



# Vetorep ER355

High strength, abrasion resistant epoxy based repair mortar

## Uses

- Repair of concrete elements in industrial applications where chemical resistance is needed.
- Reinstatement of structural elements where minimum shutdown time is required.
- Acid tanks lining, sea walls repair, industrial floors repair.
- Horizontal and vertical repairs.

## Product Description

Vetorep ER355 is a three component epoxy based thixotropic solvent free and fast strength development repair mortar. Once components of the kit are mixed the products becomes a high strength abrasion resistant that can be built up to 50 mm in horizontal repairs in one go. Shall higher build up of thickness in a single vertical application be required; the use of Vetorep ER356 shall be considered.

## Advantages

- Rapid strength development commissioning in 2 days, full cure in 7 days.
- Chemically resistant mortar.
- Superior bond to a wide range of substrates.
- Compatible with most coating and topping types.
- Abrasion resistant for heavy duty applications.
- Cures in damp conditions.
- Provides a waterproof repair.
- Structural grade - high ultimate strength.

## Standards Compliance

- EN 13062:2003
- EN 1504:2013
- EN1992:2006

## Design Criteria

Vetorep ER355 shall be applied in a checkerboard fashion, at a minimum thickness of 5 mm. The use of Vetorep ER355 in a single layer shall conform to:

- Horizontal concrete repair up to 50 mm.

## Technical Data

Vetorep ER355	Typical Values@ 20°C
Volume of Solids	100%
Working life	45 minutes
Fresh Mixed Density	Approximately 1.8 kg/ltr
Compressive Strength ASTM C579, 7 days	75 MPa
Tensile Strength ASTM C579, 7 days	10 MPa
Flexural Strength BS 6319, Pt3	20 MPa @ 28 Days
Bond Strength	> 2 MPa (Concrete Failure)
Fresh mixed Density	2 Kg/L (fully compacted)
Initial Hardness	24 Hours
Full Cure	7 Days
Water Penetration DIN1048	Nil
VOC Content ASTM D2369	<10 gm / Liter (LEED Compliant)
Working temperature	> 12°C

Continuous immersion chemicals	Concentration %	Resistance
Hydrocarbon Fuels	100	Resistant
Sodium Hydroxide	50	Resistant
Sulphuric Acid	10	Discoloration
Hydrochloric Acid	25	Resistant
Phosphoric Acid	50	Discoloration

## Usage Instructions

### Surface Preparation

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae.

Roughen the surface and remove any laitance by light scabbling or grit-blasting. Saw cut or cut back the extremities of the repair locations to a depth of at least 5 mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 5 mm up to the sawn edge.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a bright conditions paying particular attention to the back of exposed steel bars. Grit-blasting is recommended for this process. If lost area of steel is less than 25% then compensate for the loss, shall the lost steel are be higher than 25% then completely replace the reinforcement steel.

### Priming

Horizontal substrates should be primed using Vetoprime EP490. The primer should be mixed in the proportions supplied, adding the entire contents of the 'hardener' tin to the 'base' tin. The two components should be thoroughly mixed together for 3 minutes.

The mixed primer should be scrubbed well into the prepared substrate, taking care that all imperfections in the surface are properly coated and avoiding 'pudding' in depressions. If the primer is absorbed within 30 minutes, a second coat should be applied before continuing. Vetorep ER355 can be applied as soon as the primer has started to gel but still has surface 'tack'. This is normally between 30 minutes and 2 hours dependent on the ambient and substrate temperatures. If the primer cures hard, a second application must be made before application of Vetorep ER355. The usable life of the mixed primer is approximately 60 minutes at 20°C or 30 minutes at 35°C.

### Mixing

Care should be taken to ensure that Vetorep ER355 is thoroughly mixed to produce a fully homogeneous trowellable mortar. Vetorep ER355 must be mixed mechanically. The 'hardener' and 'base' components must be stirred thoroughly to disperse any settlement before mixing them together. The entire contents of the 'hardener' container should then be emptied into the 'base' container and thoroughly mixed for 3 minutes, then emptied into a forced action mixer of adequate capacity. Add the aggregate slowly with the mixer running and continue for 4 to 5 minutes until

all the components are thoroughly blended. Under no circumstances should part packs be used. A slow speed heavy duty drill fitted with a purpose mixer can be facilitated.

### Application

Apply the mixed Vetorep ER355 to the prepared substrate by trowel float, pressing firmly into place to ensure positive adhesion and full compaction. Thoroughly compact the mortar around any exposed reinforcement. In restricted locations, or where exposed reinforcing steel is present, application by gloved hands is an acceptable alternative but, in all cases, the product must be finished to a tight surface with a steel trowel. Vetorep ER355 can be applied in sections up to 50 mm thickness in horizontal locations in a single application and without the use of formwork.

### Thickness Build-Up

Additional build-up can be achieved by application of multiple layers. Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will affect mortar compaction, build and bond.

Where thicker sections are required, the surface of the intermediate applications should be scratch-keyed to provide a suitable surface for subsequent layers. The application of additional layers should follow between 8 and 24 hours at 20°C after the first application. This time should be reduced at higher temperature. Re-priming and a further application of Vetorep ER355 may then proceed.

If sagging occurs during application, the Vetorep ER355 should be completely removed and re-applied at a reduced thickness on to the correctly re-primed substrate.

### Finishing

Vetorep ER355 is finished by the use of a wood float and closed with a steel trowel. The completed surface should not be overworked.

### High temperature working

At ambient temperatures above 35°C Vetoprime EP491 and Vetorep ER355 will have shorter pot lives and working lives. The materials should be stored in the shade or in an air-conditioned environment and should not be applied in direct sunlight.

### Curing

Curing protection is not necessary for Vetorep ER355.

Over-coating with protective/decorative finishes

Vetorep ER355 is extremely durable and resistant to a wide range of acids, alkalis and industrial chemicals and will provide excellent protection to the concrete and embedded steel reinforcement within the repaired locations. The surrounding parts of the structure may

benefit from the application of a protective coating, thus bringing them up to the same protective standard as the repair itself. Saveto recommend the use of Vetotop range of epoxy resin, chemical-resistant, protective coatings.

For surrounding areas not subjected to chemical attack or physical wear, Saveto recommend the use of the Vetotop range of anti-carbonation, anti-chloride protective coatings. These products provide a decorative and uniform appearance as well as protecting areas of the structure which might otherwise be at risk from the environment.

Vetotop epoxy resin protective coatings should be applied within 24 hours. Non-epoxy or urethane Vetotop products should not be applied until the Vetorep ER355 is at least 3 days old. For further advise, consult the local Saveto office.

### **Cleaning**

Vetoprime EP491 should be removed from tools, equipment and mixers with Vetonit Solvent XX400 immediately after use.

### **Limitations**

Vetorep ER355 should not be used when the temperature is below 12°C and falling. Do not mix part packs under any circumstances. Vetorep ER355 should not be used in overhead locations – use Vetorep ER356 for this purpose. Vetorep ER355 should not be exposed to moving water during application. Exposure to heavy rainfall prior to final set may result in surface scour. If any doubt arises concerning temperature or substrate condition, consult the local Saveto office.

### **Packaging & Coverage**

Product	Pack Size	Yield & Coverage
Vetorep ER355	15 liter kits	Yield: 15 Liters/Kit Coverage: 1 m <sup>2</sup> @ 15mm thickness
Vetoprime EP491	4 Liter kits	7 to 12 m <sup>2</sup> / Liter
Vetonit Solvent XX400	4 Liter cans	4 Liters / can

Stated coverage values are theoretical and may change depending on various factors such as nature of substrate and wastage factors.

### **Shelf Life & Storage**

Original sealed kits of Vetorep ER355 has a shelf life of 12 months provided it is stored clear of ground in a dry and shaded temperature controlled place <25°C.

### **Health & Safety**

Vetoprime EP491, Vetonit Solvent XX400 and Vetorep ER355 should not come into contact with the skin, eyes or be swallowed. When using ensure adequate ventilation and avoid inhalation of vapor. Some people are sensitive to resins, hardeners and solvent. Wear suitable protective clothing, gloves, and eye protection. The use of barrier creams provides additional skin protection. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical attention immediately. If swallowed seek medical attention immediately. Do not induce vomiting.

Vetorep ER355 and Vetoprime EP491 are non-flammable. Vetonit Solvent XX400 is flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO<sub>2</sub> or foam. Do not use a water jet.

For further information, refer to the Product Material Safety Data Sheet.

## Additional Information

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Saveto manufactures a wide range of construction chemicals and specialty products for various applications divided into the following product groups:

- Waterproofing.
- Concrete Repair, Grouts and Enhancements.
- Flooring and Coating Systems.
- Wall & Facade Systems.
- Sealants and Joints.
- Renders & Finishes
- Plasters & Masonry.
- Tiling Systems
- Primers & Ancillary Products.
- Specialty Products.

Saveto also provides various technical information such as CAD details, detailed method statements, specification clauses, application manuals, product selectors and technical support both in contractors and consultants offices as well as construction sites.

For further information on these products and systems kindly check our website or contact your local Saveto representative.

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