

SealBoss® 2400 SealGel SLV

Acrylate Injection System

Range of application

Tunnels
Dam Walls
Brick / Block Wall Injection
Underground Garages
Sewers & Shafts
Water Purifying Installations
Water Tanks Septic Tanks
Drinking Water Reservoirs

Honeycombed Concrete
Earth Retaining Walls
Shrinkage Cracks
Expansion Joints
Construction Joints
Honeycombed Concrete
Pipe Penetrations Joints in
Precast Concrete Segments

Super Low Viscosity Poly Acrylate Gel Injection

The SealBoss® System Advantage

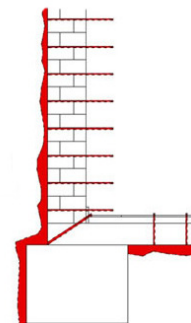
Product



Pump



Packers



SealBoss 2400 SealGel is an environmentally friendly injection gel

The gel's ultra low viscosity provides outstanding properties in curtain / bladder injection by sealing along the structure as well as solidifying the soil in the proximity of the structure.

The product also penetrates extremely well into the finest cracks and fissures thereby sealing hairline cracks and porous structures such as masonry, cementitious grouts, blocks and brick.

Areas of application are numerous including the sealing of tunnels, shafts and canal systems, retaining and structural walls, expansion joints, cold joints and cracks.

Type of material

2 comp. hydrophilic poly acrylate gel with accelerator

Penetrates better than water due to ultra low viscosity and low surface tension

Product swells upon contact with water

Essentially Non-Toxic

Cleans with water

Properties

SealBoss® 2400 SealGel SLV is a high-grade, polyacrylic, ultra low viscosity injection gel with excellent sealing qualities. The material is characterized by its high flexibility, strength and tolerance for movement. The gel can be adjusted for reaction times from approximately 15 seconds to several minutes at room temperature. At 68°F / 20° C and standard adjustment (5% of powder B in water, by weight), SealBoss® 2400 will flow freely for approx. 25 seconds after mixing and will be fully gelled after approx. additional 50 seconds. This standard gel time allows for an excellent material distribution and an ideal spreading rate in most applications.

To meet specific jobsite needs, the gel time can be adjusted by a wide range by adding more or less of the component B powder to the water side of the batch. Higher ambient and product temperatures accelerate the reaction time, lower temperatures slow it down. Please see the table at the end of this data sheet for detailed gel time data.

SealBoss® 2400 reacts to form a waterproof, flexible, but solid gel with outstanding adhesion to dry and wet mineral surfaces. In a moisture-vapor saturated environment the material remains stable in volume. In the case of alternating dry and wet periods, the gel will shrink and swell reversibly. The cured gel is insoluble in water and hydrocarbons and resistant to diluted acids and alkalis as well as to most salts frequent in concrete structures.

SealBoss® 2400 has good resistance to alternating frost and thaw cycles.

Mixing Of Components

Components A1 and A2 are mixed in container A (5gal for full batch)

Component B and water are mixed in container B (5gal for full batch)

For reasons of storage stability, component A is supplied in two separate containers (A1 and A2 accelerator). Mix component A1 and A2 which are provided according to the required mixing ratio of 20:1 (parts by weight) immediately before use. Empty the smaller container of component A2 completely into the larger container of component A1. Then mix the components thoroughly with a suitable mixer. Component A is sensitive to light and must be stored protected from direct light for good shelf life.

Component B is a powder concentrate and must be mixed with water on site immediately before use. Component B is an oxidizer and can corrode metals other than quality stainless steel. Component B (powder + water) should be mixed in a plastic container of equal capacity of mixture A. Add the amount of water required for dissolving the powder component B (approx. 5 gallons for a complete batch by adapting the level of liquid of container with component B to that of component A) and mix with a wooden, plastic or stainless steel agitator until the powder is completely dissolved.

After mixing, apply the material with a 2-comp. stainless steel injection pump such as IP 2C-Gel Pump) at a mixing ratio of 1:1 (A:B, parts by volume).

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Preparation

Prior to the injection work the condition of the structure and soil behind the structure should be examined to assess the injection strategy. Placement of drill holes, packer types, gel time adjustments and material consumption per drill hole should be considered prior to product application.

While the objective of the injection with **SealBoss® 2400 SealGel** is generally the creation of an injection curtain / bladder behind the structure, the product offers additional benefits. The super low viscosity permits the gel to penetrate into fine pores and fissures of the structure itself. The product seals voids, cracks and honeycombed areas in poured concrete, shotcrete and grout imperfections in masonry brick and stone wall structures. The low viscosity allows capillary forces to soak up material even at very low injection pressures.

Injection Procedure

Apply the freshly mixed components A and B at a mix ratio of 1:1 (parts by volume) with a suitable 2-comp. pump such as the **SealBoss® IP2C Injection Machine**.

Three common injection procedures:

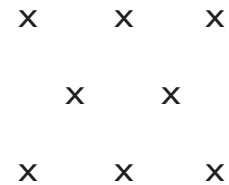
1. Curtain Injection Or Bladder Injection

The objective in curtain/bladder injection is to achieve a waterproofing barrier or membrane on the water side (outside) of the building. This is typically done by injection from the inside of the structure. As gel will spread out along the outside wall it will also penetrate into the soil and stabilize and waterproof it as an additional benefit in the waterproofing process. After drilling the holes in the correct pattern, injection packers are installed. The type of packer depends on factors such as expected injection volume, type and condition of the structure.

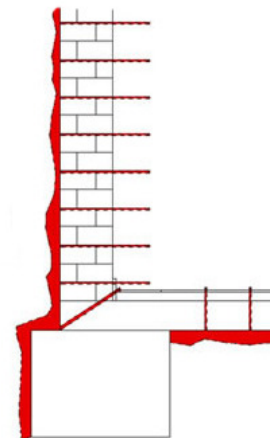
SealBoss supplies the right packers for your needs. Common are button head fittings for secure connection of the grout line. It is recommended to install packers in a fashion that material travel can be observed by permitting to leave some drill holes unplugged to see material "ooze out" in a process called port to port travel. Gel emergence from adjacent drill holes is a good indicator for continuous coverage of product which in return indicates that a complete and continuous curtain is being created. It is recommended to inject **SealBoss® 2400** from bottom to top, beginning at the lowest drill-hole. However there can be reasons to deviate from this standard procedure such as a large cavity behind a certain injection area. Thanks to the short reaction time and excellent adhesion to minerals, a sealing gel curtain forms behind the building. The gel also penetrates shrinkage and settlement cracks as well as mortar joints in brickwork thereby sealing the structure itself. Continue the injection procedure for each drill hole until the emergence of material or the gel formation in the adjacent drill holes is observed or until the material spreading rate calculated on the basis of the soil analysis has been reached for each drill hole. Be aware that a prior assessment of the soil is only an indicator and not a guarantee that enough product has been injected. Soil properties may vary largely behind a structure and the consumption rate may have to be increased depending on the volume of open pores in the adjacent soil and the structure itself. The reference value for the gel's consumption rate can vary from approx. 1-15gal/square yard or 5-60 kg/m². Strongly cohesive, very dense soil will provide a low consumption rate while sandy soil or even large rocks behind the structure increase consumption.

In the case of extreme cavities and voids, the injection of a hydrophobic foam such as SealBoss 1510 might be advised prior to gel injection. This procedure should be discussed with a SealBoss technician.

Horizontal bladder injection under the slab/floor requires generally closer spacing of the injection grid as gravity will assist the material in soaking into the soil below and the natural horizontal spread of gel is decreased.



Positioning and standard distances of drill holes when sealing wall surfaces may vary from typically 12" to 2'.



Schematic view of the working principle of **SealBoss 2400 SealGel**. The gel is injected from the inside of the structure via drill holes.

On the outside it will form a sealing gel curtain. The material also penetrates into fissures and pores forming an additional water stop inside the structure.

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2. Gel injections Directly into Porous Structures

SealBoss® 2400 can be used as a post construction horizontal watertop when injected directly into the structure. This procedure works especially well for thick walls as found in older buildings made from brick and natural stonework, also called stone walls. Prior to the injection procedure it may be necessary to patch the joints and visible cracks in the wall area of the injection surface. Vary drill holes from horizontal drilling to drilling downward at 30-45° angles. This technique will allow for increased gel penetration. The drill-hole diameter depends on the type of injection packers to be used. A **SealBoss** technician will advise you accordingly. The drill-hole depth should cover approx. $\frac{3}{4}$ of the wall thickness- do not drill all the way through. If equipped, blow compressed air through the drill holes. Then install and tighten the mechanical packers. Use a suitable 2-comp. pump to inject the mixed **SealBoss® 2400** preferably from bottom to top, beginning at the lowest drill-hole level. Continue until injection gel starts emerging from the adjacent packers or the port area is saturated and the adjacent cracks, joints and pores are closed. The consumption rate depends on the pore structure, existing cavities and cracks. The average consumption rate may rate in the area of approx. 0.5-5gal/square yard at 20" wall thickness, 2-20 kg/m² at 50 cm wall thickness.

3. Sealing Of Construction And Expansion Joints In Below Grade Structures:

In areas where moist soil and/or pressing water are always present, **SealBoss® 2400** may be used as a sealant for leaking construction and expansion joints of moderate to moderately large movement. The joint edges must permit good adhesion between injection material and substrate. The injection should be done with a suitable 2-comp. pump such as the **SealBoss® IP2C Injection Machine**. The joint must be completely filled. The consumption rate depends on the open joint volume and the structure of the adjacent soil.

Cleaning Procedure

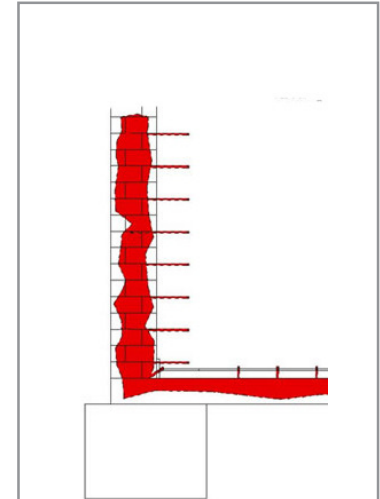
The packers can be removed immediately after gel formation. After dismantling the packers, remove all gel from the drill holes/drill-hole walls down to approx. 6" /10 cm, and fill these with appropriate mortar/grout. For cleaning of the **SealBoss® IP2C Injection Machine** please refer to the manual. Clean the injection pump and equipment exclusively with water and possibly soap. Rinse them thoroughly with water any time work is interrupted for a longer period of time and after use. For more detailed information, please refer to the operating instructions of the pump. Remove gel residue mechanically from the equipment immediately after use.

SealBoss® SealGel SLV Complete System Solution Advantage

SealBoss® provides the professional acrylate gel injection system to ensure streamlined application procedures and permanent results. All components of the system have been carefully selected to assist the injection contractor in his task.

The **SealBoss® IP2C Injection Machine** utilizes high quality stainless steel pump design to ensure the acrylate gel will never be in contact with unsuitable metals. The equipment features a water flush pump to clean the line immediately following the injection procedure.

The **SealBoss® Injection Packer System** offers packer designs specifically engineered for acrylate gel injection.



Schematic view of the gel's effect in brickwork. The injection gel is distributed between bricks, joints, cavities and cracks through the drill-holes. The bottom drill-holes level acts as a water stop against capillary rising dampness.

The SealBoss® System Advantage

Product



Pump



Packers



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