

Frequently Asked Questions

1 Q How do you know you are applying a sufficient amount of Gel-Seal Waterproofing (GSW or Gel-Seal) product while spraying?

- A** You should visually observe **Gel-Seal** wetting the concrete to the point of flowing on the surface. Simply misting the surface without saturation will not be effective. Avoid puddling by redistributing with a broom or squeegee. Be sure to flood visible cracks.
- The average application rate is 150 to 200 sqft per gallon.
On 8,000 psi concrete, **Gel-Seal** can cover up to 320 sqft per gallon.
On cement blocks and other porous concrete the application rate can be as low as 60 sqft per gallon of product.
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2 Q What happens if it rains during, or shortly after, a Gel-Seal application?

- A** Watch the forecast and the sky. It is critical that **Gel-Seal** has absorbed into the concrete through capillary action and become dry to the touch.
- If rain falls on wet **Gel-Seal**, re-treatment will be required after the concrete has become dry.
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3 Q How soon can you open the GSW treated concrete to traffic?

- A** As soon as the surface is visually and touch dry you can open the area to all forms of traffic. This will usually be in 1 to 2 hours, but depends on drying conditions and how fast the **Gel-Seal** absorbs into the concrete.
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4 Q What are some other important things to know in order to have a successful Gel-Seal application?

- A** We will list a few things here that you should be careful of. These items may be covered in more detail in answer to other questions.
The surface must be clean...no sealers, curing agents, paint, coating, form release oils or dirt, grease, etc.
The concrete should be sound...remove unsound concrete prior to treating with **GSW**.
The concrete must be dry (except for freshly poured concrete).
The concrete needs to be a Portland cement mix, capable of leaching calcium.
Avoid concrete with Type F fly ash.
Low-pressure spray application is best.
Avoid overspray on glass, tile, aluminium and painted surfaces.
- Pour and squeegee application method may be used when the surface is full of hairline cracks. Always check what might need to be protected in areas below the work area should the **GSW** leak through large cracks.
The concrete, **Gel-Seal** and air temperature should all be above 40°F at time of application and the temperature should not fall below 35°F within the first 24 hours of application.
Do not apply when the temperature is over 90°F or when excessively hot, sunny and windy.
Always stir or agitate the liquid prior to application to avoid settling out of active ingredients.
Fill large, visible cracks and spalled areas with **Accuflex Concrete Restorer or Road/Runway Patch** as appropriate after treating with **Gel-Seal**.
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Frequently Asked Questions

5 Q Where should you not use or apply Gel-Seal to concrete?

A Gel-Seal is generally suited to all "above grade" applications including water holding vessel applications. **Gel-Seal** should not be applied on any concrete surfaces where the surface or cracks have been contaminated with water-repellent or sealer materials. If water cannot absorb in then neither can **Gel-Seal** as its chemical reaction with cementitious concrete is impeded.

For concrete older than 28 days, **GSW** requires capillary suction into near-dry concrete. **GSW** should not be applied to wet concrete be it simply surface-damp or have water permeating through it as found in "below grade" structures. **Crystal growth materials are better suited to these applications** (e.g. Accuflex's Crystal Matrix Waterproofing).

6 Q How deep does Gel-Seal Waterproofing penetrate?

A Gel-Seal Waterproofing contains a surfactant that liquefies (wets) and enhances penetration of the reactive ingredients deep into the concrete in order to achieve a sub-surface seal. The sub-surface seal is a self-repairing internal membrane in cementitious concretes.

Gel-Seal has shown 2"+ penetration in porous and soft concretes/mortars. Tests show that **Gel-Seal** penetrates 0.4" to 0.6" into highway specification concrete on bridge decks and railings. That same penetration is expected in parking structures.

7 Q What happens if the concrete cracks after achieving a watertight treatment applying GSW?

A If the concrete is cementitious in nature (calcium leaching prone) new cracks up to 0.04" will self-heal within a day or two during rain periods. Water reactivates the **Gel-Seal** and it will grow as the crack itself grows.

In essence **Gel-Seal** remains reactive in concrete repairing any future cracks or tears providing the concrete has free calcium and wetting periods for regrowth.

8 Q How does Gel-Seal prevent salts and other contaminants from reaching the steel reinforcements?

A Gel-Seal uses water to waterproof in the same way Volclay (volcanic bentonite clay) reacts. Only, instead of being on the surface, **Gel-Seal** is creating the same barrier within the first few millimeters of **Gel-Seal** penetrated concrete. In 5,800 psi concrete **Gel-Seal** will penetrate

approximately 0.5" and provide a waterproofing barrier extending from approximately the top (outer) 2-3mm (0.08-0.12") down to its full penetration. Water and salt penetrating the first 2-3 mm of concrete should not affect properly placed reinforcing steel at 0.8" or deeper.

Frequently Asked Questions

9 Q Does Gel-Seal increase the durability of concrete?

- A** Once **Gel-Seal** is applied to sound, cementitious concrete the structure should never leak and the steel should never rust, although attack from the underside of such untreated areas may occur, and future large cracks could cause a need for another treatment with **Gel-Seal**.
- Gel-Seal**-treated areas will permanently prevent freeze/thaw and de-icing salt damage. The penetrated zone increases in hardness from 6 to 8 on the Mohs scale; 8 being equivalent to granite.
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10 Q What about temperatures during and after application of Gel-Seal?

- A** **Gel-Seal** must be applied above 40°F to ensure there is no moisture frozen inside the concrete to be treated. Additionally, you should not apply **Gel-Seal** when the temperature is expected to fall below 35°F within 12 hours of application.
- Gel-Seal** should not be applied over 95°F or in hot, windy and sunny conditions as the product may atomize into the atmosphere and dry on the concrete surface prior to penetration. Once **Gel-Seal** has been properly applied, temperature becomes irrelevant, making it suitable for sub-zero or high-heat applications.
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11 Q Can coatings be placed over Gel-Seal?

- A** **Gel-Seal** is a water-activated material. Therefore water-based paints and water-based acrylic membranes should NOT be placed over **Gel-Seal** treated concrete. If you are using water-based acrylic membranes for detailing, complete this work first on the concrete structure, allow to fully cure then proceed with **Gel-Seal** waterproofing. The only other warning on coatings is to avoid alkyd line marking paints. These paints are designed to sit on the surface of the concrete with minimal absorbency into the concrete.
- As **Gel-Seal** has reduced the absorption "factor" substantially, line-marking paint will tend to sit even more on the surface and be more prone to delamination. Your options in this case are to do the line marking prior to the **Gel-Seal** application or, ideally, apply **Gel-Seal** to the entire area then use a solvent-based paint for line marking. All coatings, either cementitious coatings, solvent or oil-based paint and coatings, will suffer no loss of adhesion on **Gel-Seal**-treated concrete.
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12 Q Can Gel-Seal damage building materials?

- A** As **Gel-Seal**, like concrete itself, has a high pH (11.7) **Gel-Seal** contact with aluminum, glass, glass-glazed tiles should be avoided.
- Be sure overspray does not make contact with such materials – and avoid contact with car paintwork.
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Frequently Asked Questions

13 Q Can Gel-Seal harm the environment?

- A** **Gel-Seal** is one of the most environmentally safe waterproofing technologies ever to be developed. **Gel-Seal** is certified for use in all potable water applications and, in addition, is utilized in salt-water marine aquariums.
- Salt-water creatures are amongst the most sensitive of all when it comes to the impact of toxin leaching, should any toxins in materials be present.
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14 Q Is Gel-Seal suitable for waterproofing all types of concrete?

- A** **Gel-Seal** will produce lifetime waterproofing on all cementitious concrete mix designs. Suitable concretes include OPC, PPC ash-free blends, Type C ash blends and slag blends - also micro silica blends limited to 5% cement replacement. Avoid pozzolanic concrete mixes with more than 5% replacement of cement. Experience shows that these concrete mixes containing large amounts of either Type F ash addition (e.g. 20%)
- or Volcanic ash lead to matrix lock up of free calcium in concrete thus impeding **Gel-Seal** from sealing any cracks which may occur in the future. **Gel-Seal** cannot compete for free calcium if it simply does not exist!
NOTE: Admixtures in the concrete mix designed to block pores/reduce permeability of the concrete can limit the penetration and, therefore, effectiveness, of **Gel-Seal**.
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15 Q Is Gel-Seal similar to a crystal growth product?

- A** **Gel-Seal** is often compared to crystal growth materials, however, they are totally different technologies. Crystal growths produce rigid crystals to block water molecules. Therefore crystal growths used on high thermal stress, "above grade" applications are doomed to failure in the short term unless thermally insulated. By comparison **Gel-Seal** forms an amorphous gel inside the concrete and cracks present. The gel can be cyclically opened and closed in watertight cracks up to 1.3mm (0.05") in width,
- tolerating a 0.4mm (0.016") opening and closing cycle without leakage through the slab. This is the sort of high thermal stressing tolerance which crystal growth suppliers can only dream about. Notwithstanding this fact crystal growth materials do offer the ideal lifetime waterproofing solution for low thermal stress applications such as all below grade thermally insulated applications as well as water holding vessels. Superior Coating Specialists supplies "Crystal Matrix Waterproofing" to satisfy specifications for the crystal growth product.
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Frequently Asked Questions

16 Q How does Gel-Seal compare to sealer materials such as silanes, siloxanes and methylmethacrylates?

A Gel-Seal not only replaces all currently known above grade membrane applications but also, by default, becomes world's best concrete protection technology. Generic sealers such as silanes, siloxanes, methylmethacrylates and even silicates can only deliver general concrete protection without again addressing the weakest point – the cracks present.

Sealers are most often used as a general preventative for freeze/thaw damage, ingress of airborne pollutants and some protection from de-icing salts.

You will find that a 2-coat specified, 100% solids content silane will be substantially more expensive at an applied price than a single **Gel-Seal** lifetime waterproofing application. The other products should be reapplied every 2-3 years.

17 Q Is Gel-Seal compatible with other waterproofing products used as expansion joints or penetrations detailing etc.?

A As **Gel-Seal** produces calcium silicate hydrate (CSH) gel all concrete products will adhere to **Gel-Seal** treated concrete. However, as **Gel-Seal** is activated by water

indefinitely, if you are utilizing water-based acrylic membranes for detailing work, then this detailing should be completed prior to **Gel-Seal** application.

18 Q What happens if a leaking crack continues to leak after a Gel-Seal application?

A One of great features of **Gel-Seal** is that if a leak is present at the practical end of an application the matter can be easily addressed. Unlike a membrane application where water can be tracking underneath, with a **Gel-Seal** application one can go straight to the offending crack for remedial treatment.

In some instances just more water creating more **Gel-Seal** growth will alleviate the situation, or another application of **Gel-Seal** may work. A very stubborn crack may require a silicone bead seal underneath so **Gel-Seal** can be flooded into such a crack then further watered to achieve a 100% watertight result.

19 Q What sort of equipment is required to apply Gel-Seal onto concrete?

A Small applications can be undertaken using a low-pressure backpack garden spray unit realizing 1,700sqft per hour of application.

For larger jobs an agricultural tank with on demand pump hooked up to a mechanical motor will deliver 8,600sqft per hour per unit.

Frequently Asked Questions

20 Q Will Gel-Seal prevent Radon gas emissions through basements?

A All silicate materials will reduce radiation permeation through concrete. Field-testing has demonstrated the **Gel-Seal** product's ability to substantially reduce Radon transmission.

However due to the health concerns surrounding Radon emissions **Gel-Seal** does not release test results on this application nor do we recommend **Gel-Seal** as a complete fix.

21 Q Will Gel-Seal change the appearance of concrete either after application or in the long term?

A When **Gel-Seal** has been applied to concrete and allowed to dry, a trained eye will notice a slight increase in sheen given off by excess surface silicates.

Over the long term there will be no visual changes whatsoever including any form of discoloration.

22 Q How should concrete be cured prior to Gel-Seal application?

A In all instances water-curing practices which guarantees no form of concrete contamination are recommended.

If curing agents are applied they will require removal by water blast or grit blast for **Gel-Seal** penetration to occur.

23 Q Can you use Gel-Seal on an existing topping slab that leaks?

A Obviously **Gel-Seal** waterproofs all cementitious concretes including reinforced topping slabs. **Gel-Seal** will waterproof the actual topping, water paths can remain under the topping. Wind driven rain may enter from outer edges. Water may also enter from untreated deck interfaces with parapet walls or unprotected openings such

as electrical conduits. Only treat topping slabs at your own risk, fully understanding the intrinsic problems which may be encountered post **Gel-Seal** application due to other unknown problems existing under the topping.

24 Q Does Gel-Seal entrap moisture in concrete?

A No, **Gel-Seal** is a breathing system which allows for moisture vapor outgassing while preventing both the ingress of water molecules

and pollutants from reaching any steel reinforcement.

Frequently Asked Questions

25 Q Does Gel-Seal promote fungal growth (mold) on treated concrete?

- A** As **Gel-Seal** is a high pH product (11.7) **Gel-Seal** will prevent or deter fungal growth occurrence.
In damp shaded areas where fungus will eventually grow on **Gel-Seal** treated concrete removal is extremely easy given the spores are unable to enter the concrete matrix.
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26 Q Apart from a low-cost, lifetime waterproofing result, does Gel-Seal deliver other tangible construction benefits?

- A** Other tangible benefits derived from utilizing **Gel-Seal** can be both significant and varied.
- Low cost application – **Gel-Seal** can be applied very fast when compared to traditional membrane detailing work.
 - Fast Track Construction – Often in wet climates the need to have all moisture removed from the concrete prior to placing a non-breathing material over the top can add significant time delays. By comparison **Gel-Seal** can be applied as soon as the concrete surface is visually dry.
 - No Mechanical Damage – Once applied **Gel-Seal** cannot be damaged by other trades on site.
 - Low Risk – All too often perfect membrane applications can be damaged by other trades leading to cross-arguments concerning guilty parties with a probable outcome of everyone losing out to some degree.
 - Major Savings on Construction and Engineering – For example car park **Gel-Seal** applications go straight onto the structural slab. Alleviating the need for a structural-topping slab saves time, money and engineering requirements. The same is true for rail bridges where topping slabs over the waterproofing are not required as ballast stones can be placed straight over the **Gel-Seal** treatment of the structural slab.
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27 Q Can Gel-Seal be used in a negative pressure situation?

- A** Yes, but only provided that the area to be treated is totally dry upon application to allow capillary absorption to take place on the negative side prior to water moving back from the positive side. This is generally why crystal growth products are specified in negative pressure side applications as the crystals will migrate against the positive side water pressure.
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28 Q Can Gel-Seal be applied over a crystalline growth product that has failed?

- A** Yes, quite often crystal admixtures which have been inappropriately applied above-grade continue to form cracks which do not re-seal and continue to leak. **Gel-Seal** can permanently repair such failed sites providing it is working with cementitious concrete mixes.
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Frequently Asked Questions

29 Q What is the shelf life of Gel-Seal?

A Even with half empty containers providing the lid is secure from air intrusion **Gel-Seal** maintains unlimited shelf life.
Product should always be mixed prior to application.
Similar in fashion to some paints, the solids in

Gel-Seal (particularly the heavy silicates settling out of solution) will settle in the base of the drums.
Proper mixing will see these solids re-dispersed through the **Gel-Seal** solution.

30 Q Gel-Seal relies on free soluble calcium within concrete to create its watertight chemical reaction – what can you do with very old slabs that have leaked for many years depleting all the soluble calcium?

A You can reinstate this lost calcium by dissolving “fresh” builders lime in water and applying to cracks prior to **Gel-Seal** application.
Builders lime must be sourced fresh as oxidized lime will not actively dissolve.
Handling lime can be quite dangerous, as hot aggressive and alkali corrosive action will occur.

ALTERNATIVELY – you may apply calcium acetate as the food or trigger for **Gel-Seal** to replace the lost lime in concrete.
Calcium acetate must be “food quality” acetate as used in baking process and which can usually be obtained from a wholesaler of raw materials to the food industry.
