

SealBoss® 2400 Applications

Water Stop Foam for infiltrating & gushing water:

- Tunnels, Dams, Soil Stabilization
- Brick Structures, Block Wall, Defective Concrete
- Sewers, Shafts
- Waste Water Tanks, Water Reservoirs
- Sewers, Manholes, Utility Boxes
- Pipe Penetration Joints
- Precast Concrete Segments

Product Description

SealBoss® 2400 SealGel SLV Acrylate is an environmentally friendly, super low viscosity, two component hydrophilic polyacrylate gel with accelerator. The product offers outstanding penetration properties similar to plain water. The SealBoss® 2400 SLV Acrylate flows extremely well into the finest cracks and fissures thereby sealing hairline cracks and porous structures such as masonry, cementitious grouts, blocks and brick. The product is suited for curtain / bladder injection by sealing along the structure as well as solidifying the soil in the proximity of the structure.

The applications of this product are vast and include sealing tunnels, shafts, canal systems, retaining walls, structural walls, expansion joints, cold joints, and cracks. If the product is uncured, it can be easily rinsed with water. This product is designed for professional use.

Properties

SealBoss® 2400 SLV Acrylate 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 SLV Acrylate 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 SLV Acrylate 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 frequently found in concrete structures. SealBoss® 2400 SLV Acrylate has good resistance to alternating freeze and thaw cycles.

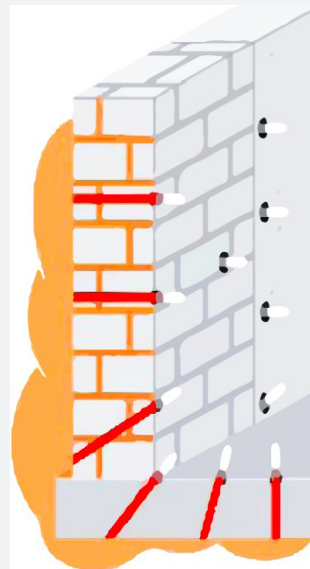
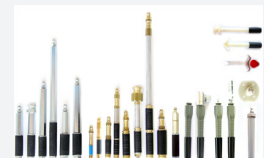
Advanced Polyacrylate Gel Injection System

SealBoss® 2400 Advantages

- SealBoss® Product-Pump-Packer System Solution
- Cleans and Flushes with Water
- Liquid Components Unregulated For Transport
- Advanced Strength Formulation
- This Product is for Professional Use

SealBoss® 2400 System

- SealBoss® IP2C Gel Injection Pump
- SealBoss® 2400 SealGel SLV Acrylate
- SealBoss® Packer System



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.

x x x
x x
x x x

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



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 SealBoss® IP2C Gel Injection Pump at a mixing ratio of 1:1 (A:B, parts by volume).

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 a common use of SealBoss® 2400 SLV Acrylate is to create 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 Gel Injection Pump.

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 the 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 some drill holes to be 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 SLV Acrylate 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 structure. 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. 1-15 gal /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 WaterStopFoam might be advised prior to gel injection. This procedure should be discussed with a SealBoss® technician.

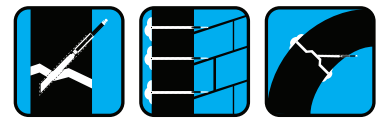
Horizontal bladder injection under the slab/floor requires generally closer spacing of the injection grid as gravity will assist the material in soaking into the soil below and the natural horizontal spread of gel is decreased.

2. Gel injections Directly into Porous Structures

SealBoss® 2400 SLV Acrylate can be used as a post construction horizontal waterstop 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, vacuum out the drill holes and install and tighten the mechanical packers. Use a suitable 2-comp. pump to inject the mixed SealBoss® 2400 SLV Acrylate 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 range from 0.5-5gal/square yard at 20" wall thickness (2-20 kg/m² at 50 cm wall thickness).

SealBoss®

2400 SealGel SLV Acrylate



Product Data Sheet

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 SLV Acrylate 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 Gel Injection Pump. The joint must be completely filled. The consumption rate depends on the open joint volume and the compaction 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 Gel Injection Pump 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® 2400 SealGel SLV Acrylate

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 their task.

The SealBoss® IP2C Gel Injection Pump utilizes high quality stainless steel pump design to ensure the acrylate gel will never be in contact with unsuitable metals. The equipment features a built in 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.

Safety Precautions

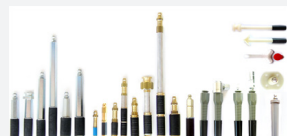
OSHA safety regulations and safety data sheets are to be observed at all times when working with SealBoss® 2400 SLV Acrylate. In accordance the safety data sheets must be accessible to all persons responsible for occupational safety, health protection and the handling of materials. Wear protective clothing, safety gloves, and goggles during the application of the material and when cleaning the equipment. The use of a suitable skin care cream is recommended. In case of contact with skin, wash with soap and water. In case of contact with eyes, rinse immediately with an eye bath of water and seek medical advice at once. Do not allow the mixed material to enter drains or soil.



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.

SealBoss® 2400 System

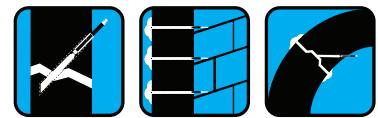
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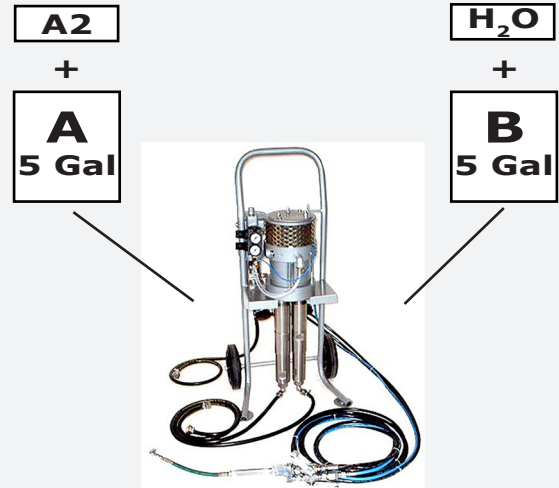


Product Data Sheet

SealBoss® 2400 SLV Acrylate Reaction times (approx.) as function of component B at various application temperatures (component/material) These gel times serve as a basis for the gel adjustment on site. They must be adapted to the actual local conditions according to gel quantity, water content, flow behavior and nature of the building structure.

B in ~ 20l / 5 gal water	Viscosity Increase		Reaction time			
	22°C 70°F	10°C 50°F	22°C 70°F	10°C 50°F		
120g ~ 0.5%	120	330	105	480	sec	
245g ~ 1.0%	60	180	90	300	sec	
490g ~ 2.0%	40	90	60	180	sec	
740g ~ 3.0%	30	60	50	120	sec	
1000g ~ 5.0%	25	55	35	105	sec	
1950g ~ 7.5%	17	40	25	75	sec	

Combined Batch Size Per Kit 10 Gal



Technical Data

Type of material	2-comp. polyacrylate gel with (A2) Accelerator	
Density (20°C)	Comp. A / A2 A1: approx. 1.2 g/cm³ A2: approx. 0.95 g/cm³	Comp. B approx. 1.0 g/cm³ (dissolved in water)
Color	A1: Amber A2: Colorless	Colorless
Viscosity	A1: approx. 25 cps A2: approx. 25 cps	Approx. 1 cps
Viscosity of mixture	Approx. 5-7 cps	
Mixing ratio	A1:A2 20:1 parts by weight A:B solution 1:1 parts by volume	B:water Approx. 5% solution
Reaction time (70°F/22°C)	Typical 20-40 sec, approx. depending on mixing ratio	
Application temperature	> 40°F or 5°C	
Application	2-comp. pump SealBoss® IP2C Gel Injection Pump	
Storage	At 40-85°F, 5-25°C in original, sealed containers, moisture & light protected, 1 yr shelf life	
Packaging	Comp. A1: 4.7 gal, Comp A2: 0.3 gal, Comp. B: 1 kg	
Typical Batch Size	Comp A1+ A2 = 5 gal, Comp. B + Water = 5 gal, total batch size per kit 10 gal	



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