



NOVOLAK VINYL ESTER FIBRELINE NO. 440

Sauereisen Novolak Vinyl Ester FibreLine No. 440 is a fiber-filled lining used for the chemical-resistant construction or rehabilitation of structures common to the power, pulp & paper, and petrochemical industries. Typical applications are the protection of sumps, ducts, tanks, containment areas, trenches, walls, and other support columns or bases. No. 440 is specifically formulated for vertical and overhead applications over concrete and steel.

The FibreLine system utilizes Sauereisen VEPrime No. 550 or Hi-Temp Primer No. 560 as bond enhancing primers depending on the service temperature of the environment. For applications that require a smoother surface texture, a topcoat of Sauereisen VEGlaze No. 472 is recommended.

CHARACTERISTICS

- Novolak vinyl ester polymer offers superior chemical resistance.
- Fast chemical set - less down time.
- Strong bond to concrete and steel.
- Low permeability.
- High temperature resistance for flue gas environments.

AREA PREPARATION

Temperature of Working Area

Maintain a temperature of 60°-85°F on air, substrate, Hardener and Resin components during mixing, application and cure. The monolithic components and substrate should be maintained at 65°F to 80°F for 48 hours prior to beginning work.

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.

PHYSICAL PROPERTIES

Application time	
Working time at 70°	30 minutes
Initial set at 70°F	2 hours
Components	2 parts
Coefficient of thermal expansion	1.59 x 10 ⁻⁵ /F° (2.9 x 10 ⁻⁵ /C°)
Compressive strength (ASTM C-579)	7,800 psi (548.4 kg/cm ²)
Flexural strength (ASTM C-580)	5,200 psi (365.6 kg/cm ²)
Maximum service temperature	
continuous exposure	350°F (176.6°C)
intermittent or flue gas exposure	400°F (204°C)
Permeability (ASTM D1653)	1.75 x 10 ⁻¹ Perm-inch (2.54 x 10 ⁻¹⁰ g/m·s·Pa)
Shrinkage	<0.4%
Tensile strength (ASTM C-307)	2,600 psi (182.8 kg/cm ²)
Thickness (WFT)	80 mils (2.0mm) WFT = 74.7 mils DFT
Volume Solids	93.4%

*** All values at 7 days unless specified***

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.

In extreme temperatures it may be necessary to postpone the application or to apply during cooler hours.

Surface Preparation

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

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

New Concrete - Abrasive blast, high-pressure water blast, or acid etch 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. All structural cracks must be repaired.

Abrasive blast, high-pressure water blast, or acid etch concrete to remove laitance and to obtain a uniform, sound substrate.

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 conditions, repeat surface preparation procedure.

Metal - Abrasive blast to a nominal 2.5 mil profile employing SSPC-SP5 White Metal Blast for immersion and SSPC-SP10 Near White Blast for other service conditions. All welds must be continuous, free of flux and have a smooth rounded radius or be ground flat without any sharp edges or protrusions.

EXPANSION/CONTROL

JOINTS

When installed over concrete or masonry, joints are to be provided on 20 foot centerlines, around all fixed objects and 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 recommendations.

APPLICATION

Mixing

VEPrime No. 550 and NovolaK FibreLine No. 440 are each packaged in premeasured containers consisting of Hardener Part A and Resin Part B which must be mixed together before use. Individual components should be remixed before combining. The following procedures are applicable to the mixing of both products.

Completely empty contents of Hardener Part A into Resin Part B container. Using a slow-speed drill motor with a "Jiffy" type blade, mix for a minimum of three minutes until thoroughly blended.

Mix only complete batches. Material which has begun to set must be discarded. Do not try to retemper the material.

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.

If No. 561 Zinc Filler is to be added, the Filler must be kept absolutely dry and at a temperature of 60-80°F. Slowly add 5 lbs. of Zinc Filler to each gallon of No. 560.

Care must be taken to avoid entrapping air which will contain moisture. The Zinc will rapidly settle out if not kept continually agitated at slow speeds.

Do not use wooden tools or implements as the moisture in the wood will react with the No. 560.

Installation

VEPrime No. 550 - Apply primer to a thickness of 5-10 mils using a short nap roller with a non-degradable core or a nylon brush. For more information on VEPrime No. 550, consult the specific Sauereisen data sheet.

Hi-Temp Primer No. 560 - 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 on concrete, application of 5-8 mils wet is suggested. On steel apply at 5-6 mils wet using No. 561 Zinc Filler.

No. 561 must be kept absolutely dry and at a temperature of 60-80°F. Slowly add 5 lbs. of Zinc Filler to each gallon of No. 560 to avoid entrapping air which will contain moisture.

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.

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Trowel - Material should be delivered to finishers and spread in a thin layer onto a mortar pan immediately after mixing. Do not let mixed material remain in the mixing vessel. Spread the material with a trowel to a wet film thickness of 40 mils.

All troweling and backrolling must be completed within 30 minutes from mixing.

Spray - Application by spray should be done in two coats, with a thickness of 40 mils each. This will result in a dry film thickness of approximately 63 mils. Allow a minimum of four hours between coats at 70°F. If 24 hours elapses before the application of the second coat, sand the surface, solvent wipe and remove any debris prior to re-coating. Application should be done with a 50% overlap in a "cross hatch" pattern to reduce the possibility of pinholes and to assure complete coverage.

If spray application is chosen, contact Sauereisen for complete details on equipment requirements. The following equipment is typically used for spray application:

Mastic pump - FibreLine may be sprayed with a minimum 45:1 piston-primed, airless pump such as the model formerly manufactured by Graco. The current specifications for new equipment is the Graco 56:1 King Piston Primed Airless, Model 236-477. Remove filter from surge tank. Remove cage above lower ball valve located near "foot" (lower end) of pump. Other pumps may be suitable, depending on job site requirements.

Gun - Graco's pistol grip Flo-Gun, Model 235-628 is preferred. This gun should be combined with Adapter Model 235-006. Alternatively, the Graco Flo-Gun Model 224-991 is acceptable.

Gun tip - For fiber filled linings, use a Graco Reverse-a-Clean™ housing part No. 222-674 with an orifice of 0.039 to 0.043 inches. For unreinforced coatings, the 0.039 inch tip works best. In either case, the diffuser should be removed prior to use.

Material hoses -

- ◆ 6' whip end, 3/8" i.d.; working pressure 5,000 psi, 16,000 psi burst.
- ◆ 0-25' overall, 1/2" i.d.; working pressure 4,000 psi, 16,000 psi burst.
- ◆ 25-75' overall, 3/4" i.d.; working pressure 4,000 psi, 12,000 psi burst.

Air compressor - 180ft³ per minute at 100 psi, minimum.

Air hose from compressor - 3/4 to 1 inch i.d.: 100 feet maximum length to mastic pump.

COVERAGE

VEPrime No. 550

260 ft² per unit at 6 mils wet film thickness, resulting in a dry thickness of approximately 5 mils.

Hi-Temp Primer No. 560

320 ft² per one gallon unit at 5 mils wet film thickness, resulting in a dry thickness of approximately 3 mils.

NovolaK FibreLine No. 440

1 gallon unit

40 ft² per unit at 40 mils wet film thickness, resulting in a dry thickness of approximately 37 mils per coat.

2.5 gallon unit

100 ft² per unit at 40 mils wet film thickness, resulting in a dry thickness of approximately 37 mils.

All coverage data is theoretical and will vary depending upon surface conditions, porosity, application techniques and project specific conditions.

SETTING/CURING

VEPrime No. 550 may be topcoated after 12 hours at 70°F. If the duration before topcoating exceeds 24 hours, apply another coat of primer.

Hi-Temp Primer No. 560 will dry to the touch in approximately 45 minutes to one hour at 70°F. Recoating should occur no sooner than two hours after application. Must be topcoated within 24 hours. If the duration exceeds 24 hours, consult Sauereisen to discuss proper solvent-wipe procedures. NovolaK Vinyl Ester FibreLine No. 440 will take an initial set in two hours at 70°F. Do not allow water or chemicals on the material surface for a minimum of 24 hours.

For temperatures below 70°F, cure a minimum of 72 hours prior to water or chemical exposure.

PACKAGING

VEPrime No. 550 is packaged in a one gallon Regular Unit that contains:

Regular Unit:

Part A Hardener

0.067 pounds in a 2 ounce bottle

Part B Liquid

8.9 pounds in a 1 gallon can

Hi-Temp Primer No. 560. Packaged in a one gallon can. Material weight is approximately 8.5 pounds per gallon.

Zinc Filler No. 561. Packaged in a one quart can (mix ratio is 1 qt. Zinc Filler to 1 gal. of Hi-Temp Primer). Material weight is approximately 5 pounds.

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Unitized packaging includes:

Gallon Units:

Part A - Hardener

0.09 lbs. in a 4 ounce plastic bottle

Part B - Liquid (Resin)

12.55 lbs. in a 2-1/2 gallon metal pail

Regular Unit (2-1/2 gallon unit)

Part A - Hardener

0.22 lbs. in a 4 ounce plastic bottle

Part B - Liquid (Resin)

31.37 lbs. in a 5 gallon metal pail

* Containers are filled by weight, not volume. Approximate weights for the gallon and 2.5 gallon units are 12.64 pounds and 31.59 pounds, respectively.

CLEAN-UP

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

SHELF LIFE

Sauereisen Vinyl Ester FibreLine No. 440 and VEPrime No. 550 have a shelf life of three months. Hi-Temp Primer No. 560 has a shelf life of six months. Zinc Filler No. 561 has a shelf life of one year. Store in unopened, tightly sealed containers in a dry location at 70°F. Avoid freezing. If there is a doubt as to the quality of the materials, consult a Sauereisen representative.

LEGAL NOTICE

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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.

Sauereisen also produces inorganic compounds for assembling, sealing, electrically insulating and grouting.

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