



## NOVOLAK VINYL ESTER POLYMER CONCRETE NO. 465

### PHYSICAL PROPERTIES

Absorption (ASTM C-413)	0.07%
Application time	
Working time at 70°F	30 minutes
Initial set at 70°F	1 hour
Density (ASTM C-905)	143 pcf (2.3 gm/cm <sup>3</sup> )
Compressive strength (ASTM C-579) 28 days	15,000 psi (1054.5 kg/cm <sup>2</sup> )
Flexural strength (ASTM C-580) 7 days	2,176 psi (153 kg/cm <sup>2</sup> )
Maximum service temperature	350°F (177.7°C)
Modulus of elasticity (ASTM C-580) 7 days	5.24 x 10 <sup>5</sup> psi (3.68 x 10 <sup>4</sup> kg/cm <sup>2</sup> )
Shrinkage (ASTM C-531) 7 days	0.26%
Tensile strength (ASTM C-307)	1,000 psi (70 kg/cm <sup>2</sup> )

Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore, data are subject to reasonable deviation.

Sauereisen NovolaK Vinyl Ester Polymer Concrete No. 465 is a castable for the construction of chemical-resistant sumps, dikes, containment areas, trenches, walls, and structural support columns or bases. No. 465 has been specifically formulated for foundation construction and should be installed with proper reinforcement. Mixing and forming methods are similar to those used for Portland cement.

NovolaK Vinyl Ester Polymer Concrete No. 465 can also be used as a monolithic topping to rehabilitate chemically deteriorated concrete or protect new construction. This system incorporates either Sauereisen VEPrime No. 550 or Hi-Temp Primer No. 560. Consult Sauereisen for a recommendation.

### CHARACTERISTICS

- Vinyl ester polymer offers superior chemical resistance.
- Maximum service temperature of 250°F (121°C).
- Fast chemical set - less down time.
- Low porosity.

### AREA PREPARATION

#### Temperature of Working Area

Maintain a temperature of 60°-85°F on air, substrate, Hardener, Liquid, and Aggregate components during mixing, application, and cure. The monolithic components and substrate should be

maintained at 60°F to 85°F for 48 hours prior to beginning work. Maintain the air and substrate at least 5°F above dew point until cure.

At temperatures below 60°F, the application becomes more difficult and curing is retarded.

Above 85°F, the material working time decreases. It is recommended that the material components be stored in a cooler area prior to mixing. Shading the substrate and using ice water to cool mixing equipment is not uncommon. In extreme temperatures, it may be necessary to postpone the application or apply during cooler hours.

#### Reinforcement

When applying NovolaK Vinyl Ester Polymer Concrete No. 465, appropriate reinforcement must be incorporated which may need to be corrosion-resistant. All monolithic applications must be affixed to the substrate by anchors. Consult Sauereisen for recommendations.

#### Surface Preparation

*Foundation Construction* - The foundation base should be constructed with appropriate materials to support the engineering design and loads. No. 465 must not be applied over standing water or loose soil.

*Concrete* - Refer to SSPC-SP13/NACE 6 "Surface Preparation of concrete" for detailed guidelines.

*New Concrete* - Surfaces should be dry and made free of oil, grease and other contaminants that may inhibit bond. This can be achieved by chemical cleaning.

Abrasive blast or high-pressure water blast concrete to remove laitance and obtain uniform surface texture.

*Old Concrete* - Concrete must be dry, firm and structurally sound as specified by the architect/engineer. Surfaces should be made free of oil, grease, water, and other contaminants that may inhibit bond. This can be achieved by chemical cleaning. All structural cracks must be repaired. Abrasive blast, high-pressure water blast, or use baking soda, or dry ice to remove laitance and obtain uniform sound substrate.

*Brick* - Remove oil, grease, water, and other contaminants that may inhibit bond. Abrasive blast or hydroblast mortar joints to a depth of 1/2 inch to remove all loose material and provide a clean, firm surface.

If abrasive or high-pressure water blasting is used as the method of surface preparation, all sand and/or debris must be removed by thoroughly vacuuming the area with an industrial vacuum cleaner. If surface does not have desired profile or

degree of cleanliness, repeat surface preparation procedure.

## EXPANSION/CONTROL JOINTS

Joints are to be provided on 14 foot centerlines, around all fixed objects, peripheries of rooms and over all points of movement in the base slab. The joint should then be filled with the appropriate expansion joint filler. Consult Sauereisen for recommendation.

## APPLICATION

### Mixing

NovolaK Vinyl Ester Polymer Concrete No. 465 is packaged in pre-measured units of Hardener, Liquid and Aggregate components. Mixing must be done mechanically with a slow-speed mortar mixer. The mixing equipment must be clean and free of Portland cement or other contaminants.

Remix Liquid prior to combining components. Empty contents of the Liquid into a clean, dry mixing container. Pour contents of Hardener into Liquid and mix thoroughly until blended for at least one minute. Empty liquids into a clean, dry mortar mixer. Add Aggregate component gradually while mixing to a uniform consistency.

Mix only complete batches. Material which has begun to set must be discarded. Do not try to retemper the material. Do not add solvent, additive or adulterant to any component or mixed material.

Remove the entire batch from the mixer when mixing is completed to prevent heat build-up in the equipment and flash setting. While pouring one batch, another should be mixed in order to eliminate delays and to permit continuous operation.

### Installation

**VEPrime No. 550** - Apply primer to a nominal thickness of 5-10 mils using a short nap roller with a non-degradable core or nylon brush. For more detailed

information regarding VEPrime No. 550, consult the specific Sauereisen product data sheet.

**Hi-Temp Primer No. 560** - May be applied by brush, roller or spray. No mixing is required, simply shake the single component container prior to opening. Appropriate ventilation and/or respiratory equipment is recommended.

A dry film thickness in the range of 3-5 mils should be attained. Excess thickness will adversely effect the cure. To attain the proper dry thickness, application of 5-8 mils wet is suggested.

If material within the container forms a skin, cut out and remove. Carefully stir and transfer remainder of primer into a clean pail. Take care not to transfer gelled material.

*Roller* - Apply Hi-Temp Primer by roller to the appropriate wet thickness using a short nap roller with a non-degradable core or nylon brush.

*Spray* - Application by standard airless spray equipment should be done with a 50% overlap in a "cross hatch" pattern to reduce the possibility of pinholes and to assure complete coverage. A wet thickness of 5-8 mils should be attained. Consult Sauereisen for complete details on equipment requirements.

**Polymer Concrete No. 465** - When casting No. 465, forms should be constructed of firmly braced wood or metal which have been given a light coating of release agent. The release agent will prevent No. 465 from adhering to the screeds or forms, but should not leave a residue on the freshly cast material.

Forms are to be completely sealed and rendered watertight with heavy consistency pliable caulking, especially when placed over rough surfaces. Do not apply over standing water.

The form and screed systems should be strong enough to retain No. 465 in place without deformation. Forms and screeds may be removed after set has occurred and No. 465 has sufficient strength to support itself. Lower temperatures will require longer cure periods before removing forms.

Tamping methods or pencil vibration are suitable for distributing the material. Use a trowel or screed board to level the polymer concrete flush with the top of the form. Trowel finish within 15 minutes after mixing. Avoid imposing loads until a final set has been achieved.

## COVERAGE

### VEPrime No. 550:

1 gal. unit coverage is 267 ft<sup>2</sup> @ 6 mils.

### Hi-Temp Primer No. 560:

1 gal unit coverage is 320 ft<sup>2</sup> @ 5 mils wet film thickness, resulting in a dry thickness of approximately 3 mils.

### NovolaK Vinyl Ester Polymer Concrete No. 465:

Regular unit yields 1.3 ft<sup>3</sup>

Large unit yields 2.6 ft<sup>3</sup>

No. 465 must be cast at least 2 inches thick. A 2-inch thickness of No. 465 will require approximately 24 lbs. of material per square foot.\*

\*Quantity estimations do not include losses during application or normal density variations.

## SETTING/CURING

VEPrime No. 550 can be topcoated after 6 hours at 70°F. If topcoating exceeds 24 hours, apply another coat of No. 550.

Hi-Temp Primer No. 560 will dry to the touch in approximately 1-2 hours at 70°F. Topcoating should occur no sooner than two hours after application. If the duration before topcoating exceeds 24 hours, consult Sauereisen to discuss proper solvent-wipe procedures.

NovolaK Vinyl Ester Polymer Concrete No. 465 will take an initial set in one hour at 70°F. Proper curing of No. 465 is critical to the serviceability of the completed structure; therefore, the substrate and material temperatures should not be allowed to fall below 60°F until final cure has been achieved. Do not allow water or chemicals on the material surface for a minimum of 48 hours. For temperatures below 70°F, cure a minimum of 72 hours prior to water or chemical exposure.

## PACKAGING

### **VEPrime No. 550:**

1-gallon unit includes:

Part A Hardener

0.053 pounds in a small plastic bottle

Part B Liquid

7.375 pounds in a 1 gallon can

### **Hi-Temp Primer No. 560:**

1- gallon can.

Unit weight is approximately 8.5 pounds per gallon.

### **No. 465 Regular unit:**

Hardener: 1 - bottle includes 0.33 lbs.

Liquid: 1 - pail includes 16.5 lbs.

Aggregate: 3 - 55 lb. bags

Unit weight is approximately 181.8 lbs.

### **No. 465 Large unit:**

Hardener: 1 - bottle includes 0.66 lbs.

Liquid: 1 - pail includes 33 lbs.

Aggregate: 6 - 55 lb. bags

Unit weight is approximately 364.3 lbs.

## CLEAN-UP

All equipment should be cleaned by scrubbing with a stiff brush and acetone or MEK at the end of each working period or when build-up becomes pronounced.

## SHELF LIFE

Sauereisen No. 465 and 550 Liquid and Hardener have a shelf life of three months and No. 560 has a shelf life of six months when stored in unopened, tightly sealed containers in a dry location at 70°F. Shelf life of the Aggregate component is one year. If there is a doubt as to the quality of the materials, consult a Sauereisen representative.

## CAUTION

Consult Material Safety Data Sheets and container label Caution Statements for hazards in handling these materials.

## WARRANTY

We warrant that our goods will conform to the description contained in the order, and that we have good title to all goods sold. WE GIVE NO WARRANTY, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH HEREIN. We are glad to offer suggestions or to refer you to customers using Sauereisen cements and compounds for a similar application. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of nonconforming goods at our factory or, at our sole option, to repayment of the purchase price of nonconforming goods.

- Distributors and agents in major cities throughout the world. Consult manufacturer for locations.**
- Information concerning government safety regulations available upon request.**
- Sauereisen also produces inorganic compounds for assembling, sealing, electrically insulating and grouting.**

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