

Concrete surface treatments are applied to concrete for both specific and general purposes:

Curing agents – to control moisture evaporation or protect the surface of newly poured concrete until properly cured (permanent membrane forming compounds may function as both curing agent and sealer).

Primers – permanent membrane coatings applied to porous or dusty surfaces on concrete to provide a more receptive substrate for adhesives and flooring. Primers and sealers are also used to block the effects of high surface alkalinity on the concrete surface.

Sealers – permanent membrane coatings used to seal the surface of cured concrete substrates for the purpose of reducing the moisture vapor emission rate.

Bond-breaker compounds - separating slabs poured over another (tilt-up construction) These treatments and compounds are commonly of the following general types:

- Curing agents, sealers, primers:
- Water-based polymer emulsions (latexes of acrylic, SBR, or vinyl-acetate, etc.)
- Solvent-based solutions of acrylic or other polymers and resins
- Aqueous solutions of reactive silicates (sodium, lithium, potassium silicate salts, etc.)
- Epoxy or urethane compounds
- Dissipative resinous compounds
- Bond-breaker compounds: Waxes, fatty acids, oils, silicones, etc.

Recommendations:

Concrete requires proper moisture and temperature conditions for the curing process to reach the level of cure needed to develop full strength and durability. For this to happen, the level of moisture must be maintained at the depth and surface in order for the optimum hydration process to take place. Preferably, this can be accomplished without the use of surface treatments, by spraying or fogging the slab with water or by the placement of saturated wet coverings (such as burlap) to maintain the level moisture during the early hardening process.

When a surface treatment is utilized, however, the stability of XL Brands adhesives with any particular type of existing concrete surface treatment is usually considered more favorable with those based on water-based acrylic emulsions.

XL Brands adhesives should not be used over substrates where solvent-based concrete treatments have been applied. The use of such products may trap residual solvents in the concrete and potentially cause post-installation problems with odors and adverse effects on the adhesive bond.

XL Brands adhesives are not warranted over substrates containing compounds based on reactive silicates, either entrained or topically applied. Treatments described as “dissipative” or “bond breaker” membranes must be removed completely before applying adhesives or installing floor coverings. Pre-installation adhesive bond testing should be conducted over any substrate that has been surface treated to ensure that the installation will be secure. When providing warranties or giving recommendations for XL Brands Adhesives on flooring installations where concrete curing agents or sealers have been used or intend to be used, it is the policy of XL Brands/Bostik to restrict such allowances to existing or proposed treatments on a case-by-case basis, and only of the following description: applied permanent membranes should be a low-VOC (or zero VOC), water-based polymer latex, preferably acrylic. Regardless of any floor preparations, all other conditions and installation guidelines need to be met in regards to pH, moisture level, and other criteria. Also, the floor covering manufacturer’s installation instructions must be followed.

Removal:

Removal of surface treatments on concrete substrates should use mechanical means only: sanding, grinding, bead or shotblasting, followed by scraping, sweeping, and vacuuming, for example. Do not use solvent cleaners or strippers, chemical or surfactant based cleaners that may leave residues that could adversely affect the subsequent adhesive bond.

Silicates

Silicates (metasilicates) are widely distributed as the water-soluble metallic salts of sodium, potassium, or lithium. Most compounds have added surfactants, and may be blended in varying proportions, and are marketed as curing agents, moisture sealers, and hardeners. XL Brands/Bostik does not recommend the use of our adhesives over concrete surfaces containing entrained or topically applied silicates, nor provide any term of warranty for extended adhesive bond with the floor system installation. XL Brands/Bostik does not provide testing, give assurances, or warranty the performance of its adhesives over substrates treated with silicate compounds from various suppliers, either entrained or topically applied. XL Brands/Bostik also does not support any warranty, in full or in part, for use of its products on substrates that have been treated with silicates, in conjunction with any other floor system installation assurances or warranties issued by another party.

Concrete Additives / Admixes / Treatments

There are a variety of concrete additives and surface treatments being used in the construction industry.

1. additives (such as plasticizers, dispersants, thinners, anticorrosives, etc),
2. admixes (latexes, silicates, waxes, polymers, etc.),
3. post-treatments (dissipative and permanent curing agents, sealers, and coatings)
4. surface finishing, burnishing, and polishing
5. use of a variety of aggregates, sand, and pozzolans (fly ash, hadite, slag, etc.)

Concrete additives (and surface treatments) of all types can affect the drying rate of flooring adhesives and their affinity for bonding to the concrete surface. The eventual porosity, alkalinity, moisture retention (in-situ Relative Humidity) and moisture vapor emission rates of the concrete (MVER) rendered by these additives and treatments also affect the adhesive’s long term stability and ability to maintain a good bond. Some of the additives, such as wax dispersions or emulsions that are entrained into the concrete may actually bloom to the surface and act as release agents for any topically applied material, including other sealers, adhesives and even paint.

Bond Testing

A concrete porosity test is used to predict the drying rate and absorption of water-based coatings. This is commonly achieved by pouring a bead of water on the floor and recording the time required for it to be absorbed.

To ensure that a sufficient adhesive bond can be achieved for the flooring installation, a pre-installation adhesive bond test is needed. For this, a small area approximately 2’ x 2’ of floor covering is adhered to the concrete floor using the required installation guidelines, and left for 12 – 24 hours, or until the adhesive has sufficiently dried. If the strength and tenacity of the adhesive bond is then observed and considered to be sufficient, the installation may proceed. If the adhesive peels or releases too easily from the concrete, further floor preparation such as scarifying and bead-blasting will likely be required.

A similar bond test should also be conducted for sealers and other coating applications applied directly to concrete substrates.

This document is provided for informational purposes only and is believed to be accurate and reliable. However, XL Brands/Bostik assumes no responsibility for any errors and is not liable for any damages of any kind resulting from the use of, or reliance on, the information contained herein.