

PRODUCT DATA SHEET

SikaEmaco® S 466

(formerly MEmaco S 466)

PUMPABLE, FREE FLOWING, SHRINKAGE COMPENSATED MICRO-CONCRETE FOR GROUTING AND REPAIR

PRODUCT DESCRIPTION

SikaEmaco® S 466 is a flowable, shrinkage-compensated repair concrete. It is designed for large volume repairs, including structural elements in applications from 1" (25 mm) to full depth. It has a unique formulation that provides excellent bond, resistance to sulfates and chlorides, high electrical resistivity, low permeability, high-compressive strengths, and protection from corrosion.

USES

SikaEmaco® S 466 precision micro-concrete is used for repair and grouting in various applications such as:

- Interior and exterior
- Large volume structural repairs
- Columns in precast construction
- Casting sections or members where the volumes required are too large for conventional grouts, and too small and inaccessible for normal concreting applications.
- Cavities, gaps and recesses
- Re-profiling of damaged concrete members and reprofiling of pile tops using formwork for both pouring and pumping techniques.

CHARACTERISTICS / ADVANTAGES

SikaEmaco® S 466 is an easy to use precision microconcrete requiring only the addition of water. It offers the following beneficial properties:

- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Easy to mix
- Low-dusting for added worker comfort and safety
- Only requires the addition of potable water
- High compressive strength
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Abrasion resistant for repairs requiring protection from vehicular traffic
- Flowability makes it ideal for placement by pumping or pouring into congested locations
- Shrinkage compensated, minimizing cracking from drying shrinkage reducing stress at the bond line

PRODUCT INFORMATION

Chemical Base	Portland cement, selected fillers and aggregates, special additives
Packaging	55 lb bag and 3,300 lb bulk bag
Appearance / Color	Gray powder

Shelf Life	12 months minimum from date of production. 3 months for bulk bags.
Storage Conditions	Store in original unopened packaging in a cool and dry condition between 40°F and 90°F. Protect from direct sunlight, heat and moisture.
Maximum Grain Size	3/8"



TECHNICAL INFORMATION

Compressive Strength	1 day 2,500 psi	7 days 6,000 psi	28 days 8,000 psi	(ASTM C109)
Modulus of Elasticity in Compression	5.9 x 10 ⁶ psi			(ASTM C469)
Flexural Strength	1 day -	7 days -	28 days 770 psi	(ASTM C348)
Tensile Strength	1 day 300 psi	7 days 550 psi	28 days 700 psi	(ASTM C496)
Shrinkage	0.06%			(ASTM C157) 3"x3"x10" prisms, air cured
Tensile Adhesion Strength	1 day -	7 days 260 psi	28 days 340	(ACI 503R) Appendix A
Freeze Thaw De-Icing Salt Resistance	2; slight to moderate			(ASTM C672) 50 cycles
Sulfate Resistance	< +0.05% (High sulfate resistance)			(ASTM C1012) length change @ 6 mo
Rapid Chloride Permeability	650 Coulombs (Very low)			(ASTM C1202) (AASHTO T 277)
Slant Shear Strength	1 day -	7 days 2,150 psi	28 days 3,300 psi	(ASTM C882) SSD; Scrub coat
Freeze-Thaw Stability	97% (RDM @ 300 cycles)			(ASTM C666, Proc A)

APPLICATION INFORMATION

Mixing Ratio	0.4 - 0.6 gal per 55 lb bag
Coverage	0.43 cubic feet per 55 lb bag
Layer Thickness	8" neat. For deeper applications, extend with appropriate ASTM C33-compliant aggregate.
Ambient Air Temperature	40°F min. / 90 °F max.
Substrate Temperature	40°F min. / 90 °F max.
Pot Life	~90 min (73 °F)
Set Time	Initial set - 4 hours (ASTM C266) Final Set - 6 hours
Fresh mortar density	142 lbs / ft ³

BASIS OF PRODUCT DATA

- Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods,

actual site conditions and curing conditions.

LIMITATIONS

- Do not mix partial bags.
- Do not add plasticizers, accelerators, retarders, or other additives.
- Vibrating is recommended for larger placements.
- For professional use only; not for sale to or use by the general public.
- Proper application is the responsibility of the user. Field visits by Sika personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Concrete:

1. Substrate must be structurally sound and fully cured (28 days).
2. Saw cut the perimeter of the area being repaired into a square with a minimum depth of 1" (25 mm).
3. Refer to current ICRI Guideline no. 310.2R for surface prep requirements to permit proper bond.

The application of a suitable bonding agent, such as Sikadur®-32 Hi-Mod LP, or SikaTop® Armathec®-110 EpoCem®, will improve adhesion on large areas or where particularly dense concrete substrates are involved.

Steel Reinforcement:

Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed. Surfaces shall be prepared using abrasive blast cleaning techniques or high pressure water-blasting. Embedded steel reinforcing should be treated with a suitable anticorrosion coating such as SikaTop® Armatec®-110 EpoCem® or SikaEmaco®-8100 AP.

MIXING

1. Precondition material to 70±5 °F before mixing.
2. Add 0.40–0.60 gallons (1.5–2.3 L) of potable water for each 55 lb (25 kg) bag of SikaEmaco® S 466. Mix mechanically using a slow speed drill (400–600 rpm) and a Jiffy paddle or mix in an appropriately sized mortar mixer.
3. Pour approximately 90% of the mix water into the mixing container, then charge the mixer with the SikaEmaco® S 466. Add the remaining mix water as required to obtain desired consistency. Add enough water to the mixing container to obtain a slump of 4–6", approximately 0.6 gallons (2.3 L) per bag. Maximum recommended slump is 7".
4. Mix until a homogeneous consistency is achieved, approximately 3–5 minutes. Do not mix longer than 5 minutes.
5. For applications greater than 8" (203 mm), add up to 25 lbs (11.3 kg) of 1/2–3/4" rounded, high-density, washed, SSD coarse aggregate for each 55 lbs (25 kg) of SikaEmaco® S 466. Contact Sika Technical Service for questions regarding appropriate aggregate for extension.
6. Aggregate must comply with the requirements of ASTM C 33.

APPLICATION

FORMED APPLICATIONS

1. Build forms in accordance with ACI 347R. Keep the unrestrained surface area of the repair to a minimum.
2. Saturate the prepared concrete substrate by filling the prepared formwork with clean water 8 hours before placement.
3. Immediately before the placement of SikaEmaco® S 466, completely drain this water and seal the drainage outlets, leaving the substrate saturated surface-dry (SSD) with no ponded water remaining.
4. In jobsite circumstances where the formwork cannot be filled with water to achieve an SSD surface, the prepared concrete substrates must be thoroughly hosed down with clean water to achieve an equal level of saturation. Apply the repair material with sufficient pressure to ensure intimate contact with the substrate.
5. A long open-time bonding agent such as Sikadur®-32 Hi-Mod LP may be used in place of a saturated substrate. In such a case, place the SikaEmaco® S 466 before the bonding agent becomes tack free.
6. Immediately after mixing, pump or pour the SikaEmaco® S 466 into the formed area.

7. Follow ACI 305 and 306 for hot or cold weather guidelines.

HORIZONTAL APPLICATIONS

1. After removing all standing water, thoroughly scrub a thin layer of bond coat into the saturated surface with a stiff-bristled broom or brush. Do not dilute the bond coat with water. Do not apply more of this bond coat than can be covered with mortar before the bond coat dries. Do not retemper the bond coat.
2. Immediately place the repair mortar from one side of the prepared area to the other. Work the material firmly into the bottom and sides of the patch to ensure good bond. Level the SikaEmaco® S 466 and screed it to the elevation of the existing concrete. Apply the appropriate finish.
3. Finish the completed repair, as required, taking care not to overwork the surface.
4. A maximum of 90 minutes should be allowed to mix, place, and finish SikaEmaco® S 466 at 70 °F. Follow ACI 305 and 306 for hot or cold weather.

CURING TREATMENT

1. Leave the formwork in place until the compressive strength reaches 2,500 psi or a strength specified by the engineer.
2. Cure with an approved curing compound compliant with ASTM C 309 or preferably ASTM C 1315. If the repair area will receive a coating, wet curing is recommended.

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CLEANING OF TOOLS

Clean tools and equipment with clean water immediately after use. Cured material must be removed mechanically.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

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Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: +1-800-933-7452
Fax: +1-201-933-6225
usa.sika.com



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