



ST-536

POLY-ROK VOID FILLING RESIN



INTRODUCTION

Stratathane ST-536 Poly-Rok Void Filling Foam is a two part, solvent-free, MDI-based void-filler and stabilization system. ST-536 Poly-Rok is hydrophobic: it reacts with ST-537 and water to form a strong, light weight, rigid foam.

Stratathane ST-536 contains no measurable amount of TDI as performed by the Modified Analysis for Diisocyanates. ST-536 is non-flammable, non-carcinogenic, and non-corrosive as defined by 40 CFR and as described in the *NIOSH Pocket Guide for Hazardous Materials*.

Stratathane ST-536 Poly-Rok is mixed with ST-537 and water at the work site to become a single injection material. The inert end product forms a water barrier which is essentially unaffected by acids, gasses, and organisms usually found in soil.

Stratathane ST-536 Poly-Rok is useful for a wide range of water control and void filling applications in tunnel and shaft construction and the filling of tanks, pipes, and other subgrade structures prior to their retirement from service.

Stratathane ST-536 may be placed by hand pumps or multi-ratio power pumps. Stainless steel fittings are recommended but not strictly required because ST-536 is no more corrosive than water. Cleanup of solidified material in the system, however, is often accomplished with caustic cleaning compounds, making stainless steel advisable.

The low viscosity of ST-536 makes it easy to inject. Once cured, its impermeability makes it an effective water shut-off system. The permeability of soil grouted with ST-536 depends on how well its voids are filled with grout. Values in the 10⁻⁷ cm/sec range should be obtained using *ASTM Constant Head Permeability Test Method D-2434*.

A three stage reaction takes place when ST-536 mixes with ST-537 and water and foams. The mixture first thickens and becomes creamy. Then, carbon dioxide gas evolves rapidly and the mixture expands as it cures. The expanded volume then sets into a strong impermeable water barrier. Unrestrained foam may expand 10 to 15 times its starting volume depending upon the degree of confinement applied to the expanding mass.

PHYSICAL PROPERTIES

ST-536 contains non-volatile materials making up almost 100% of its total weight. Cured ST-536 is very firm. Its solid is a three dimensional cross-linked molecular structure which is insoluble in water.

ST-536

Appearance	Clear Liquid	
Odor	Slight	
Viscosity	200 cps at 25 C	ASTM D1838
Specific Gravity	1.2 g/cc	
Bulk Density	(9.99 lbs/gal)	
Volatile %	Negligible	
Flash Point	>220 F	ASTM D-93
Solids Content	>99%	ASTM D2832
Metric Volume	45 lbs = 17.02 liters	

ST-537

Appearance	Brown liquid with musty odor
Density	10.3 lbs/gal
Boiling Point	392F (200C)
Freezing Point	Below 32F (0) for MDI
Vapor density	8.5 (MDI) (Air=1)
Viscosity	200 mpa (200 cps) at 25 C
Solubility	Insoluble; reacts with water
Volatile %	Nil
Specific Grav	1.24 at 77F (25C)
Vapor Pressure	0.0001 mbar at 25 C
Flash Point	390.0F (198.8C)ASTM D-93
Ignition Temp	400 C

Set time is the period from first contact of ST-536 with water to the point where the mix becomes too thick for gravity flow. The set time (sometimes called foam time) is influenced primarily by the mix temperature and the ratio of ST-536 and ST-537 to water. Set times are longest at low temperatures and vary a little with the age of the resin and mineral content of the water. The viscosity of mixed ST-536 is lowest for the first 40% to 50% of the set time and increases rapidly as the mix approaches set.



CLEANUP

ST-536 should not stand in equipment more than 12 hours without precautions because of the possibility of moisture contamination. Flush equipment with ST-590 purging fluid and ST-522 Cleaner soon after use. Alternatively, purge grout fluid from pumps and hoses with ST-592 grout purging fluid. The most common solvent for removal of liquid ST-536 is methylene chloride. Check solvents for water content prior to use in long hoses.

When using solvents during cleanup, extinguish all ignition sources and observe proper precautions for handling such materials. For cleanup of cured ST-536, soak in a 100% solution of ST-522 Veri-Kleen Grout Cleaner using a covered polyethylene container. Grout spills on clothing are permanent, so disposable coveralls are recommended.

HANDLING AND STORAGE

Use reasonable care in handling and storing ST-536 and ST-537. The materials are moderately sensitive to high storage temperatures. Under optimum storage of 40 - 60 F in dry conditions, the material should have a useful shelf life of one year. Storage temperature should not exceed 80 F. Once any container has been opened, the life of the material is reduced. Before opening a container, let it stand so that it adjusts to ambient temperature to prevent contamination by condensation. Test a resealed container to assure that moisture contamination has not occurred. Before handling this product, read and understand the Material Safety Data Sheet (MSDS). Instruction in sound safety practices is beyond the scope of this publication.

Direct contact of ST-536 and ST-537 liquids may cause skin and eye irritation. If materials come in contact with skin, wash with soap and water. For eye contact, flush immediately with water and consult a physician. ST-536 and ST-537 must not be ingested. Before eating, smoking or drinking, remove protective clothing, wash with soap and water, and stand away from the immediate work site. Do not smoke while working with ST-536. If respiratory difficulties occur, seek medical attention. Avoid exposure to vapors created from this product when it is heated. Gloves, goggles, respirator and protective clothing are recommended. Ventilate the work area as a matter of good practice, although hazardous levels of toxic vapors are not generally given off of the bulk product below 90 degrees F. Small amounts of MDI may be present and some users may be sensitive to MDI.

Summary of Handling Precautions:

1. Wear goggles and rubber gloves.
2. Wash any body contact area thoroughly with water.
3. In case of eye contact, wash immediately with water and seek medical attention.
4. Keep material away from heat and flame.
5. Ventilate and use respirator in hot or closed spaces.



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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.

Strata Tech warrants only that the product will meet Strata Tech's then-current specification. NO WARRANTY OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. Users should not assume that all safety requirements for their particular application(s) have been indicated herein and that other or additional actions and precautions are not necessary. Users are responsible for always reading and understanding the Material Safety Data Sheet, the product technical literature, and the product label before using any product or process mentioned herein and for following the instructions contained therein. Nothing in this or any other document from Strata Tech is to be taken as permission, inducement, or recommendation to practice any patented invention without a license.

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