

Husqvarna Polished Concrete - HiPERSEAL

OVERVIEW

1. A combination of three different technologies (machines, chemicals and polishing diamonds) to produce a truly high performance flooring option.
2. HiPERSEAL Is a system that can be offered when a client requires greater sealing properties than HiPERFLOOR can offer. Contractors can offer a HiPERSEAL floor as an alternative to HiPERFLOOR, when the concrete doesn't polish to the desired finish. Weather from poor quality cement, low MPA floors and light weight aggregates.
3. Being an acrylic sealer, the floor can be burnished to increase gloss level and remove damage (like scratches and scuff marks).

TECHNICAL INFORMATION

1. A silicate (HiPERHARD™) is applied to the concrete surface to react with the Calcium Hydroxide (also known as free lime) that is formed during the production of concrete (when the cement reacts with water).
2. The product formed during this reaction is Calcium Silicate – a crystalline / glassy structure. It forms in the pores of the concrete near the surface and is the main contributor for increasing the surface hardness of the concrete. The increased surface hardness enhances the concrete's abrasion resistance (it is already naturally abrasion resistant).
3. The combination of calcium silicate forming in the concrete along with polishing of the concrete ("closing-up" the surface) has the following added benefits:
 - A non-dusting surface is produced.
 - The surface tension of the concrete is increased, therefore making the surface less prone to absorption (via capillary action).
 - The aesthetic properties of the surface are significantly improved.
4. HiPERGUARD Acrylic must be applied to the surface at the end of the process to make the concrete significantly more resistant to fats, oils, water and acids. HiPERGUARD Acrylic coats the surface preventing absorption into the concrete.

HiPERGUARD Acrylic provides the following benefits:

- Being water based acrylic sealer, it is low in VOC and will not discolour or yellow like epoxy or polyurethane.
- Can enrich the colour of the concrete.

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THE PROCESS

Revealed / Exposed aggregate floors:

1. Coarse grind the concrete with either 20 or 30 grit diamond to expose the aggregate (a full set of diamonds should be used to establish a flat floor). The appropriate metal bond selection is critical to economic diamond tooling costs and labour productivity. Wet grinding may also be appropriate.

2. Remove first step scratches with 60 grit diamonds (again a full set should be used). If the concrete seems to have significantly more holes than usually expected you can grout at this stage with 60 grit diamonds, (grouting process explained in step 3) this will ensure that all holes will be filled once you have completed step 3 with the 120 grit diamonds.

3. Remove second step scratches with 120 grit diamonds (either a half or full set can be used as floor will be flat from steps 1 & 2) and combine grinding process with GM3000™ filling compound as follows:

i. Wet the concrete to remove the “suction” / absorption from the concrete floor.

ii. Apply GM3000™ to the floor using a broom. Approximate usage should be 5L per 5m². Begin with 5-10m² only.

iii. Whilst still wet, run the machine with 120 grit diamonds through the wet GM3000™ (if using the Husqvarna PG 680 or PG 820, set heads in opposite directions with DISC SPEED set to 5 and HEAD SPEED to 5). The GM3000™ will combine with the dust being created by the 120 grit diamonds and be forced into holes created by air-bubbles and pulled-out aggregates.

iv. When using GM3000™, work in areas of 5-10m² (50-100 square feet) until a feel for the process has been established and allow to dry before continuing with step 4.

4. Apply HiPERHARD™ liberally with a very soft broom or sprayer. If spraying, ensure to follow with broom so as to work the product into the pores of the concrete. Apply HiPERHARD™ liberally such that the concrete is saturated but puddles are not formed (approximately 1L per 10sqm or 1 gal per 480 square feet).

5. Once HiPERHARD™ has dried, a second application of HiPERHARD™ may be required (as in step 4) if concrete is very soft and still looks porous. Again, spread out any puddling with a soft broom.

6. Allow HiPERHARD™ to totally dry before continuing on to next grinding step. 6 – 12 hours is recommended as a minimum to get maximum cure of product (time will vary significantly with extreme temperatures – for cold environments longer and for warmer environments shorter).

Note:

We recommend application of HiPERHARD™ after the final metal bond step for the following reasons:

- This is because the concrete is most porous after the metal bond diamonds and HiPERHARD™ will penetrate into the concrete best following the metal bond segments. This will ensure the hardest possible surface is achieved.

Note:

We do not recommend removal of wet excess hardener with squeegee or scrubber once it begins to gel-off. For maximum saturation and hardening of the concrete surface, it is our opinion that the hardener should be left in contact with the concrete until totally dry.

This is also a far more user friendly method than having to gather and dispose of liquid waste.

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7. Remove excess dried HiPERHARD™ with 50 grit UltraFloor™ resin bond polishing diamond or 50 grit Cerafloor ceramic bond polishing diamond – apply a thin layer of HiPERHARD™ with a micro fibre applicator about 2-5 metres in front of the machine, insuring that the dried HiPERHARD™ has turned to a gel like state. (If this thin layer is too wet when grinding, excessive wear of the resin pads may be experienced). Ensure excess HiPERHARD™ is totally removed (the presence of excess HiPERHARD™ can be recognised by dark / brown patches on the floor). In its un-reacted state, dry excess HiPERHARD™ can cause the following problems if left on the floor:

- Create brown / dark unsightly marks in the floor when polished by dry resin polishing pads.
- If it comes in contact with water, will reactivate and become very slippery.
- Will cause dull patches in finished product as it will only polish up to a certain level (as it is not hard).

Note:

When polishing concrete, we do not recommend grinding with metal bond diamonds further than 120 grit for the following reasons:

- The cross-over from metal bond to resin or ceramic bond is the most important stage of the polishing process as far as scratch removal is concerned. The longer metal bond diamonds are used, the more chance scratches can be made in the floor by the actual metal bond segment (as opposed to the diamond abrasive in the metal bond segment).
- Resin and ceramic bond diamond pads (generally speaking) have significantly higher production rates than metal bond tools. The sooner one begins with resin bond diamonds, the more efficient the production rate will be.

Note:

We do not recommend the use of metal bond diamond tools once the HiPERHARD™ has been applied for the following reasons:

- Use of metal bond tools by an inexperienced operator can remove too much of the densified surface.
- Metal bond tools are more aggressive than resin bond tools and can further create new holes/pits in the surface.

Once step 7 is completed and the floor does not appear consistent in gloss, a thin or “enhance” layer of HiPERHARD™ can be applied to the floor using a micro fibre applicator. The enhance layer should just be enough to wet the surface of the concrete evenly. As soon as the enhance layer is dry (typically 5-10 minutes), proceed to step 8. (If required you can repeat this process between steps 8 and 9).

8. Continue the polishing process with UltraFloor™ 100 grit resin bond floor polishing pads.

9. Continue the polishing process with UltraFloor™ 200 grit resin bond floor polishing pads.

10. Continue the polishing process with UltraFloor™ 400 grit resin bond floor polishing pads.

11. Apply 2 – 3 applications of HiPERGUARD acrylic sealer using a micro fibre floor sweeper / or fringe mop allowing drying in between applications.

12. Leave to fully cure for at least 1 hour or until touch dry and then buff sealer with red nylon pads under a Polivac floor buffer (or similar) to remove streaking marks and bring to desired gloss level.

13. If gloss level is not achieved, apply another thin coat of HiPERGUARD acrylic sealer allow to dry and buff to the desired gloss level.