BUILDING TRUST

PRODUCT DATA SHEET

Sikacrete®-321 FS

One-component, cementitious, pourable, rapid hardening concrete mix

PRODUCT DESCRIPTION

Sikacrete®-321 FS is a one-component, Portland-cement concrete containing factory blended coarse aggregate designed for quick turnaround patching and overlay needs.

USES

- As a structural repair material for bridges, parking facilities, industrial plants and walkways
- On horizontal, vertical and overhead surfaces (formed)
- On grade, above, and below grade on concrete
- Full depth repairs
- Filler for voids and cavities

CHARACTERISTICS / ADVANTAGES

- Very rapid setting structures can be opened to vehicular traffic in 2 hours
- Non-gypsum based with volume stability
- Compatible with coefficient of thermal expansion of concrete
- Increased resistance to deicing salts
- Easily applied to clean, sound substrate
- Excellent resistance to freeze/thaw with outstanding durability
- Pre-packaged coarse aggregate: Eliminates need to extend material in the field; Eliminates the risk of reactive aggregate
- Formulated to compensate for shrinkage

APPROVALS / STANDARDS

Complies with ASTM C-928 specifications for very rapid and rapid hardening mortars

PRODUCT INFORMATION

Packaging	65 lb. (29.5 kg) bag
Appearance / Color	Dark gray powder
Shelf Life	12 months from date of production if stored properly in original, unopened and undamaged sealed packaging
Storage Conditions	Store dry at 40–95 °F (4–35 °C). Protect from moisture. If damp, discard material

TECHNICAL INFORMATION

Compressive Strength	2 hour	2,500 psi (17.2 MPa)	(ASTM C-39) 73 °F (23 °C) 50 % R.H.
	3 hour	3,000 psi (20.7 MPa)	
	1 day	5,000 psi (34.5 MPa)	
	7 days	6,000 psi (41.4 MPa)	
	28 days	7,500 psi (51.7 MPa)	
Flexural Strength	28 days	700 psi (4.8 MPa)	(ASTM C-293) 73 °F (23 °C) 50 % R.H.
Splitting tensile strength	1 day	400 psi (2.8 MPa)	(ASTM C-496) 73 °F (23 °C) 50 % R.H.
	7 days	600 psi (4.1 MPa)	
Tensile Adhesion Strength	7 days	>250 psi (1.7 MPa)	(ASTM C-1583) 73 °F (23 °C) 50 % R.H.
Slant Shear Strength	1 day	2,500 psi (17.2 MPa)	(ASTM C-882 modified)*
	7 days	3,000 psi (20.7 MPa)	
	* Mortar scrubbed into substrate (73 °F (23 °C) and 50 % R.H.)		
Shrinkage	< 0.06 %		(ASTM C-157 modified per ASTM C-928)
Freeze-Thaw Stability	300 cycles	> 90 %	(ASTM C-666)
Rapid Chloride Permeability	28 days	< 1,500 Coulombs	(ASTM C-1202 AASHTO T-277)

APPLICATION INFORMATION

Mixing Ratio	5 pts. (2.4 L)		
Coverage	0.5 ft^3 (0.01 m^3) per bag (Coverage figures do not include allowance for surface profile and porosity or material waste)		
Layer Thickness	**Min.**	**Max.**	
	1" (25 mm)	8" (203 mm)	
Consistency	Initial Slump	7–9" (178–229 mm)	(ASTM C-143)
	Slump at 15 minutes	> 5–7" (127–178 mm)	
Product Temperature	65–75 °F (18–24 °C)		
Ambient Air Temperature	> 45 °F (7 °C)		
Substrate Temperature	> 45 °F (7 °C)		
Pot Life	~ 30 minutes As the temperature will affect the pot life, application temperature: ▪ Above 73 °F (23 °C) will reduce the pot life and slump. ▪ Below 73 °F (23 °C) will extend the pot life and slump		
Set Time	40–50 minutes		(ASTM C-266)
Final set time	50–60 minutes		(ASTM C-266)

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.

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.

DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

0 g/L (EPA Method 24)

LIMITATIONS

- Rate of strength gain will be reduced at colder temperatures. On site testing is recommended.
- Bonding agents like Sika® Armatec® 110 EpoCem and others, which cure at a slower rate than Sikacrete®-321 FS, should not be used. If bonding agents are used, follow cure times for the bonding agents used as a guide prior to putting Sikacrete®-321 FS in service. Assure suitability with the manufacturer of the bonding agent.
- Not a vapor barrier
- Refer to Sika® Antisol®-250 W product data sheet for use.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Substrate preparation

- Surface must be clean and sound. Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired.
- Be sure repair area is not less than 1" (25 mm) in depth.
- Preparation work should be done by high pressure water blast, scabbler or other appropriate mechanical means to obtain an exposed aggregate surface profile of ±1/8" (3.2 mm) (CSP-7).
- To ensure optimum repair results, the effectiveness of decontamination and preparation should be assessed by a pull-off test.
- Saw cutting of edges is preferred and a dovetail is recommended.
- Substrate should be Saturated Surface Dry (SSD) with clean water prior to application. No standing water should remain during application.

Priming

Reinforcing steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult PDS).

Concrete Substrate: A scrub coat of Sikacrete®-321 FS can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.

MIXING

- Place 5 pints (2.4 L) of water in mixing container.
- Slowly add Sikacrete®-321 FS while continuing to mix.
- Mechanically mix to a uniform consistency with a low-speed drill (400-600 rpm) and paddle or in appropriate-size mortar mixer or concrete mixer for 3 minutes.
- Some mixers will take longer than others to achieve the desired slump.

APPLICATION

- Pre-wet surface to SSD.
- Ensure good intimate contact with the substrate is achieved. To accomplish this, material should be scrubbed into the substrate or other suitable means should be employed such as vibration of the material.
- Vibrate form while pouring.
- Finish as desired.

CURING TREATMENT

- As per ACI recommendations for Portland cement concrete, curing is required.
- Moist cure with wet burlap and polyethylene, a fine mist of water or Sika® Antisol®-250 W*.
- Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings.
- Moist curing should commence immediately after finishing.
- Protect freshly applied mortar from direct sunlight, wind, rain and frost.
- For best results, keep surface moist with clean, cool potable water for 1–2 hours after initial set. A Hudson Sprayer is suggested for an even application.

* Pretesting of curing compound is recommended.

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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