



ST-534

LOCK-ROK INJECTION RESIN



INTRODUCTION

Stratathane ST-534 *Lock-Rok Injection Resin* is a low viscosity, MDI-based injection resin for structural soil modification, rock anchoring, groundwater control and soil stabilization applications. ST-534 *Lock-Rok* reacts very quickly with ST-535 in a 1:1 ratio by volume to form a dense, very hard solid.

Stratathane ST-534 *Lock-Rok* is mixed with ST-535 at the work site to form a single injection material. A twin-stream pump is preferred but the material can be bucket-mixed and batch-poured in small quantities for surface gravity feed applications. The inert end product forms a water barrier which is essentially unaffected by acids, gasses, and micro organisms usually found in rock and soil. The product is water-tolerant, and clean dry surfaces are not required for successful applications.

ST-534 *Lock-Rok* is highly resistant to dilution in the grout zone. The fast set time potential of the ST-534 system contributes to its successful application even in cold fast-flowing water conditions. Furthermore, larger amounts of water can be accommodated through physical displacement.

ST-534 *Lock-Rok* is useful for a wide range of water control and soil stabilization applications, including water-bearing soils, soil nails, rock anchors, and the like, especially in applications where high strength is required.

ST-534 *Lock-Rok* may be placed by hand pumps or multi-ratio pumps. Stainless parts are recommended but not strictly required because ST-534 is no more corrosive than water. Cleanup of solidified material in the system, however, is often accomplished with strong cleaning compounds, making stainless steel advisable.

The very low viscosity of ST-534 makes it easy to inject. Once cured, its impermeability makes it an effective and high-strength anchoring and water cut-off system. The permeability of fissured rock or soil grouted with ST-534 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.

SET TIME

Set time for the Stratathane ST-534/ST-535 system is defined as the period from first contact of ST-534 with ST-535 to the point where the mix becomes too thick for gravity flow. Set time for any formulation is influenced primarily by the mix temperature. Custom formulations are available for set times ranging from about 15 seconds up to about 60 minutes. Set times may also vary a little with the age of the resin. The viscosity of mixed ST-534 is lowest for the first 85% of the set time and increases rapidly as the mix nears set.

Additives available for use in the ST-534 *Lock-Rok* system also affect set time. Consult the appropriate tables in the Technical Data Sheet of the additive to determine the set time curves for the particular additive in question.

CLEANUP

ST-590 *Kleen-Purge Flushing Agent* is recommended for cleaning the liquid components from pumps, hoses and tools, but solvents like MEK may also be used. When using solvents during cleanup, extinguish all ignition sources and observe proper precautions for handling such materials. For cleanup of cured ST-534, soak the affected parts in a 100% solution of ST-522 *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-534 and ST-535. The materials are hygroscopic (water absorptive) and moderately sensitive to high storage temperatures. Under optimum storage of 40 - 60F in dry conditions, the material should have a useful shelf life of one year. Storage temperature should not exceed 120F. Once a container has been opened, the life of the material is reduced. Before handling or using this product, read and understand the Material Safety Data Sheet (MSDS). Instruction in sound safety practices is beyond the scope of this publication.

At an 80F ambient temperature, the standard Stratathane ST-534/ST-535 mix initially sets in about 15 minutes and becomes tack free in about 30 minutes. When injected into rock or soil, however, the set time is increased. Cooler temperatures slow down the set time while warmer temperatures accelerate it. Custom formulations are available (subject to minimum quantity requirements) with set times approaching one hour.

Direct contact of ST-534 liquid is essentially nonirritating to the eyes and is not expected to produce any appreciable skin irritation. If ST-534 comes in contact with skin, wash with soap and water. ST-534 should not be ingested, but single dose toxicity is considered to be moderate. Small amounts swallowed incidental to normal handling operations are not likely to cause injury but may cause gastrointestinal discomfort, nausea, vomiting, lethargy, or diarrhea. Avoid exposure to vapors created from this product when it is burned. 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. Small amounts of MDI may be present and some users may be sensitive to MDI.

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PROPERTIES	ST-534	ST-535
Mix Ratio - Volume	1 Part	1 Part
Viscosity @ 75F	220 cps	200 cps
Specific Gravity	1.041	1.237
Density lbs/gal	8.672	10.3

PROPERTIES	ASTM	ST-534/35
Specific Gravity	D-792	1.138
Hardness Shore D	D-2240	>80 D
Tensile Strength (psi)	D-412	>7540
Elongation @ Break	D-412	< 2%
Set Time - seconds		45
Impact, Notched Izod		0.4
Flame Resistance		YES

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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