties and

may not be construed as a specification.



ROADWA

06/2006 RIp4



Decorative and Polished Concrete Repair System.

Product Description:

Roadware Concrete Mender[™] Off-white is a two-part polyurethane with the exact same physical properties as Roadware 10 Minute Concrete Mender[™] with the exception that it cures to a neutral off-white color. This allows the material to easily accept the color of the fill sand. For a wider range of colors, dry powdered pigments by be added to the sand as well.

Product Use:

Roadware Concrete Mender[™] Off-white is used to quickly repair cracks and spalls in concrete. Concrete Mender[™] combines exclusive Microdoweling[™] technology for a permanent structural repair and user-added colors for a repair that looks great.

- Cures in 10 15 minutes.
- Permanent Microdoweling[™] technology.
- · User may add colored sand to match existing concrete.
- May be blended with a wide variety of dry sand for matching color and appearance.
- May be honed and polished in about 30 60 minutes at 70°F.
- Will accept concrete dyes after honing.
- Will accept dry powdered concrete colors added to the sand.

Availability:

Roadware Concrete Mender[™] Off-white is available in:

- 70300 300x300 cartridge
- 70020 two gallon bulk kit
- 70040 four gallon bulk kit
- 70050 10 gallon bulk kit

Basic Application:

1. Meet with the floor owner to determine the ultimate floor repair goal and desired outcome. In some situations, it may be better to repair cracks and defects as they are. In other situations, it may be better to open them up with a diamond blade. While no repair material can make cracks and defects disappear, with Concrete Mender[™] Off-white you can make these areas much less noticeable.

2. Prepare floor cracks, joints, spalls, and pop-outs in accordance to standard application instructions. Deep repairs in heavy traffic areas should be repaired up to 1/2 inch (7mm) from

the surface using standard Concrete Mender™ repair techniques.

3. Sand selection: By altering the sand used with Concrete Mender™ Off-white, different color results can be achieved. Some experimentation may be required to get the desired result. Start with a dry concrete sand such as Quickcrete brand All Purpose Sand. Sift out any rock larger than the area you are repairing. Other types of sands such as silica sand, colored quartz, and flint may be used. Choose the best combination to match your floor. Any type of sand you use should be hard, free of dirt and organic material, and completely dry. 4. Color: Concrete Mender™ Off-white will cure to a neutral off-white (70300) color. Small amounts of powdered concrete colors such as Solomon Colors may be mixed in with the sand as needed. Experimentation to determine the best sand and color combination will be required to get the desired effect.





ROADWARE

5. Mixing: Combine mixed Concrete Mender[™] Off-white from a dual cartridge, with the sand in a pail to form an approximate one part liquid to one part sand ratio. Mix quickly by hand with a paint stick. Work in batches of one pint (500ml) or less until you are comfortable with the material. The sand to liquid ratio can be varied depending on the type of sand used and the gradation. Finer sands will require more liquid. The resulting polymer mortar should have very little slump and a wet appearance.

6. Quickly apply the material directly to the prepared repair areas. Use a margin trowel to finish the repairs. Leave the repairs slightly higher than grade. The excess material will be honed off later.

7. Allow the repairs to fully cure for 15 - 60 minutes depending on the temperature and the size of the repair before honing or polishing.
8. Dying and staining: Concrete Mender[™] when combined with sand will accept most dyes and stains. Be sure to open the surface of the repair by mechanical means before applying dyes or stains. This can be done by honing or polishing. Always experiment in an inconspicuous area first to get desirable finish.

9. Repairing previously honed or polished floors: Select an appropriate sand combination and make the repairs as stated above. Use care not to stain the surrounding concrete with repair materials. Finish as normal.





concrete sand.

Frequently Asked Questions

Will Concrete Mender change color in direct sun- light over time?	Concrete Mender will yellow under direct sunlight. This effect will be minimized when using powdered colors added to the sand. The darker the color added the less yellowing will be noticeable. For non-yellowing outdoor repairs, see MatchCrete™ Clear.
Can I add color to Concrete Mender Off-white?	Yes, powdered colors may mixed into the sand prior to application to make matching colored repairs.
Can I add concrete dust to Concrete Mender™ Off- white?	Yes, concrete dust or cement powder may be added to the sand prior to application dusted on top of the repair for matching color application

Note: FOR PROFESSIONAL USE ONLY. The techniques and procedures listed above are for informational use and are based on standard techniques developed by Roadware customers, distributors and contractors. They should not be construed as a specification for any specific application or use. It is up to the professional applicator to determine the ultimate appropriate use of the material.



ROADWARE 10 MINUTE CONCRETE MENDERTM



Roadware 10 Minute Concrete MenderTM is the only concrete repair product that penetrates deep into concrete and repairs from the inside out. Do not be fooled by cheap products that come in a cartridge and look the same. Look below to see how they compare.



	Concrete Mender	Epoxy Grout	Polyurea Crack Filler	Low Viscosity Polyurea
	Hybrid-Polyurethane	Ероху	Polyurea	Polyurea
Bonding	Full Penetration Bond	Surface bond only	Surface bond only	Surface Bond only
Viscosity (water = 1 cps)	>8 cps	10,000 cps	1500cps	60 - 190cps
Solvents / V.O.C.	2%	Varies	Varies	0-15%
Trowelable	Yes	Yes	No	Limited
Cooler/ Freezer Application	- 30°F	No	Yes	Yes
Structurally Re-bonds cracked slabs	Yes	No	No	No
Protects sidewalls from further damage	Yes	No	No	Limited
Feather edge repairs	Yes	No	No	Not listed
Cure time to traffic	10 Minutes	24 Hours	30 minutes	10-15 Minutes
Blending and Finishing	15 Minutes	None	None	24 Hours
Extendable with sand	Yes up to 6x	No	No	Limited
Handy Cartridge Application	Yes	No	No	Yes
Non-shrinking	Yes	No	No	Unknown
Unlimited depth and width	Yes	No	No	Unknown
Chemical Resistance	Excellent	Fair	Good	Good
Dynamic Load Transfer	Yes	No	No	No
Compatible with all floor coatings	Yes	Unknown	Unknown	Unknown
Hardness over time	4500 psi stop cure	10,000+psi	Soft	5500 psi
Hand Mixable	Yes	No	No	No
Sandable and Grindable	Yes	Yes	No	Yes

Don't let cracks, spalls, and divots turn a great floor into an ugly floor.

ROADWA

Blend with sand, repair and Polish in 15 minutes!

Use

Roadware Concrete Mender™ Off-White

and sand to get just the right finish and color for your floor. By combining different colors and varieties of sand with the Microdoweling[™] polymers in Roadware 10 Minute Concrete Mender[™] you can have a permanent repair that polishes beautifully and performs under all traffic conditions. Top manufacturers of concrete polishing equipment and systems recommend Roadware 10 Minute Concrete Mender[™] for repairing surface defects prior to polishing. Repairs may be dyed, hardened, and sealed just like concrete.

MatchCrete[™]

Decorative and Polished Concrete Repair System.

Combine OW Concrete Mender and colored sand or quartz to create endless color possibilities.



Benefits:

- Repairs may be polished in 10 to 15 minutes.
- · Repairs will not gum up, tear-out, or smear into the surrounding surface when polished.

ROADWARE.US

- · Use with a variety of sands to achieve different colors and textures.
- Microdoweling[™] action gets in deep and repairs the concrete from the inside out.

Features:

- Twin cartridge pin-point application for small cracks and joints.
- · Bulk bucket mix application for spalls and large area treatment.
- Cures in a wide temperature range from –20F to 100F.
- · Worldwide network of trained distributors.
- · Available in gray or natural white.

Uses:

- · Repair cracks in decorative concrete.
- Repair spalls.
- · Fill divots, pop outs, and bolt holes.

OADWARE

• Fill spalled control joints.

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Repairing concrete prior to honing or polishing with

Roadware Concrete Mender® Off-White

1. Meet with the floor owner to determine the ultimate floor repair goal and desired outcome. In some situations, it may be better to repair cracks and defects as they are. In other situations, it may be better to open them up with a diamond blade. While no repair material can make cracks and defects disappear, with MatchCrete[™] Concrete Mender you can make these areas much less noticeable.

2. Prepare floor cracks, joints, spalls, and pop-outs in accordance to standard application instructions. Deep repairs in heavy traffic areas should be repaired up to 1/2 inch (7mm) from the surface using standard Concrete Mender[™] repair techniques. 3. Sand selection: By altering the sand used with Concrete Mender Off-white, different color results can be achieved. Some experimentation may be required to get the desired result. Start with a dry concrete sand such as Quickcrete brand All Purpose Sand. Sift out any rock larger than the area you are repairing. Other types of sands such as silica sand, colored quartz, and flint may be used. Choose the best combination to match your floor. Any type of sand you use should be hard, free of dirt and organic material, and completely dry.

4. Color: Concrete Mender Off-white will cure to a neutral off-white (70300) color or gray (80300) Use colored sand, quartz, or small amounts of powdered concrete colors such as Solomon Colors may be mixed in with the sand as needed. Experimentation to determine the best sand and color combination will be required to get the desired effect.

5. Mixing: Combine mixed Concrete Mender Off-white from a dual cartridge, with the sand in a pail to form an approximate one part liquid to one part sand ratio. Mix quickly by hand with a paint stick. Work in batches of one pint (500ml) or less until you are comfortable with the material. The sand to liquid ratio can be varied depending on the type of sand used and the gradation. Finer sands will require more liquid. The resulting polymer mortar should have very little slump and a wet appearance.

6. Quickly apply the material directly to the prepared repair areas. Use a margin trowel to finish the repairs. Leave the repairs slightly higher than grade. The excess material will be honed off later.

7. Allow the repairs to fully cure for 15 - 30 minutes depending on the temperature and the size of the repair before honing or polishing.

8. Dying and staining: Concrete MenderTM when combined with sand will accept most dyes and stains. Be sure to open the surface of the repair by mechanical means before applying dyes or stains. This can be done by honing or polishing. Always experiment in an inconspicuous area first to get desirable finish.

9. Repairing previously honed or polished floors: Select an appropriate sand combination and make the repairs as stated above. Use care not to stain the surrounding concrete with repair materials. Finish as normal.

Will Concrete Mender change color in direct sunlight over time?	Concrete Mender will yellow under direct sunlight. This effect will be minimized when using powdered colors added to the sand. The darker the color added the less yellowing will be noticeable. For non-yellowing outdoor repairs, see MatchCrete [™] Clear.
What kind of color can I add?	Powdered colors such a Solomon brand concrete colors must be mixed in with the sand prior to adding the Con- crete Mender Off-white™
Can I add concrete dust to Concrete Mender Off-white™?	You can add a limited amount of concrete dust from you project to Concrete Mender Off-white [™] when mixed in bulk. It is best to experiment and test before use.
Can I mix and match colors?	Absolutely! Mixing and matching colors and sand to get just the color and texture you want is what Concrete Mender Off-white [™] is all about.
Can I add too much color?	Yes, use just enough color needed for the job. Adding too much dye, or too much powdered color to the sand can hurt the performance of the repair.

Note: The techniques and procedures listed above are for informational use and are based on standard techniques developed by Roadware customers, distributors and contractors. They should not be construed as a specification for any specific application or use. It is up to the professional applicator to determine the ultimate appropriate use of the material.

Note: FOR PROFESSIONAL USE ONLY. The techniques and procedures listed above are for informational use and are based on standard techniques developed by Roadware customers, distributors and contractors. They should not be construed as a specification for any specific application or use. It is up to the professional applicator to determine the ultimate appropriate use of the material.



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MatchCrete[™]

Roadware Concrete Mender[™] Off-White - Just add sand or colored quartz to get virtually any color you need. Now you can repair colored and decorative concrete quickly and permanently. The samples here show Roadware Concrete Mender[™] Off -white combined with colored quartz sand. Many other types of sand may be used as well.





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ROADWARE 10 MINUTE CONCRETE MENDER™ STANDARD PRODUCT DATA SHEET

1. Product Name ROADWARE 10 Minute Concrete Mender™

2. Manufacturer

Roadware Incorporated 381 Bridgepoint Drive South Saint Paul, MN 55075 800-522-7623 651-457-6122 Fax 651-457-1420 e-mail sales@concretemender.com www.concretemender.com

3. Product Description

Roadware 10 Minute Concrete Mender is a high-penetration two-part hybrid urethane that combines with sand to form a tough instant polymer concrete. This nearly water thin formula is designed Microdowel[™] deep into the host concrete creating extremely high bond strengths, reinforcement of the repair area as well as permanent repairs.

Roadware 10 Minute Concrete Mender produces polymer concrete repairs that absorb the shock and transfers the load of heavy traffic without cracking or disbonding. It is highly chemically resistant and can be applied in a wide range of temperatures. It is excellent for industrial floor repairs subject to forklift traffic and harsh conditions.

GENERAL USE

- · Repairing hairline cracks or larger, where future movement is not anticipated.
- · Repairing spalled control joints.
- Restoring integrity to distressed concrete.
- Connecting broken slabs.
- · Repairing moving slabs.
- Repairing spalls and pop-outs in concrete.
- · Securing bolts, equipment, or railings into concrete.
- · Vertical repairs when combined with specified sand.
- Rebonding delaminated floors
- · Ramping elevated slabs
- Repairing concrete surface imperfections prior to coating.

SIZES

21 fl oz. dual cartridge units (600 ml) with mixer (80300) 2 gallon kits (7.57 liters) in two parts (80040) 10 gallon units (45 liters) in two parts (80050)

COLOR

10 Minute Concrete Mender is composed of an amber colored liquid and a violet colored liquid. The material is black when dispensed and cures to a gray finish. Alternate colors can be achieved by selecting different colors of manufactured sand. 10 Minute Concrete Mender will lighten in color when exposed to ultraviolet rays. This natural occurrence within urethanes will NOT effect the physical properties of the material or the repair. For colorfast repairs that are exposed to sunlight, we recommend coating the repair with paint or a standard concrete topping material.



YIELD

Roadware 10 Minute Concrete Mender[™] is combined with manufactured silica sand or equivalent at the point of application. The gradation of the sand and the amount of sand used will determine yield. Listed below is the approximate yield of 1 part mixed polymer to 3 parts 30-40 grit silica sand.

One 300x300 cartridge with sand yields 122 cu in. One two gallon kit with sand yields 1540 cu in.

LIMITATIONS

10 Minute Concrete Mender is a rigid material designed for use on interior or exterior concrete surfaces. It is not intended for repairing areas of movement such as exterior cracks and joints subject structural or ground movement. It must be applied to concrete free of surface moisture.

4. Technical Data

PHYSICAL/CHEMICAL PROPERTIES

Typical test results when tested in accordance with applicable ASTM standards and Roadware developed testing.

Typical Properties:	Value (average)
Hardness @ 72° F. (22° C)	72D
Compressive Strength (with sand)	4500 psi
Elongation:	6%
Tensile Strength:	4475 psi
Bond Strength, ASTM 882-99:	1984 psi
Viscosity (at application)	<9 cps
V.O.C.(mixed):	5.5 g/l
Solids:	98%
Cured Color	Gray
Gel time @ 72° F (22° C)	6-7 min
Cure time @ 72° F (22° C)	10 min
Ambient temperature range for applicati	on -30°F - 120°F

5. Installation

SURFACE PREPARATION

Preparation:

Surface Cracks (all depths and widths): Cracks should be free of dirt, oils, dust, latents and old crack repair materials. ALL SURFACES MUST BE CLEAN AND DRY. New concrete must be fully cured. A dry diamond blade attached to an electric hand grinder is recommended for preparing cracks and creating a clean surface for bonding. A wire brush or twisted wire wheel on a grinder may be used in some cases.

Surface Spalls and Deflections: Remove all loose materials back to sound concrete with a chisel or light chipper. DO NOT SQUARE CUT THE REPAIR AREA. If a square appearance is necessary, lightly score surface and remove material. Use a wire brush or twisted wire wheel to clean the repair area. All surfaces must be free of dirt, oils, dust, latents and old repair materials. For feather edge repairs in high traffic areas, score the repair edge with a dry diamond blade 1/8" deep around the perimeter of the repair. New concrete must be fully cured.

Application Temperature:

Recommended application temperature is between 0° F and 100° F (-18° to 38°C). It is best to keep material at room temperature (60° to 80° F) prior to application. If manufactured sand is to be used with product, it also should be kept at room temperature. Avoid frost laden surfaces as this may adversely affect bonding and curing. 10 Minute Concrete Mender will fully cure in 10 minutes at 72° F (22° C). The temperature of the material and the temperature of the concrete surfaces will affect cure time. Warmer temperatures will decrease cure time and colder temperatures will increase cure time. In extremely cold environments, heat the concrete to remove frost before application. Successful repairs have been installed at temperatures

-20°F (-29°C) and below.



MIXING

Cartridges: 10 Minute Concrete Mender is a two component material and must be thoroughly mixed at a ratio of 1 part "A" to 1 part "B" by volume. Mixing and metering of 10 Minute Concrete Mender is achieved with self-mixing cartridges provided by Roadware, Inc. Material is ejected from prepackaged cartridges through a supplied static mixing nozzle with a dual component caulking gun such as the Roadware 5300 Application Tool, Mixed material is applied directly into the repair area immediately after mixing.

Bulk: Due to the rapid setting nature of the product, pot-mixing of the components is not recommended for crack and joint repairs less than 3/4" in width. 10 Minute Concrete Mender supplied in 10 gallon kits may be bucket mixed in quart batches and applied immediately to the repair area. Combined one pint of Part A with one pint of Part B. Mix with a drill mixer or hand mixing stick for 30 seconds or until well blended. Add 2 quarts of manufactured sand and mix for an additional 10 seconds. Pour the entire batch into the repair area immediately. SEE BULK MIXING INSTRUCTIONS INCLUDED WITH MATERIAL. 10 Minute Concrete Mender may be dispensed through a one-to-one ratio pump specifically designed to handle extremely low viscosity materials while maintaining exact ratios. The system must not allow the two components to combine until they reach the point of delivery. Contact Roadware for information on acceptable pumping equipment. All pumping equipment must be approved by Roadware, Inc. prior to application

APPLICATION

Surface Cracks (all depths and widths): Assemble cartridge according to directions. Remember to use the flow restrictor included with each cartridge set. Holding the application gun upward, place cartridge set into gun. Gently squeeze trigger to bleed-off air and start material flowing into mixers. Point mixer into waste container and squeeze trigger to start mixing process. DO NOT POINT MIXER UPWARD AFTER MATERIAL IS FLOWING. This may cause material to flow back into the tubes and cause clogging.

Pre-wet repair area with mixed Concrete Mender without sand. Fill with 30-40 grit manufactured sand and additional material to grade. Be sure to saturate all of the sand completely. Additional sand may be added to the repair as necessary. Saturated sand may be moved into place with a margin trowel or scraper. Work with one small section at a time. Do not stop flowing material for a period of more than 2 minutes. If material sets inside mixer, remove cartridge from gun and replace mixer. Fill all repair areas to grade. When material cures (turns gray) in about 10 minutes, remove excess material with a sharp scraper for a smooth and flat finish. Finished repairs may be "cleaned up" by sanding or buffing within a few hours of application.

Spalls: Pre-wet repair area with mixed Concrete Mender without sand. Fill with no more that one-inch of 30-40 grit manufactured silica sand and additional material. Add additional layers to grade if needed. Be sure to saturate all of the sand completely. Additional sand may be added to the repair as necessary. Saturated sand may be moved into place with a small squeegee or scraper. Work with one small section at a time. Do not stop flowing material for a period of more than 2 minutes. If material sets inside mixer, remove cartridge from gun and replace mixer. A trowel or scraper may be used to move saturated sand into place and to create a level surface. If required, surface friction may be maintained by adding additional manufactured to the surface as the material cures. Allow to cure (approximately 10 minutes). Finished repairs may be "cleaned up" by sanding or buffing within a few hours of application.

INCORE

6. Availability

Roadware 10 Minute Concrete Mender is available from authorized Roadware distributors and dealers throughout the United States. Contact Roadware Incorporated for the nearest distributor or dealer.

7.

Warranty

Roadware Inc. will warrant each Roadware Concrete Repair or Protective Coating Product against defects in material and workmanship for a period not to exceed one year from the shelf-life of each unopened drum or case of product. Roadware's sole warranty is that Roadware Products will meet current sales specifications. Every reasonable precaution is taken in the manufacture of all Roadware products and compilation of data that they shall comply with the manufacturer's exacting standards. As however, the effectiveness of each product depends on the applicators judgment of a proper condition, and since conditions and methods of use are beyond the manufacturer's control, no application warranty of any type is made, expressed or implied whether used in accordance with directions or not. Roadware shall not be held liable for repairs or portions thereof that are necessitated by damage which has resulted from structural failures, settling, shifting, distortions, splitting or cracking of the substrate. The forgoing warranties are in lieu of all other warranties expressed or implied including the implied warranty of merchantability and fitness or application for a particular use. Roadware Inc., shall in no event be liable for incidental, consequential of other, direct or indirect damages.

8. Maintenance

None Required

9.

Technical Services

Roadware maintains trained distributors and factory representatives on a national level. Contact a local distributor for technical assistance or call Roadware Incorporated for direct factory technical assistance.

10. Filing Systems

Additional product information is available from Roadware Incorporated and from Roadware's web site at www. concretemender.com.

INCORE

ROADWARE 10 MINUTE CONCRETE MENDER™ CHEMICAL RESISTANCE CHART

ROADWARE 10 Minute Concrete Mender resists strong acids and bases, aliphatic and aromatic organic compounds, amines, alcohols, most aldehydes and ketones, organic acids, esters, and most inorganic elements and compounds.

ROADWARE 10 Minute Concrete Mender resists hydraulic fluids (including SKYDROL), oils, lubricants, greases, fuels, crude oil, and most solvents. It is unaffected by most food products including lemon, orange, and pineapple juice, tomatoes, vinegar, and cooking oils.

Resists continous exposure:

Compounds Acetic Acid, Glacial Acetic Acid, 25%

Acetyl Chloride

Acetylene Adipic Acid Aluminum Chloride Aluminum Sulfate Aluminum Sulfide Ammonia Ammonium Acetate Ammonium Carbonate Ammonium Hydoxide Ammonium Nitrate

Ammonium Phospahate Ammonium Sulfide

Antimony Salts

Arsenic Salts Barium Carbonate Barium Hydroxide Benzaldehyde Beer Benzoic Acid Boric Acid Bromine Butane Butyl Alcohol Cadmium Nitrate Calcium Carbonate Calcium Chloride Calcium Hydroxide Calcium Nitrate Calcium Sulfate Carbon Dioxide Carbon Disulfide Caustic Soda Chlorine Citric Acid Cupric Chloride Cupric Nitrate Cupric Sulfate Cumene

Cyclohexane **Diallyl** Phthalate Dibutyl Phthalate Dipropylene Glycol Ethanolamine Ethyl Alcohol Ethylene Glycol Ferric Chloride Ferric Nitrate Ferrous Chloride Ferrous Sulfate Formaldehyde Glycerine Glycolic Acid Heptane Hexane Hydrobromic Acid Hydrochloric Acid, 30% Hydrogen Peroxide **Iodine Solution** Isooctane Isopropyl Alcohol Isopropyl Ether Lactic Acid Lead Acetate Magnesium Hydroxide Magnesium Salts Mercury Naphthalene Natural Gas Nickel Salts Nitric Acid, 20% Nitrogen Oleic Acid Oxalic Acid Oxygen Ozone Palmitic Acid Paints Phenol, 5% Phosphoric Acid, 43% Potassium Cyanide Potassium Hydroxide Potassium Salts Propane Propyl Alcohol Silicic Acid Silver Nitrate Soap

Sodium Acetate

Where concentrations are shown, ROADWARE 10 Minute Concrete Mender is satisfactory for all concentrations including the one indicated. Maximum allowable temperature for satisfactory long-term service is 120° F.

Roadware Inc. has no control over any particular application, installation, or exposure. Therefore tests should be carried out by the user to determine suitability.

Fish Oil

Sodium Bicarbonate Sodium Bisulfate Sodium Borate Sodium Carbonate Sodium Chlorate Sodium Chloride Sodium Cyanide Sodium Dichromate Sodium Fluoride Sodium Hydroxide, 45% Sodium Nitrate Sodium Silicate Sodium Sulfate Sodium Sulfide Stvrene Sulfur Dioxide Sulfuric Acid, 50% Tannic Acid, 20% Tartaric Acid **Tin Salts Titanium Salts** Triethanol Amine Trisodium Phosphate Varnish Vegetables Water Water, distilled Water, sea Zinc Chloride Zinc Nitrate Zinc Sulfate

Oils & Fuels

Zinc Sulfite

ASTM Oil #1 ASTM Oil #2 ASTM Oil #3 ASTM Oil #4 ASTM Oil Reference Fuel A ASTM Oil Reference Fuel B Aviation Fuel 100/130 Bunker Oil Castor Oil Corn Oil Cottonseed Oil Crude Oil Coconut Oil Diester Oil Diesel Fuel

Fuel Oil Gasoline Grease Hvdrocarbon Oil Hydraulic Oils Jet Fuel A 1 Jet Fuel B Jet Fuel 4 Jet Fuel 5 Jet Fuel 6 Jet Fuel 8 Jet Fuel 12 Jet Fuel 18 Jet Fuel 22 Jet Fuel 35 Jet Fuel 40 Jet Fuel 44 Kerosene Linseed Oil Lubricating Oil Mineral Oil Motor Oil Oils, Vegetable Palm Oil Petroleum SAE #10 W/40 SKYDROL 500 B-4 SKYDROL LD-4 Tung Oil Transformer Oil

Solvents

Benzene Cyclohexane Diethyl Ether Ethyl Acetate Freon 11 Freon 12 Freon 113 Toluene Xylene

IMPORTANT NOTICE

INFORTANT NOTICE Resistance for the product is based on tests believed to be reliable. The user must determine product suitability for particular use. The following is made in lieu of all war-ranties, express or implied, including implied warranties of merchantability and fitness a particular purpose. Sellers and manufacturers only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for loss or damage. Direct, incidental or consequential, regardless of the legal theory asserted, including negligence and/or strict liability



06/2006 RIB2

Clear!"

NEW Roadware MatchCrete[®] Clear Concrete Repair.

Areas of use: Repair cracks and spalls Restore "loose" joints Restore aggregate interlock Diamond polished floors Decorative Joints and Cracks Repair Hairline Cracks Color Blended Repairs Parking Decks Bridge Decks Entryways Retail Floors Exposed Aggregate

Sidewalks Driveways Walkways and More! Indoor or



Roadware MatchCrete™ Clear

Product Description:

Roadware MatchCrete[™] **Clear** (MCC) is a two component aliphatic polyurethane for repairing cracks, spalls, and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative or shade of concrete surface. MCC will not significantly change color with exposure to sunlight over time.

Roadware MatchCrete™ Clear (MCC) is used to quickly repair cracks and spalls in concrete that is exposed to sunlight and a color compatible appearance over time is desired.

Features:

Sets in 20 – 40 minutes. Fully cures in a few hours. Remains clear, reflects surrounding colors. User may add colored sand, pigment, or concrete dust to

User may add colored sand, pigment, or concrete dust to match existing concrete.

May be honed smooth in a few hours at 70°F.

May be needle tip injected.

Will accept heavy traffic.

Will not become brittle over time.

Uses:

Repairing colored, stamped, or decorative concrete. Repairing polished concrete.

Repairing exposed aggregate concrete.

Repairing any concrete surface where appearance is critical such as retail entry ways, doorways and pool decks. Repairing concrete floors that receive large amounts of sunlight such as lobbies and atriums.

Benefits:

Better looking appearance.

Satisfied property owners.

Reduced down time.

Less call backs. Repairs will not change color over time. Labor Saving

Availability:

Roadware MatchCrete[™] Clear is available in:

71100 50 ml cartridge with needle tip

71300 300x300 cartridge

71020 two gallon bulk kit

71050 ten gallon kit

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Roadware MatchCrete[™] Glear

Basic Application:

Will MatchCrete[™] Clear change

1. Meet with the floor owner to determine the ultimate floor repair goal and desired outcome. In some situations, it may be better to repair cracks and defects as they are. In other situations, it may be better to open them up with a diamond blade. While no repair material can make cracks and defects disappear, with MatchCrete™ Clear you can make these areas much less noticeable. MCC is a semi-rigid material that should not by used in high movement joints and cracks. Always determine the underlaying cause of the concrete failure as a guide for the best course of action. READ AND UNDERSTAND ALL MSDS SHEETS AND PRECAUTIONS BEFORE USING THIS MATE-RIAL. FOR PROFESSIONAL USE ONLY BY TRAINED APPLICATORS. Always use gloves and safety glasses. Do not get this material on your skin.

2. Prepare floor cracks, joints, spalls, and pop-outs in accordance to standard application instructions.

3. Sand selection: By altering the sand used with MatchCrete[™] Clear, different color results can be achieved. Some experimentation may be required to get the desired result. Start with dry silica sand and a dusting of concrete dust as the material cures. Other types of sands such as concrete sand, colored quartz, and flint may be used. Choose the best combination to match your floor. Any type of sand you use should be hard, free of dirt and organic material, and completely dry.

4. Color: MatchCreteTM Clear will cure to a crystal clear appearance. Small amounts of powdered concrete colors such as Solomon Colors may be mixed in with the sand as needed. Experimentation to determine the best sand and color combination will be required to get the desired effect.

5. Mixing: Apply MatchCreteTM Clear from a properly assembled dual cartridge with flow controller directly to the repair area, Use silica sand to stop material from flowing away from the repair area. Always apply material and add sand as you go. Do not pre-place the sand and attempt to flow the material into the sand.

6. Use a margin trowel to finish the repairs. For a flush repair, leave the repairs slightly higher than grade. The excess material will be honed off later. Dry concrete dust may be added as the material cures for blending purposes.

7. Allow the repairs to fully cure for 60-120 minutes depending on the temperature and the size of the repair before honing or grinding. **Frequently Asked Questions**

MatchCrete[™] Clear uses a special alaphatic polyurethane formula that resists UV color

color in direct sunlight over time? change. Color change is possible if the sand or pigments added to the repair change color over time. Can I repair hairline cracks with the needle Yes, MatchCrete[™] Clear is compatible with Roadware Needle Tip Mixers and accestip mixers? sories. What kind of color can I add? For most repairs, use colored sand or quartz to match the desired color. Small amount

	of powdered concrete pigments may be blended with the sand prior to mixing with MatchCrete™.
Can I add concrete dust to Match- Crete [™] ?	You can add a limited amount of concrete dust to MatchCrete [™] Clear as the repair cures to get a desired appearance. It is best to experiment and test before use.
Can I mix and match colors?	Absolutely! Mixing and matching colors and sand to get just the color and texture you want is what MatchCrete [™] is all about.
Can I add too much color?	Yes, use just enough color needed for the job. Adding to too much powdered color or cement powder to the sand can hurt the performance of the repair.
Can I leave the repair clear?	Yes, adding sand and color is optional. You can use the material as is for a clear effect.

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MatchCrete[™] Decorative and Polished Concrete Repair System.

Roadware MatchCrete™ Clear

Product Description:

Roadware MatchCrete[™] Clear (MCC) is a two component aliphatic polyurethane for repairing cracks, spalls, and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative or shade of concrete surface. MCC will not significantly change color with exposure to sunlight over time.

Position Statement:

Roadware MatchCrete[™] Clear (MCC) is used to quickly repair cracks and spalls in concrete that is exposed to sunlight and a color compatible appearance over time is desired.

Features:

Sets in 20 – 40 minutes. Fully cures in a few hours. Remains clear, reflects surrounding colors. User may add colored sand, pigment, or concrete dust to match existing concrete. May be honed smooth in about 30 - 60 minutes at 70°F. May be needle tip injected. Will accept heavy traffic. Will not become brittle over time.

Uses:

Repairing exterior or interior concrete. Repairing colored, stamped, or decorative concrete. Repairing polished concrete. Repairing exposed aggregate concrete Repairing any concrete surface where appearance is critical such as retail entryways, doorways and pool decks. Repairing concrete floors that receive large amounts of sunlight such as lobbies and atriums.

Benefits:

Better looking appearance. Satisfied property owners. Reduced down time. Less call backs. Repairs will not change color over time. Labor Saving

Availability:

Roadware MatchCrete[™] Clear is available in: 71100 50 ml cartridge with needle tip 71300 300x300 cartridge 71020 two gallon bulk kit







Basic Application:

1. Meet with the floor owner to determine the ultimate floor repair goal and desired outcome. In some situations, it may be better to repair cracks and defects as they are. In other situations, it may be better to open them up with a diamond blade. While no repair material can make cracks and defects disappear, with MatchCrete[™] Clear you can make these areas much less noticeable. MCC is a semi-rigid material that should not by used in high movement joints and cracks. Always determine the underlaying cause of the concrete failure as a guide for the best course of action. READ AND UNDERSTAND ALL MSDS SHEETS AND PRECAUTIONS BEFORE USING THIS MATERIAL. FOR PROFESSIONAL USE ONLY BY TRAINED APPLICATORS. Always use gloves and safety glasses. Do not get this material on your skin.

2. Prepare floor cracks, joints, spalls, and pop-outs in accordance to standard application instructions. Deep repairs in heavy traffic areas should be repaired up to 1/2 inch (7mm) from the surface using standard Concrete Mender[™] repair techniques. **Concrete, substrate, and all materials should be completely dry.**

3. Sand selection: By altering the sand used with MatchCrete[™]Clear, different color results can be achieved. Some experimentation may be required to get the desired result. Start with dry silica sand and a dusting of concrete dust as the material cures. Other types of sands such as concrete sand, colored quartz, and flint may be used. Choose the best combination to match your floor. Any type of sand you use should be hard, free of dirt and organic material, and completely dry.

4. Color: MatchCrete[™] Clear will cure to a crystal clear appearance. Small amounts of powdered concrete colors such as Solomon Colors may be mixed in with the sand as needed. Experimentation to determine the best sand and color combination will be required to get the desired effect.

5. Mixing: Apply MatchCrete[™] Clear from a properly assembled dual cartridge with flow controller directly to the repair area, Use silica sand to stop material from flowing away from the repair area. Always apply material and add sand as you go. Do not pre-place the sand and attempt to flow the material into the sand.

6. Use a margin trowel to finish the repairs. For a flush repair, leave the repairs slightly higher than grade. The excess material will be honed off later. Dry concrete dust may be added as the material cures for blending purposes.

7. Allow the repairs to fully cure for 15 - 60 minutes depending on the temperature and the size of the repair before honing or grinding.

Will MatchCrete™ Clear change color in direct sun- light over time?	MatchCrete [™] Clear uses a special alaphatic polyurethane formula that resists UV color change. Color change is possible if the sand or pigments added to the repair change color over time.
Can I repair hairline cracks with the needle tip mixers?	Yes, MatchCrete [™] Clear is compatible with Roadware Needle Tip Mixers and accessories.
What kind of color can I add?	For most repairs, use colored sand or quartz to match the desired color. Small amount of powdered concrete pigments may be blended with the sand prior to mixing with MatchCrete [™] .
Can I add concrete dust to MatchCrete™?	You can add a limited amount of concrete dust to MatchCrete [™] Clear as the repair cures to get a desired appearance. It is best to experi- ment and test before use.
Can I mix and match colors?	Absolutely! Mixing and matching colors and sand to get just the color and texture you want is what MatchCrete™ is all about.
Can I add too much color?	Yes, use just enough color needed for the job. Adding to too much powdered color or cement powder to the sand can hurt the performance of the repair.
Can I leave the repair clear?	Yes, adding sand and color is optional. You can use the material as is for a clear effect.

Frequently Asked Questions

Note: FOR PROFESSIONAL USE ONLY. The techniques and procedures listed above are for informational use and are based on standard techniques developed by Roadware customers, distributors and contractors. They should not be construed as a specification for any specific application or use. It is up to the professional applicator to determine the ultimate appropriate use of the material.





For Technical Support call 800-522-7623 or 651-457-6122 or visit www.roadware.us

Exposed Aggregate:

Method One: Pre-place up to one inch of desired clean, dry aggregate in the repair area. Flood the repair area with MatchCrete™ Clear to bond aggregate in place.

Method Two: Flood prepared spall with MatchCrete™ Clear to just below the finished surface and add desired clean, dry aggregate. Move aggregate in place as necessary with a trowel or similar tool.

Finishing: MatchCrete ${}^{\rm T\!M}$ Clear can accommodate many types of finishes and looks.

Broom Finished Concrete: Dust the repair area as the MatchCrete™ Clear gels in approximately 5 minutes and lightly broom finish to match the surrounding concrete.

Polished Concrete: Use matching aggregate and sand in the repair. Fill crack or spall to slightly above grade. Allow to fully cure for 24 hours. Gently wet sand or polish with 400 grit diamond pads until repair blends into the surrounding surface. Proceed with higher grit pads if necessary.

ROADWARE INC 381 BRIDGE POINT WAY SOUTH SAINT PAUL, MN 55075 USA WWW.ROADWARE.US



Scan QR code for access to MSDS sheets, videos and more.

Roadware MatchCrete[™] Clear Standard Product Data Sheet

Product Name

Roadware MatchCrete™ Clear Items numbers 71000, 71105, 71300, 71020 Manufacturer

Roadware Incorporated 381 Bridgepoint Way South Saint Paul, MN 55075 800-522-7623 651-457-6122 Fax 651-457-1420 e-mail sales@concretemender.com www.concretemender.com

Product Description

Roadware MatchCrete[™] Clear is a two component aliphatic polyurethane for repairing cracks, spalls, and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative style or shade of concrete surface. MCC will not significantly change color with exposure to sunlight over time.

Roadware MatchCrete[™] Clear is used to quickly repair cracks and spalls in concrete that is exposed to sunlight and a color compatible appearance over time is desired.

General Use

Repairing colored, stamped, or decorative concrete

Repairing polished concrete.

Repairing exposed aggregate concrete

Repairing any concrete surface where appearance is critical such as retail entryways, doorways and pool decks.

Repairing concrete floors that receive large amounts of sunlight such as lobbies and atriums.

Sizes

50 ml Mini Dual Cartridge with needle tip mixer 71105

21 fl oz. dual cartridge units (600 ml) with mixer (71300)

2 gallon kits (7.57 liters) in two parts (71020)

Color

Clear when applied and cured. Resists UV color change over time.

Yield

One liter of MatchCrete[™] Clear will make 1000cc of repair material when applied neat. Adding sand and aggregate will increase the yield based on the gradation and amount of sand added.

Limitations

Roadware MatchCrete[™] Clear should not be used in moving expansion joints that exceed the movement capability of the material.

Technical Data

Roadware MatchCrete[™] Clear is a low viscosity repair material with properties and performance that are well-suited for non-structural repair applications. The material provides excellent penetration of voids, ability to flow into fine cracks, rapid hardening, good adhesion and bond, and high deformability to provide a durable repair. The shrinkage of Match-Crete[™] Clear is low and should not pose concern for debonding or delamination due to volume changes. The properties of Roadware MatchCrete[™] Clear are summarized below.

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Property

Tensile Strength at break (ASTM D-638-10) Tensile Strength at yield (ASTM D-638-10) Hardness Bond Strength Elongation at break (ASTM D-638-10) Elongation to yield in tension (ASTM D-638-10) Modulus of Elasticity (ASTM D638-10) Viscosity Side A (Brookfield) Viscosity Side B (Brookfield) Cure time Tack-Free 72° F (22C) Gel time 72° F (22C) Full Cure 72° F (22C) Shelf Life

Measured Value (average)

1523 psi (10.5 Mpa) 1437 psi (9.9 Mpa) 60D Excellent 58.3% 7.47% 55.8 ksi (384.7 Mpa) 280 cps 100 cps 25 minutes 6 minutes 24 hours 12 months

In summary, Roadware MatchCrete[™] Clear is a strong and flexible repair material suited for sealant applications. The material bonds well to concrete and will easily conform to slight deformations at repaired joints. The combination of good bond and low modulus predicts good service as a sealant or other non-structural repair material for concrete structures.

Installation

Surface Preparation:

Surface Cracks (all depths and widths): Cracks should be free of dirt, oils, dust, latents and old crack repair materials. ALL SURFACES MUST BE CLEAN AND DRY AS POSSIBLE. New concrete must be fully cured. A dry diamond blade attached to an electric hand grinder is recommended for preparing cracks and creating a clean surface for bonding. A wire brush or twisted wire wheel on a grinder may be used in some cases.

Surface Spalls and Deflections: Remove all loose materials back to sound concrete with a chisel or light chipper. DO NOT SQUARE CUT THE REPAIR AREA. If a square appearance is necessary, lightly score surface and remove material. Use a wire brush or twisted wire wheel to clean the repair area. All surfaces must be free of dirt, oils, dust, latents and old repair materials. For feather edge repairs in high traffic areas, score the repair edge with a dry diamond blade 1/4" deep around the perimeter of the repair. New concrete must be fully cured.

Exposed Aggregate: Remove any loose aggregate or concrete materials. Clean the repair area with a wire brush is similar method.

Application Temperature:

Recommended application temperature is between 40° F and 100° F (5° to 38° C). It is best to keep material at room temperature 60° to 80° F (15° - 26°C) prior to application. If manufactured sand is to be used with product, it also should be kept at room temperature. Avoid frost-laden surfaces as this may adversely affect bonding and curing. MatchCrete TM Clear will cure tack-free in about 25 minutes. Full cure in 24 hours. The temperature of the material and the temperature of the concrete surfaces will affect cure time. Warmer temperatures will decrease cure time and colder temperatures will increase cure time. In extremely cold environments, heat the concrete to remove frost before application. Contact Roadware for information on applications below 40°F.

Mixing:

Cartridges: Roadware MatchCrete[™] is a two-component material that must be thoroughly mixed in a one-to-one ratio immediately before application. This is best achieved with specially designed dual-component self-mixing cartridges and caulking guns. Material is ejected from prepackaged cartridges through a supplied static mixing nozzle with a dual component caulking gun such as the Roadware 5300 Application Tool. Mixed material is applied directly into the repair area immediately after mixing. Static mixing delivers the clearest finish with the fewest trapped air bubbles.

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Bulk Mixing:

Due to the rapid setting nature of this product, only small batches up to 500ml x 500ml should be mixed and used immediately. Keep the material cool and blend the material with a paddle. Mix for about one minute or until well blended. Avoid whipping air into the mix. Aggregate can be added at the end of the mixing process. The material may want to gel up instantly, keep mixing until smooth for up to two minutes. If the material is setting too quickly, chill the components to between 40 and 59 degrees and try again.

Pumps:

Roadware MatchCrete[™] Clear may be pumped in most one-to-one ratio pumps designed for applying polyureas. The pump should be new or newly cleaned and refurbished to avoid cross color contamination from the previous pumped material.

Application:

Surface Cracks (all depths and widths): Assemble cartridge according to directions. Holding the application gun upward, place cartridge set into gun. Gently squeeze trigger to bleed-off air and start material flowing into mixers. Point mixer into waste container and squeeze trigger to start mixing process. DO NOT POINT MIXER UPWARD AFTER MATE-RIAL IS FLOWING. This may cause material to flow back into the tubes and cause clogging. Apply material directly to the repair area. Add small amounts of manufactured sand to slow, "sinkers" or prevent material from flowing beneath the slab. Colored or decorative sand may be added in ¹/₄" inch (6mm) lifts if necessary.

Spalls: Apply mixed material directly to the repair area and add sand or aggregate to 1/4 inch (6mm) lifts as necessary. Be sure aggregate is fully saturated.

Spalls Bulk Mixed: Pre-wet the repair area with MatchCrete[™] Clear. Fully coat the sides and bottom of the repair. Pour 500ml or less mixed MatchCrete[™] Clear into a mixing pail. Add specified sand or aggregate and stir until coated. Quickly pour the resulting mortar into the repair area and finish with a trowel.

Exposed Aggregate:

Method One: Pre-place up to one inch of desired clean, dry aggregate in the repair area. Flood the repair area with MatchCrete™ Clear to bond aggregate in place.

Method Two: Flood prepared spall with MatchCrete™ Clear to just below the finished surface and add desired clean, dry aggregate. Move aggregate in place as necessary with a trowel or similar tool.

Finishing: MatchCrete[™] Clear can accommodate many types of finishes and looks.

Broom Finished Concrete: Dust the repair area as the MatchCrete[™] Clear gels in approximately 5 minutes and lightly broom finish to match the surrounding concrete.

Polished Concrete: Use matching aggregate and sand in the repair. Fill crack or spall to slightly above grade. Allow to fully cure for 24 hours. Gently wet sand or polish with 400 grit diamond pads until repair blends into the surrounding surface. Proceed with higher grit pads if necessary.



Safety CAUTION: Read and understand MSDS sheets before use.

Roadware MatchCrete[™] Clear should be used as directed and mixed at the point of application. Do not spray or atomize material without taking appropriate safety precautions.

Harmful by inhalation. Irritating to eyes and respiratory system. May cause sensitization by inhalation and skin contact. This product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. A hyper-reactive response to even minimal concentrations of diisocyanate may develop in sensitized persons. The onset of respiratory symptoms may be delayed for several hours after exposure. Waste disposal must be in accordance with appropriate Federal, State and Local regulations. In liquid form, avoid skin contact, avoid eye contact, avoid breathing substance, avoid ingestion. Use respiratory protection and skin protection if spraying or atomizing this product or using in an enclosed space. Notice to users: Do not release to water or public owned treatment works. Read and understand MSDS sheets before use.

KEEP OUT OF REACH FROM CHILDREN KEEP CARTRIDGES IN A COOL, DRY PLACE. STORE AT ROOM TEMPERATURE BETWEEN 60 - 80° F (15° - 26°C).

Availability

Roadware 10 Minute Concrete Mender is available from authorized Roadware distributors and dealers worldwide. Contact Roadware Incorporated for the nearest distributor or dealer.

Warranty

Roadware Inc. will warrant each Roadware Concrete Repair or Protective Coating Product against defects in material and workmanship for a period not to exceed six months from the shelf-life of each unopened drum or case of product. Roadware's sole warranty is that Roadware Products will meet current sales specifications. Every reasonable precaution is taken in the manufacture of all Roadware products and compilation of data that they shall comply with the manufacturer's exacting standards. As however, the effectiveness of each product depends on the applicators judgment of a proper condition, and since conditions and methods of use are beyond the manufacturer's control, no application warranty of any type is made, expressed or implied whether used in accordance with directions or not. Roadware shall not be held liable for repairs or portions thereof that are necessitated by damage which has resulted from structural failures, settling, shifting, distortions, splitting or cracking of the substrate. The forgoing warranties are in lieu of all other warranties expressed or implied including the implied warranty of merchantability and fitness or application for a particular use. Roadware Inc., shall in no event be liable for incidental, consequential of other, direct or indirect damages.

FLEXIBLE CEMENT IITM





ROADWARE FLEXIBLE CEMENT II[™]

Description: Roadware Flexible Cement Il is a two component hydrophobic hybrid polyurethane system for maintaining control joints, repairing cracks, and filling spalls in portland concrete.

Features:

- Excellent bonding strength in a wide temperature range.
- Low moisture sensitivity, will tolerate small amounts of moisture when applied.
- Good flexibility at lower temperatures.
- Excellent chemical resistance.
- Easier cartridge mixing.
- Incredible bond strength.
- Completely cures in 15 20 minutes after application for heavy traffic at 70° F. Will also cure rapidly in subzero environments.
- Good resistance to chemical attack.
- Safe to use. Materials react quickly and are solvent and odor free with 100% solids and no VOC's.
- Self-leveling, excess material may be sliced off after curing.
- Bonds well to concrete, brick, tile, steel, asphalt, and wood.

Benefits:

- Long lasting repairs that accommodate harsh physical environments and thermal movement.
- No downtime, repairs are fully ready for traffic in about 20 minutes from application.
- Odor free, can be used in a wide range of indoor areas.
- Easy application. All material is selfmixed with specially designed packaging or bulk application equipment.

Uses:

- Repairing cracks, 1/8" or larger that may be subject to deflection, movement, dynamic loading, thermal expansion or contraction.
- Filling and protecting control joints.
- Repairing spalls and pop-outs in exterior or interior concrete.
- Forming and repairing bridge joint headers and nosings.
- Waterproofing.
- Filling traffic loops.
- Electrical podding.

Use ROADWARE Flex II for protecting control joints from damage due to forklifts, heavy loads, steel wheels, and high traffic.

Repairing with ROADWARE FLEXIBLE CEMENT II will...

- STOP CHIPPING AND SPALLING
- MAINTAIN A SMOOTH RIDING SURFACE
- SEAL OUT WATER AND CHEMICALS

ROADW/



ROADWARE FLEXIBLE CEMENT IITM **PARKING LOT REPAIR**







Preparation: Shrinkage cracks are cleaned out with a diamond blade to about 1/2" deep and blown or vacuumed clear.

Application: Cracks are filled with Roadware Flexible Cement.

Finishing: In as little as 10 minutes, Repairs are shaved clean with a razor scrapper.



Flexible Cement IITM Crack Repair

Use Roadware Flexible Cement II[™] to fill non-moving cracks in exterior concrete slabs and decks.





Dairline crack in concrete deck or slab.



Ro \Box t o \Box t a small c \Box annel of concrete at t \Box e to \Box of t \Box e crack. $\Box\Box\Box$ roximate $\Box\Box$ \Box . $\Box\Box\Box$ x \Box . $\Box\Box\Box$.

 \Box re \Box are s \Box rface in accordance to material instr \Box ctions.



Fill void wit□ Roadware Flexible Cement II™

ROADWARE INCORPORATED 2100 Wentworth Avenue South Saint Paul, MN 55075 651-457-6122 800-522-7623





ROADWARE FLEXIBLE CEMENT II RECOMMENDED CONTROL JOINT DETAIL

1. Goal: to protect the control joint sidewalls from damage due to heavy traffic from forklifts and hard wheels.

Secondary Goals: seal out dirt and debris, allow for slight slab movement, stop chemical intrusion.

2. Preparation: mechanically clean all surfaces with a concrete saw blade, diamond blade, wire wheel, or other device. Remove all dust with a vacuum or compressed air.

3. Joint profile: recommended material depth is 1/3 the depth of the slab or the full depth of the saw cut. This will allow for maximum protection of the joint sidewalls and heavy traffic support.

4. Filling: assemble cartridge and dispense according to directions. Fill to just slightly above grade. Bulk material should be appliec with an approved dual component mixing pump.

5. Finishing: after material cures in 10 - 20 minutes and is slightly tacky, cut off excess material with a razor sharp scrapper.

6. Maintenance and repair: remove affected material and repeat steps 2,3,4,5.



DETAIL 1: FULL DEPTH. FOR MAXIMUM PROTECTION UNDER HEAVY TRAFFIC.



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ROADWARE FLEXIBLE CEMENT IITM LOOP SEALANT APPLICATION

Roadware FLEXIBLE CEMENT II[™] makes an excellent loop sealant. Simply lay electrical wires in the saw cut and flood with material supplied in easy to use duplex cartridges. In 10-15 minutes, you will have a tough flexible seal that will protect the wiring from moisture, dirt, rocks and heavy traffic.

For more information contact Roadware, Inc. at 800-522-7623







ROADWARE INCORPORATED

ROADWARE FLEXIBLE CEMENT IITM **BULK APPLICATION**

For large applications, Roadware Flexible Cement II[™] is available in one and five gallon cans. Just mix a gallon of part "A" with a gallon of part "B" and pour. No expensive pumping equipment is necessary. A drill mixer and a bucket will do.

Use Roadware Flexible Cement II[™] in bulk for bridge headers, large spalls, spalled control joints, freezer thresholds and more.

Prepare the repair surface by chipping, sandblasting, shotblasting or scarifying down to a clean hard surface. Square cutting is not required. Use foam board and duct tape to block out existing expansion joints.

Pre-mix side "B" (white) with a drill mixer until color is consistent.

Add equal parts of side A (black) and B (white) to a mixing bucket and mix with a drill mixer until a uniform grey color appears (about 30 seconds). Immediately pour the entire batch into the repair area. Allow to self-level. A disposable trowel may be used to work the material to grade.

Technical Information:

	Part A	Part B	Mixed	
Brookfield Viscosity:	1400 cps	700 cps	1200 cps	
Color:	Black	White	Grey	
Pot Life (@100gm):			4 mins	
Application Temperatur	re Range		-20°F to 100°F	
Gel Time (Tack Free) @	₽ 70°F		<15 minutes	
Cure Time (Heavy Traf	fic)@70°F:		<20 minutes	
Mixing Ratio:	1	11	by volume	

*Physical Properties: (Cured @ 73°F)

Compressive Sheer (Wet) Aged 24 hours	1595 psi minimum
Tensile Strength (ASTM D412)	1726 psi
Ultimate Elongation (ASTM D412)	180% or (+80%)
Tear Strength (ASTM D624)	25 N/mm
Hardness	70-80 Shore A
Adhesion (Peel Strength - ASTM D903)	80 lb/inch width
Service Movement	+20%

*Typical properties: not to be construed as a specification

Ordering Information:

This material is available from Authorized Roadware Distributors throughout the United States. Item# Description 91300 300x300ml dual cartridge Roadware Flexible Cement II 90040 4 gallon kit Roadware Flexible Cement II 90050 10 Gallon kit Roadware Flexible Cement II













ROADWARE FLEXIBLE CEMENT II™ STANDARD PRODUCT DATA SHEET

1. Product Name ROADWARE FLEXIBLE CEMENT II™

2. Manufacturer

Roadware Incorporated 381 Bridgepoint Drive South Saint Paul, MN 55075 800-522-7623 651-457-6122 Fax 651-457-1420 e-mail <u>sales@concretemender.com</u> www.concretemender.com

3. Product Description

Roadware Flexible Cement II is a two component hydrophobic hybrid polyurethane system for maintaining control joints, repairing cracks, and filling spalls in portland concrete. The hydrophobic properties of this material allow it to chase water molecules out of the way, preventing them from reacting with the curing process. This allows Flexible Cement II to perform well in areas of moisture such as ground slabs, freezers, and containment areas. Flexible Cement II is designed to work in both asphalt and concrete to provide a tough weather resistant seal and at the same time prevent further deterioration of repair area surfaces. It is capable of rebonding slabs, cracks and delaminations. This material may be used with specified aggregate to create mix-in-place polymer concrete that withstands thermal and shock movement.

GENERAL USE

- Repairing cracks, 1/8" or larger that may be subject to deflection, movement, dynamic loading, thermal expansion or contraction.
- Filling and protecting control joints.
- · Repairing spalls and pop-outs in exterior concrete.
- · Forming and repairing bridge joint headers and nosings.
- · Filling potholes in concrete.
- Waterproofing.
- · Filling traffic loops.
- · Electrical podding.
- · Bonding concrete to other materials such as wood, steel, tile, or asphalt
- Repairing freezer thresholds

SIZES

21 fl oz. dual cartridge units (600 ml) with mixer2 gallon kits (7.57 liters) in two parts10 gallon units (45 liters) in two parts

COLOR

Roadware Flexible Cement II is composed of a white colored liquid and a black colored liquid. The material is dark gray when it is dispensed and cures to a dark gray finish. Alternate colors can be achieved by selecting different colors of manufactured sand. Roadware Flexible Cement II will lighten in color when exposed to ultraviolet rays. This natural occurrence within urethanes will NOT effect the physical properties of the material or the repair.



YIELD

One 300x300 cartridge yields 36.6 cu in. One two-gallon kit yields 462cu in.

LIMITATIONS

Roadware Flexible Cement II is designed for repairing low movement concrete surfaces. It is not intended to be used as a high movement expansion joint.

4. Technical Data

PHYSICAL/CHEMICAL PROPERTIES

Typical test results when tested in accordance with applicable ASTM standards and Roadware developed testing.

Typical Properties:		Value (average)		
	Part A	Part B	Mixed	
Brookfield Viscosity:	1400 cps	700 cps	1200 cps	
Color:	Black	White	Grey**	
Pot Life (@100gm):	4 mins			
Gel Time: (Tack Free):	<15 mins			
Mixing Ratio:	1	1	by volume	
** Cured meterial will lighten a	ad diagolar when a	where a live	uplight	

** Cured material will lighten and discolor when exposed to UV sunlight 1Summer grade material technical information is available upon request.

*Physical Properties: (Cured @ 73°F)

• • • •	
Compressive Shear (Wet) Aged 24 hours	1595 psi minimum
Tensile Strength (ASTM D412)	1726 psi
Ultimate Elongation (ASTM D412)	180% or (+80%)
Tear Strength (ASTM D624)	25 N/mm
Hardness	70-80 Shore A
Adhesion (Peel Strength - ASTM D903)	80 lb/inch width
Service Movement	±20%
*Typical properties: not to be construed as a specification	ı

5. Installation

APPLICATION TEMPERATURE

Recommended application temperature is between -20° F and 80° F. It is best to keep material at room temperature (60° to 80° F) prior to application. Keep manufactured sand and aggregate if used with the material at room temperature. Avoid frost-laden surfaces as this may adversely effect bonding and curing. Successful repairs may be made in ambient temperatures as low as -20° F. See cold application data sheet for details. Roadware Flexible Cement II will fully cure in 15 - 20 minutes at 72° F. Cure time is affected by the temperature of the material and the temperature of the concrete surfaces. Warmer temperatures will decrease cure time and colder temperatures will increase cure time.

MOISTURE

Reaction with moisture in the substrate can adversely effect the performance of the material. Roadware Flexible Cement II material will resist moisture reaction at temperatures below 65°F. It is best to keep all surfaces as dry as possible when applying material.



REPAIR DESIGN

Cracks– For best results, cracks repaired with Flexible cement II should not exceed ±20% movement of original size. Sidewalls should be free of loose concrete or contaminated repair materials. Control Joints– New concrete must be fully cured to prevent shrinkage of greater than 20% of original joint width. Shrinkage or movement greater than 20% of original size may cause adhesive or cohesive splitting. Joint sidewalls should be solid and free of contaminated repair materials. Flexible Cement II should not be used in high movement expansion joints.

PREPARATION

Surface Cracks (all depths and widths): Cracks should be free of dirt, oils, dust, latents and old crack repair materials. ALL SURFACES MUST BE CLEAN AND DRY. New concrete must be fully cured. A twisted wire wheel attached to an electric hand grinder or similar mechanical cleaning method such as sawing, needle scaling, sandblasting, or shot blasting is recommended for preparing cracks and creating a clean surface for bonding. For hairline cracks, create a surface void 1/4" wide and 1/4" deep to accommodate the material. (See construction details for proper profile.)

Control Joints: Saw-cut control joints should be free of dirt, oils, dust, latents and old joint fillers. ALL SURFACES MUST BE CLEAN AND DRY. New concrete must be fully cured. A twisted wire wheel attached to an electric hand grinder or similar mechanical cleaning method such as sawing, needle scaling, sandblasting, or shot blasting is recommended for preparing joints and creating a clean surface for bonding. Lightly pressure spray joint with alcohol to remove dust and latents and allow to dry prior to application. Prepared joints should have a profile and depth equal the width of the joint. Closed-cell backer rod may be used to achieve the proper profile. The minimum depth of material for all joint filling is 3/8" regardless of width. Tooled construction joints must be thoroughly cleaned and profiled before application. See Roadware construction joint details for more information.

Bridge Headers: Remove all loose materials back to sound concrete with a chisel, light chipper, or grinder. DO NOT SAW-CUT THE REPAIR AREA. If a square appearance is necessary, lightly score surface and remove material. Use a twisted wire wheel attached to an electric hand grinder or similar mechanical cleaning method such as needle scaling, sandblasting, or shot blasting to clean the repair area. All surfaces must be free of dirt, oils, dust, latents and old repair materials. New concrete must be fully cured.

Forming: Forming may be necessary in some repairs and especially in maintaining expansion joints when repairing joint headers. Roadware Flexible Cement II repairs may be formed with "Dow Board" insulation or equivalent. Secure all forms to prevent "floating" when material is applied. Common duct tape may be used to fill in forming gaps. Canned insulating foam may be used to form irregular joint surfaces.

MIXING

Cartridges: Roadware Flexible Cement II is a two component material and must be thoroughly mixed at a ratio of 1 part "A" to 1 part "B" by volume. All mixing and metering of Roadware Flexible Cement II is achieved with self-mixing cartridges provided by Roadware. Material is ejected from prepackaged cartridges through a supplied static mixing nozzle with a dual component caulking gun such as the Roadware 5300 Application Tool. Mixed material is applied directly into the repair area immediately after mixing.

Bulk: Roadware Flexible Cement II supplied in 10 gallon kits is best dispensed through a one-to-one ratio pump specifically designed to handle low viscosity materials while maintaining exact ratios. The system must not allow the two components to combine until they reach the point of delivery. All pumping equipment must be approved by Roadware, Inc. prior to application. Bucket mixing is allowed on a limited basis. Bucket mixed material will set very quickly. Do not mix more than 1 gallon of side "A" and 1 gallon of side "B". Keep material cool to reduce reaction time. Pour all of the material into the repair area immediately after mixing. SEE BULK MIXING INSTRUCTIONS.

APPLICATION METHODS

Surface Cracks: For cracks less than 1/2" in width, fill repair area to just above grade, leaving a slight over-band of material. For exterior repairs, add manufactured sand just before material sets (turns gray) and allow to cure. For interior repairs, fill repair area as above but do not add sand. Allow material to cure and shave off over-banding with a sharp scraper.



Assemble cartridge according to directions. Holding the application gun upward, place cartridge set into gun. Gently squeeze trigger to bleed-off air and start material flowing into mixers. Point mixer into waste container and squeeze trigger to start mixing process. DO NOT POINT MIXER UPWARD AFTER MATERIAL IS FLOWING. This may cause material to flow back into the tubes and cause clogging. Immediately apply the material directly to the repair area. Work with one small section at a time. Do not stop flowing material for a period of more than 2 minutes. If material sets inside mixer, remove cartridge from gun and replace mixer. Fill all cracks to slightly above grade. When material cures (turns gray) in about 10 minutes, remove excess material with a sharp scraper for a smooth and flat finish.

Spalls and Bridge Headers: Prime repair area with material. Fill repair areas to slightly below grade with specified aggregate. For repairs greater that 2" in depth, work in 2" lifts. This must be done before the primer material sets. Apply additional material directly into the aggregate, be sure to saturate all of the aggregate as well as the sidewalls of the repair. More aggregate may be added as necessary. After first layer sets (in approximately 2 minutes), apply additional material and broadcast manufactured sand over the top to desired grade. Work with one small area at a time. Allow to cure (approximately 10 -15 minutes). Finished repairs may be "cleaned up" by scraping with a sharp blade within a few hours of application.

6. Availability

Roadware 10 Minute Concrete Mender is available from authorized Roadware distributors and dealers throughout the United States. Contact Roadware Incorporated for the nearest distributor or dealer.

7. Warranty

Roadware Inc. will warrant each Roadware Concrete Repair or Protective Coating Product against defects in material and workmanship for a period not to exceed one year from the shelf-life of each unopened drum or case of product. Roadware's sole warranty is that Roadware Products will meet current sales specifications. Every reasonable precaution is taken in the manufacture of all Roadware products and compilation of data that they shall comply with the manufacturer's exacting standards. As however, the effectiveness of each product depends on the applicators judgment of a proper condition, and since conditions and methods of use are beyond the manufacturer's control, no application warranty of any type is made, expressed or implied whether used in accordance with directions or not. Roadware shall not be held liable for repairs or portions thereof that are necessitated by damage which has resulted from structural failures, settling, shifting, distortions, splitting or cracking of the substrate. The forgoing warranties are in lieu of all other warranties expressed or implied including the implied warranty of merchantability and fitness or application for a particular use. Roadware Inc., shall in no event be liable for incidental, consequential of other, direct or indirect damages.

8. Maintenance

None Required

9.

Technical Services

Roadware maintains trained distributors and factory representatives on a national level. Contact a local distributor for technical assistance or call Roadware Incorporated for direct factory technical assistance.

10. Filing Systems

Additional product information is available from Roadware Incorporated and from Roadware's web site at www. concretemender.com.

ROADWARE FEXIBLE CEMENT IITM **CHEMICAL RESISTANCE CHART**

ROADWARE FLEXIBLE CEMENT II™ resists acids and bases, alcohols, and most oils, and solvents.

ROADWARE FLEXIBLE CEMENT II[™] resists hydraulic fluids (including SKYDROL), oils, lubricants, greases, fuels, crude oil, and most solvents. It is unaffected by most food products including lemon, orange, and pineapple juice, tomatoes, vinegar, and cooking oils.

Roadware Inc. has no control over any particular application, installation, or exposure. Therefore tests should be carried out by the user to determine suitability.

Resists continous exposure:	Diesel Fuel
-	Fish Oil
Compounds	Fuel Oil
Acetic Acid, 5%	Gasoline
	Grease
Citric Acid	Hydrocarbon Oil
Hydrochloric Acid, 10%	Hydraulic Oils
Nitric Acid	Jet Fuel A 1
Sulfuric Acid, 10%	Jet Fuel B
Ammonium Hydroxide, 10%	Jet Fuel 4
Sodium Hydroxide, 10%	Jet Fuel 5
Ferric Chloride	Jet Fuel 6
Ferric Nitrate	Jet Fuel 12
Ferrous Chloride	Jet Fuel 18
Ferrous Sulfate	Jet Fuel 22
Formaldehyde	Jet Fuel 35
Ethyl Alcohol	Jet Fuel 40
Ethylene Glycol	Jet Fuel 44
Formaldehyde	Kerosene
Glycerine	Linseed Oil
Isopropyl Alcohol	Lubricating Oil
Natural Gas	Mineral Oil
Water	Motor Oil
Water, distilled	Oils, Vegetable
Water, sea	Palm Oil
	Petroleum
Oils & Fuels	SAE #10 W/40
ASTM Oil #1	SKYDROL 500 B-4
ASTM Oil #2	SKYDROL LD-4
ASTM Oil #3	Tung Oil
ASTM Oil #4	Transformer Oil
ASTM Oil Reference Fuel A	
ASTM Oil Reference Fuel B	
Aviation Fuel 100/130	
Bunker Oil	
Castor Oil	
Corn Oil	
Cottonseed Oil	
Crude Oil	
Coconut Uil	
Diester Uil	

IMPORTANT NOTICE

IMPORTANT NOTICE Resistance for the product is based on tests believed to be reliable. The user must determine product suitability for particular use. The following is made in lieu of all war-ranties, express or implied, including implied warranties of merchantability and fitness a particular purpose. Sellers and manufacturers only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for loss or damage. Direct, incidental or consequential meandares the lead theory.



ROADWARE MatchCrete[™] CLEAR



Match colors.

By adding small amounts of dry color pigment and sand, many different colors can be made. Use colored sand for deeper color effect.

Exterior Repairs

MatchCrete[™] Clear cures clear and will stay clear under sunlight. MatchCrete[™] Clear is a structurally solid material. Use caution when repairing exterior concrete or re-cracking may occur.

Polished Concrete

MatchCrete™ Clear may be polished in several hours. Use before or after polishing for repairs that will not distract from the polished concrete look.

Moisture

Concrete and sand need to be surface dry before application.



71105 50ml cartridge w/needle tip 5150 50ml Application Gun 71300 300x300ml cartridge 71020 Two Gallon Kit 1036 Static Mixer SQ 24 element 5300 600ml Application Gun

Roadware Match-

Crete[™] Clear is a two component aliphatic polyurethane for repairing cracks, spalls, and joints in concrete subject to UV exposure from sunlight. This material is clear in appearance when applied and cured. Colored sand and pigments may be added to create color stable repairs that match most any decorative or shade of concrete surface. MatchCrete™ Clear will not significantly change color with exposure to sunlight over time.



Exposed Aggregate MatchCrete[™] Clear cures clear so repairing exposed aggregate concrete is easy.



ROADWARE FLEXIBLE CEMENT IITM



Exterior Repairs Use Flexible Cement II™ repair cracks and protect control joints in parking structures, bridge decks, loading docks, runways, and many types of structural concrete.

Control Joints

Use in industrial floors to protect saw-cut control joints from wheel traffic damage.

Cove Joints

Use Flexible Cement II[™] to seal cove joints where the floor meets a structural wall.

Electrical Podding

Seal electrical loops and embedded lighting systems.

Thresholds

Repair concrete thresholds with high thermal differentials.

Moisture

Flexible Cement II[™] is tolerant of surface moisture when applied. Concrete should be as dry as practical to insure a good bond.

91105 50 ml cartridge w/needle tip 5150 50ml Application Gun 91300 300x300ml cartridge 91020 Two Gallon Kit 91050 Ten Gallon Kit 1036 Static Mixer SQ 24 element 5300 600ml Application Gun



CADWARE

Roadware Flexible Cement II[™] is a semiflexible polyurethane for repairing low movement cracks and control joints.

High Traffic Repairs are tough and can handle heavy industrial traffic.



Concrete Bonding

Flexible Cement II™ is an excellent flexible adhesive for bonding metal, wood, and synthetic materials to concrete. Use to bond moldings and tack strips to concrete floors. Bonds asphalt to concrete.



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