SealGuardII


# SealGuard II Information Pack

SealGuard II

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SealGuard II

## Prevention of Infiltration

A powerful polyurethane product, injected for the prevention of infiltration.

Presented with high flow leakage through virtually any substrate, SealGuard II is injected directly into the flowing water, and reacts in under 3 seconds - infiltration is instantly stopped in its tracks and the void is rapidly filled, without any absorption of water.

The product is ideal for manholes, meter pits, culverts, bunds or any concrete structure that needs to be dry; either for its own purpose or prior to a long term repair.

The cured polyurethane product performs well with all but the most severe solvent or chemical attacks, such as from highly concentrated nitric or sulphuric acid. Furthermore, in comparison to the cement alternative often used SealGuard II stops leaks at a fraction of the cost of traditional methods - quickly, easily, and permanently.

## Background

The SealGuard II system was developed by a US Company called SealGuard Inc who partnered with Source One Environmental to supply the product into the UK, Europe and Australia.

SealGuard's reputation has grown to recognition as a manufacturer of the "Right Product At The Right Time." For many years, a need has existed for water control products, which combine total effectiveness, convenience, ease of use and economy. The product has a history in the USA going back almost 20 years with over 800 successful projects with zero failure.

SealGuard II's primary use is for water control in both above and below ground structures. Industries that currently utilize SealGuard include Wastewater, Telecommunications and Electrical Utilities. The company is aggressively pursuing these markets and has patent approval in the U.S.A.

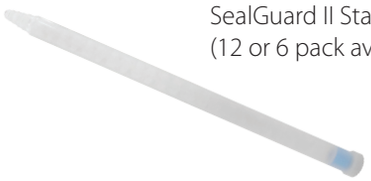
The product fits perfectly into the existing range of Source One Environmental systems where our ethos is to supply high quality tried and tested products with an aim to Prevent, Preserve and Protect.

SealGuard II

## SealGuard II Products

| Product Code | Description |
|---|---|
| SGKITST | SealGuard II Starter Kit |
| SGRE12 | SealGuard II Refill Kit - 12 pack |
| SGRE6 | SealGuard II Refill Kit - 6 Pack |
| HF5G | SealGuard Hyperflex Grout 19L |
| HF12 | SealGuard Hyperflex Grout 12 pack |
| HF6 | SealGuard Hyperflex Grout 6 pack |
| CGUNPN | SealGuard II Dual Component Pneumatic Gun |
| CGUND | SealGuard II Dual Component Manual Gun |
| MXP12 | SealGuard II Premier Static Mixers 12 pack |
| MXP6 | SealGuard II Premier Static Mixers 6 pack |
| X-SEAL12 | SealGuard X-Seal 12 pack |


SealGuard II Refill Kit
(12 or 6 pack available)



SealGuard II Static Mixer
(12 or 6 pack available)

SealGuard II Starter Kit

SealGuard II Manual Gun

SealGuard II Pneumatic Gun


Hyperflex Grout 19L


Hyperflex Grout
(12 or 6 pack available)


X-Seal (12 or 6
pack available)

SealGuard II

## Key features and benefits

- Will cure through flow rates of up to 3 litres per second + .
- Injection into the finest of fractures, rather than just covering them up.
- Will reconstitute, even in flowing water, unlike other materials which can be susceptible to washout.
- Achieves 900 psi (>60 bar) compressive strength.
- Cure within seconds, meaning work can continue almost immediately.
- 100% solids , no added fillers.
- A structurally reinforcing waterproof sealing system.
- No harmful VOCs or CFCs.
- Contains no solvents.
- Excellent in confined spaces.
- Excellent adhesion to wet substrates.
- Excellent resistance to $H^2S$ attack.
- Excellent for marine and costal applications.
- Fast to apply, services quickly back in use, reduced associated major costs on over pumping compared to other systems.
- Does not support algae or bacterial growth.
- Patented delivery system ensuring consistent quality and safety.
- Non toxic.
- Structurally reinforces and waterproofs.
- Bridges and fills cracks and voids.
- Very high chemical resistance.
- No primers required.
- 2 year shelf life.
- Minimal waste.

SealGuard II

## Frequently asked questions

**1. What is the Source One Environmental SealGuard II system?**
SealGuard II is the most highly reactive two-component hydrophobic polyurethane water stop system in the market.

**2. Is the product safe?**
Yes, the polyurethane resin is 100% solids with no VOCs (Volatile Organic Compounds) or CFCs (Chlorofluorocarbon)

**3. How long does it take to react?**
SealGuard II is an extremely fast reacting (1-3 seconds, dependent on temperature), rapid sealing, and high early-strength material.

**4. Where can the system be used?**
The SealGuard II system is suitable for many applications including:

- Manholes/Chambers
- Slurry Walls
- Sewers
- Dams
- Tanking
- Reservoirs
- Tunnels
- Mining
- Settlement Tanks
- Coastal
- Pumping Chambers
- Aquaducts
- Culverts
- Food plants
- Processing Plants
- Breweries
- Pumping Stations
- Underground transport systems
- Chemical/Fuel/Petrol Plants
- Bunds
- Storage Tanks
- Marine applications, on board and off shore

**5. What materials can SealGuard II repair?**
SealGuard II has excellent bonding facilities to a variety of materials including:

- Concrete
- Wood
- Brick
- PVC
- Steel
- Glass fibre
- Vitrified & Clay Pipes
- Asbestos
- Cast Iron

**6. Is there any material the polyurethane resin does not bond with?**
No. However, in the event of the presence of grease, a complete cleaning progress should be carried out to remove the grease before applying SealGuard II.

**7. Does the substrate need to be dried out before application commences?**
No. The resin can be injected into flowing water and will reconstitute, unlike other materials which can be susceptible to washout.

**8. Is there any preparation required before installing SealGuard II?**
Size the hole at 16mm (5/8"). Simply drill, insert the patented static mixer and inject (see installation instructions).

**9. How is the resin applied?**
The SealGuard II is quick and simple to apply; once the drilling is complete and the static mixer is in place, the SealGuard II is injected from either a caulking or pneumatic gun (a compressor is required for a pneumatic gun).

**10. What industries are likely to have a use for the system?**
SealGuard II is suitable for a whole range of specialist industries including:

- Utilities
- Marine off and on shore
- Chemical
- Mining
- Food Processing
- Power Generation
- Pharmaceutical
- Water and Sewerage
- Rail network (tunnels and underground)

**11. Can SealGuard II be used to reinforce badly deteriorated structures?**
Yes, the SealGuard II epoxy resin system will significantly reinforce badly deteriorated structures. Example – a brick structure reduced to 20% efficiency can be brought back to 100% of its original strength.

**12. Does the SealGuard II polyurethane resin repair have a life expectancy?**
Polyurethane has been used around the globe since World War 2. Although testing is unavailable, 1000 years would not be unrealistic.

**13. Is the SealGuard II system suitable for potable water?**
Although deemed safe, there is no NSF approval (Hyperflex however does have NSF approval).

**14. Is the resin, once installed, fire resistant?**
There is a flame retardant version available on request. Polyurethane is self extinguishing.

**15. How long does the repair take to cure?**
Less than 3 seconds.

**16. How long does it take to repair a typical leak from start to finish?**
A typical leak in a manhole, along with preparation, would take no longer than 15 minutes.

**17. What temperature will the SealGuard II withstand once cured?**
Continuous temperature durability is 200° Centigrade (392° F) and 250° C intermittent (482° F).

**18. Are there any storage requirements for the kits?**
Yes. The product is moisture sensitive and should be sealed and stored at normal room temperatures.

**19. Are there any special disposal requirements?**
No. All packaging and contents can be disposed of as domestic waste.

**20. What happens if I don't use all the resin in the cartridge?**
Simply reseal and store within the shelf life of the product.

**21. What is the shelf life of the product?**
2 Years

**22. What temperature does the mixed resin reach?**
300° F (149° Centigrade) once mixed. The nozzle is made of nylon, which is resistant to high temperatures.

**23. Does SealGuard II have a high chemical resistance?**

The system performs well with all but the most severe solvent or chemical attacks, such as highly concentrated nitric or sulphuric acid. See chart below:

| Chemical Resistance Chart for Cured Polyurethanes | |
|---|---|
| **Chemical** | **Resist.** |
| Acetone | P |
| Ammonium Hydroxide Concentrate | G |
| Ammonium Hydroxide 10% | E |
| Ammonium solphate 2% | E |
| Anylacetate | G |
| Benzene | E |
| Benzene Choride | E |
| Brine Saturated | E |
| Brine10% | E |
| Butarol | E |
| Butylacetate | G |
| Carbon Tetrachloride | E |
| Diesel Oil | E |
| Diisobutylene | E |
| Diisobutylketone | E |
| Ethylacetate | F |
| Ethyl alcohol | G |
| Ethylene Glycol 100% | G |
| Formaldehyde | G |
| Gasoline | E |
| HCl 25% | E |
| Hexane | E |
| Hydrochloric Acid Concentrate | G |
| Hydrochloric Acid 10% | E |
| Hydrogen Slphide 100% (wet) | E |
| Isopropanol | E |
| JP-4 Fuel | E |

| Chemical Resistance Chart for Cured Polyurethanes | |
|---|---|
| **Chemical** | **Resist.** |
| JP-5 Fuel | E |
| Kerosene | E |
| Linseed Oil | E |
| Methyl Alcohol | G |
| Methylene Chloride | F |
| Methyl Ethyl Ketone | P |
| Mineral Spirits | E |
| Motor Oil | E |
| NaOil 25% | E |
| Nitric Acid Concentrated | S |
| O. Chlorobenzene | G |
| Orthodichlorobenzene | E |
| Potassium Chlorate 5% | E |
| Potassium Hydroxide 1% | E |
| Sodium Hydroxide Concentrate | E |
| Sodium Hydroxide 10% | E |
| Styrene | E |
| Sulfuric Acid Concentrate | S |
| Sulfuric Acid 10% | E |
| Toluene | E |
| Trichloromonoflouromethane | E |
| Trichloroethylene | G |
| Turpentine | E |
| Varsol | E |
| Water | E |
| Zylene | E |

Key to Table:
E= Excellent
G= Good
F= Fair
P= Poor
S = Severe solvent or chemical attack

## SealGuard II compared with Hyperflex

**1. What are the main differences between HyperFlex and SealGuard II?**
The most visible difference is the appearance of the packaging. SealGuard II is a dual component material in side by side caulking tubes. The two components mix together in our patented mixer assembly and react with each other very quickly – in one to three seconds. SealGuard II is recommended for situations where there are very rapid or higher pressure inflows into the structure.

HyperFlex, on the other hand, is a single component, pre-catalyzed material. As the description implies, single component means it need not be mixed with anything else prior to use. All it needs is about 2% water to begin the reaction. HyperFlex reacts much more slowly than SealGuard II (30 seconds or so) and is designed to stop slower flowing, weeping cracks and joints. Since it reacts more slowly, HyperFlex has more time to flow through the entire leak path before reacting, giving a very complete watertight, hermetic seal.

**2. What makes HyperFlex the only product of its type in the market?**
We must first discuss the two main types of polyurethane grout. ***Hydrophilic*** grouts incorporate water into the foam they create upon reaction. This water helps to keep the foam inflated. When the water source goes away (such as in an extended dry spell) the grout dries out and shrinks. When the water returns the grout re-expands, but only to 85-95% of its former volume. As you can imagine, repeated dry – wet cycles and the associated shrinking and re-expansion will eventually lead to leaks.

***Hydrophobic*** grouts do not incorporate water into the foam created upon reaction; they in fact expel it from the area. Since there is no water in the reacted material it will not shrink over time, allowing for the formation of a permanent non-shrinking watertight seal. All Hydrophobic materials require something to catalyze them and start the reactions. For dual component urethanes like SealGuard II, the act of mixing the two components together will begin the reaction.

For all competing single component hydrophobic materials, it is necessary to mix in a separate catalyst prior to use. This catalyst is expensive and very difficult, especially in the field, to mix evenly throughout the grout. This will lead to hot spots, where too much catalyst is present and cold spots which are under catalyzed. Hot and cold spots cause differential reaction, where not all of the grout reacts and cures at the same rate. The result of this is the creation of potential leak paths into the structure. In addition, once catalyst is added, all of the material must be used or disposed of as it cannot be re-used.

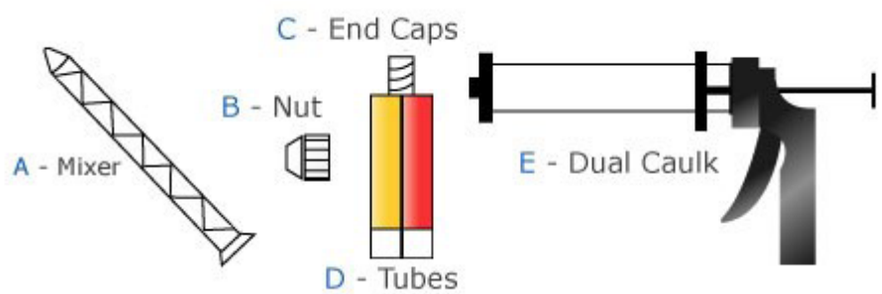
HyperFlex is a single component, Hydrophobic grout. What is different is that our proprietary formulation incorporates catalyst into the grout during its manufacture. All it needs to begin its reaction is a small amount of water (about 2%). There is no mixing of catalyst, no shrinking, and unused portions of a pail or tube may be re-used at a later time. In short, HyperFlex offers the best of all worlds, offering a true single component material requiring no mixing while offering a permanent, non-shrinking watertight seal.

**3. What kinds of situations would call for the use of HyperFlex, instead of a faster reacting material like SealGuard II?**

HyperFlex can be used for crack injections in both walls and floors, leaking cold joints between poured concrete or pre-cast sections, water ingress between the wall and floor junctions in basements, swimming pools, septic tanks and just about any situation of water infiltration into a concrete or brick structure. As a single component material it is more cost effective than dual systems and also requires no special tools other than a standard caulking gun and a drill with a 13mm bit.

## Installation Instructions

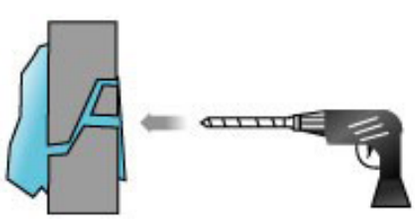
SealGuard II is a dual component hydrophobic polyurethane water stop system designed to stop high infiltration in precast or brick lined structures. SealGuard II is highly reactive (1-3 seconds) and can stop leaks in cessation of high (3,000 GPM+) flow.  SealGuard II is pumped under pressure with a caulking gun and can be injected into flowing water.




1. Slide (Nut) B over (Mixer) A thread end first.
2. Drill 16mm diameter hole to intersect leak path.
3. Tap A+B into hole until snug.
4. Prepare gun by pulling back plungers on E (dual caulk gun), insert D (tubes) while holding vertical, remove C from threaded end of tubes.
5. Quickly align threads on D (tubes) with B (nut) and tighten to secure.
6. Pump gun vigorously to expel grout to refusal or seal. If grout is washing out either pump slower or stop pumping and watch grout until it reacts halfway down A (mixer) then quickly give a pump to expel and repeat.

1.

2.



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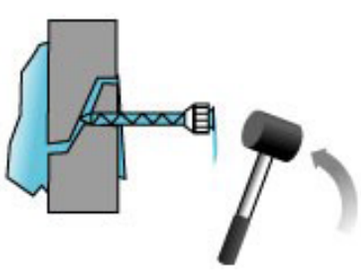

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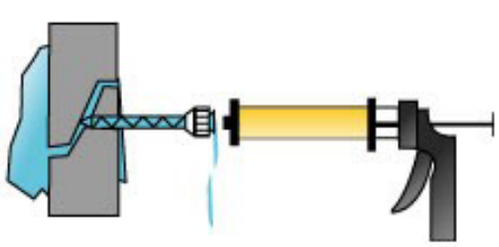

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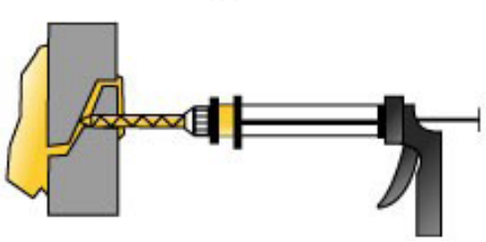
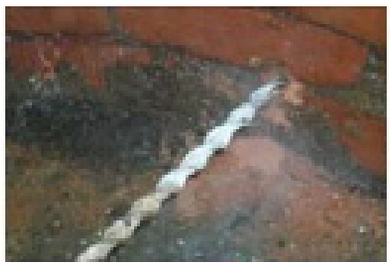


SealGuard II

## Example of a brick application

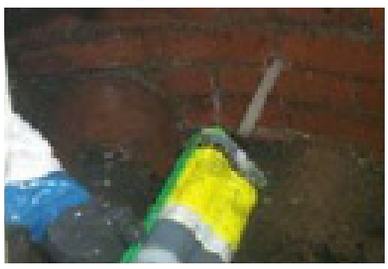
Mars, PA, Brick manhole



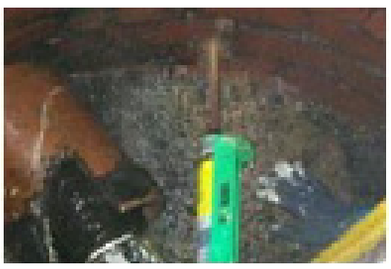
Drilling of 16mm hole

3 litres/second infiltration

Insertion of static mixer

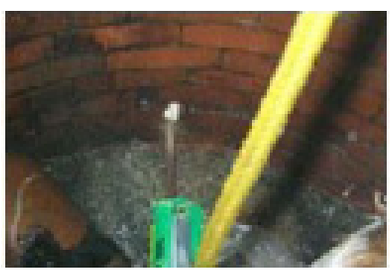


Connecting caulk gun to mixer



Material begins to react in mixer

Initial washout



Reaction

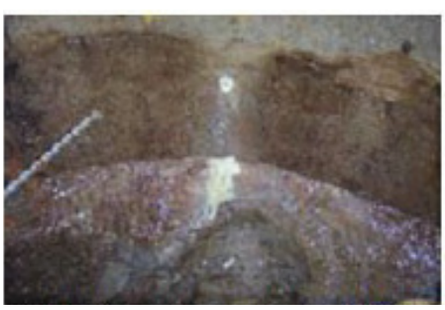
Water 100% sealed

## Example of a barrel joint application

Deteriorating barrel joint with infiltration

Results after drilling 16mm hole

Insertion of static mixer at joint



100% complete seal of joint 360°
- 2 sets of SealGuard II

S1E

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