



ST-526

POLY-FOAM ULTRA INJECTION RESIN



INTRODUCTION

Stratathane ST-526 Poly-Foam Ultra is a hydrophilic, single component, 100% solids, flexible polyurethane resin based on MDI for sealing leaks in concrete and masonry structures.

Stratathane ST-526 Poly-Foam Ultra reacts with water and sets into a flexible closed-cell foam. ST-526 is mixed with water at the work site to form a single injection material whose reaction time is governed by the temperature of the mix. ST-526 is odor-free and contains no volatile organic compounds (VOC's). The cured material exhibits excellent adhesion to concrete and is useful for a wide range of water control applications.

The inert end product reacting with water forms a barrier which is essentially unaffected by acids, gasses, and microorganisms usually found in soil or the leak environment. A minimum of reaction water is needed but larger amounts can be accommodated through displacement.

PROPERTIES

Primary physical properties of the cured and uncured ST-526 material are as follows.

- Solids Content - 100%
- Liquid Viscosity - 700 cps +/- 50 cps
- Liquid Color - Translucent Yellow
- Bulk Density - 9.02 lbs / Gallon
- Flash Point - 275 F
- Corrosivity - Non Corrosive
- Cured Tensile - 80 psi +/- 10 psi
- Elongation - 400%
- Dry Shrinkage - <8%

ST-526 is injected directly from the can into the leak using either a single or a plural component high pressure pump. When ST-526 reacts with water, it expands and fills the leak path with an elastic seal that stops water entry but allows crack movement to protect against stress transfer. Concrete repaired with ST-526 will usually not crack again.

EQUIPMENT

Stainless steel pumps and fittings are recommended but not strictly required because the ST-526 is not corrosive. ST-526 may also be placed with twin-cartridge caulking tube systems and a variety of small hand pumps. See Strata Tech technical data on pumping equipment or call for further information.

Cleanup of solidified ST-526 resin material in the grout system is often accomplished with caustic cleaning compounds, making stainless steel advisable. See the information on cleanup below for further details.

The low-viscosity ST-526 mixture is easily injected. Once cured, its impermeability makes it an effective water shut-off system. The permeability of a zone grouted with ST-526 depends on how well its voids are densely filled with grout. Values in the 10-5 cm/sec range should be obtained using ASTM Constant Head Permeability Test Method D-2434.

REACTION

A two stage reaction takes place when ST-526 comes in contact with water. The mixture first expands and quickly thickens. Then, as it cures, ST-526 solidifies into a strong impermeable water barrier in just minutes. Unrestrained ST-526 foam expands up to ten times its starting volume. However, a dense material is preferred for most applications. Greater density is obtained by controlling grout placed relative to void space and static head pressure.

The two stage reaction takes place continuously during injection as product exits the packer. Initial penetration is facilitated by the low viscosity of the mixture. After reaction begins, the expansive mixture pressure induces further penetration of the grout zone depending on the amount of static head pressure. ST-526 creates a seal which is impervious to water yet is able to tolerate freeze-thaw, wet-dry cycling, extrusion, and compression.



CURE

The reaction and set time of ST-526 resin is a function of temperature. At 70 F, reaction time is approximately 30 seconds and cure time about two minutes. The low viscosity of the ST-526 Resin blend allows good penetration into cavities and cracks. After curing, water pressure will not affect the ST-526 resin seal at heads usually encountered in crack injection repair work. It has no preset "pot life" and does not cure as long as water or moisture vapor are not available to start the cure cycle.

TENSILE AND ELONGATION

Test samples were prepared by putting the reacting mixture into a plastic pressure mold and capping the opening. This procedure (per ASTM D-638) resulted in a closed-cell foam with a density of about 30 pounds per cubic foot as compared to a free rise density of about 6 pounds per cubic foot. Measured tensile strength was about 80 psi at 400% elongation. The samples subsequently showed no water absorption after 4 hour immersion. Flammability tests of the same samples showed that combustion self-extinguished when the flame source was removed.

To prevent condensation from forming on the liquid or in the can, the temperature of the ST-526 should be adjusted to match the ambient temperature of the work area. Protect uncured resin during application from exposure to water, moisture vapor, and direct sunlight.

CLEANUP

Cleanup of ST-526 is accomplished with a solvent or with a solvent and a cleaner used in sequence. The preferred solvent is ST-590 Kleen-Purge and the recommended cleaner is ST-522 Veri-Kleen Grout Cleaner. Use ST-590 for the liquid resin and ST-522 for solidified resin.

For seriously clogged systems, push out ST-590 with ST-522 Veri-Kleen Grout Cleaner and follow the instructions for its use. Do not allow ST-590 or ST-522 to remain in the system for long periods. Properly dispose of used cleaning materials and do not reuse if contaminated or resin-loaded. See the various grout pump manuals and the Technical Data Sheets for ST-522 and ST-590 for further information.

ENVIRONMENTAL

ST-526 is essentially non-toxic in its cured form, with an LD50 (rat) in excess of 5000 mg/kg. Freezing either the cured or uncured material is not harmful to the product and may prolong the shelf life of the uncured resin in an unopened container. At temperature below 5 C, crystallization may occur but is reversible without damage to the material by indirectly warming and gently mixing the product.

Stratathane ST-526 contains no measurable amount of TDI as performed by the Modified Analysis for Diisocyanates. ST-526 is non-flammable, non-carcinogenic, and non-corrosive as defined by 40 CFR and as described in the *NIOSH Pocket Guide for Hazardous Materials*.



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STATEMENT

Strata Tech believes that the information herein is an accurate description of the general properties and characteristics of the product(s), but the user is responsible for obtaining current information because the body of knowledge on these subjects is constantly enlarged. Information herein is subject to change without notice. Field conditions also vary widely, so users must undertake sufficient verification and testing of the product or process herein to determine performance, safety, usefulness, and suitability for their own particular use.

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