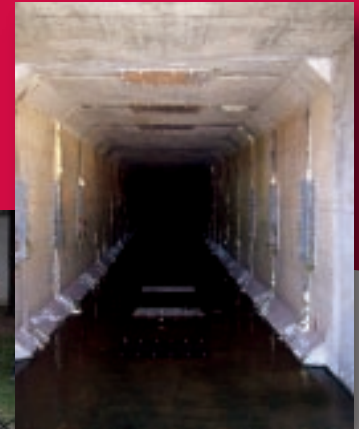
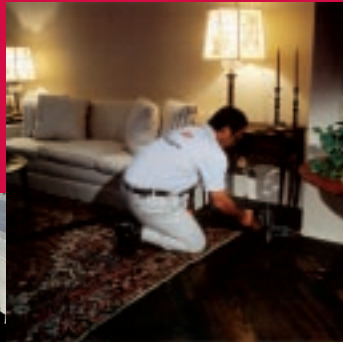


URETEK ICR

Concrete Lifting and Soil Stabilization



Choose
The URETEK Method[®]
URETEK's Deep Injection Process[®]
URETEK's Infrastructure Repair
*to **CONTROL** Concrete, Soil, and Infrastructure Problems*



URETEK. Concrete lifting and soil stabilization control.

1979

Research of highly dense polymer applications began

1985

First structural applications tested in Europe

1987

The URETEK Method[®] introduced in USA

1992

URETEK USA established nationwide sales and operation centers

1995

URETEK introduces Deep Injection[®] process

2000

URETEK ICR formed

2002

Hydro-insensitive polymer patented

2003

URETEK Deep Injection[®] patent issued

2004

Introduction of advanced hydro-insensitive polymer

2006

URETEK ICR achieves affiliate representation in all 50 states.

URETEK ICR puts customers in control of complex concrete lifting and soil stabilization problems. With over 75,000 successful projects for industrial, commercial, and residential customers, URETEK ICR is the most experienced at rehabilitating concrete slabs, driveways, foundations, and walkways. Through patented, field-tested processes, high technology materials, and trained/certified professionals, URETEK ICR has the safest, most environmentally friendly, quickest, and least disruptive solutions in the marketplace.

URETEK ICR, the best choice for concrete lifting, and soil stabilization.

Industrial



- Industrial Plants
- Industrial Parks
- Manufacturing Facilities
- Loading Dock Areas
- Railroad Facilities

Commercial



- Office Foundations
- Shopping Centers
- Parking Facilities
- Universities & Schools
- Warehouses
- Hospitals

Residential



- Slab on Grade Homes
- Apartments
- Condominiums
- Waterfront Homes
- Garages & Driveways
- Patios & Pool Decks

URETEK ICR

Concrete Lifting and Soil Stabilization

At URETEK ICR, we believe it takes a combination of three fundamental keys to meet or exceed our client's expectations for a successful project. It takes high quality people, processes, and products to meet this goal.

People

Our experienced supervisors, technicians, sales representatives, and headquarter staff make up the great URETEK combination. Our team's objective is to serve you, the customer, by completing your project on time, on target, and on budget.

Processes

At URETEK ICR we carry out our modern technologies with precision and accuracy. The URETEK Method® and URETEK Deep Injection® processes are consistent, reliable, and have been proven effective in over 75,000 successful worldwide projects. You can depend on URETEK!

Products

The patented URETEK 684 and 486 expanding polymer materials offer our clients modern solutions to industrial, commercial, and residential concrete lifting and stabilization problems. These URETEK products have been tested, proven to be safe, and are environmentally neutral. For over 20 years URETEK research has produced products which give each of our clients efficient and cost effective solutions.

PROCESSES

URETEK

Method

URETEK

Deep Injection

URETEK

Infrastructure

PRODUCTS

URETEK

486
STAR

URETEK

684
STAR

PEOPLE



URETEK

ICR

The URETEK Method®

to *CONTROL Concrete, Soil, and Infrastructure Problems*

URETEK Concrete Lifting and Soil Stabilization Technology – the fastest and most reliable system in the world!

Concrete Slab Lifting Benefits

- Storage areas and aisles are put back into use immediately
- No abrasive dust or wet slurry
- Precise realignment of slab segments
- 10 year material warranty

Soil Stabilization Benefits

- Minimal disruption of facilities
- Concrete in full service immediately following injection
- Fast! (most projects completed usually in hours, not days)
- Over 75,000 successful projects throughout the United States



Applications

Residential Slabs

- Filling of voids and consolidation of sub-base
- No need to vacate or interrupt local activities
- Possible to raise slabs over 6 inches

Industrial Slabs

- Consolidation of the sub-base
- Alignment of slabs at joints
- No interruption of production
- No disturbance of facilities or other structures
- Reduced vibration transmission

Commercial Slabs

- Consolidation of the sub-base
- Elimination of differential settlement at joints
- Promotes load-transfer at joints
- Minimal interruption of traffic



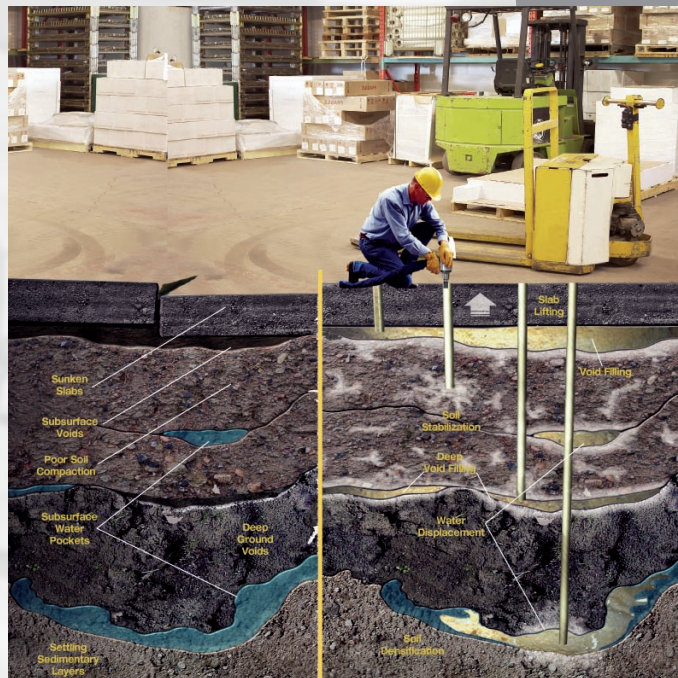
Consolidation of Foundation Material



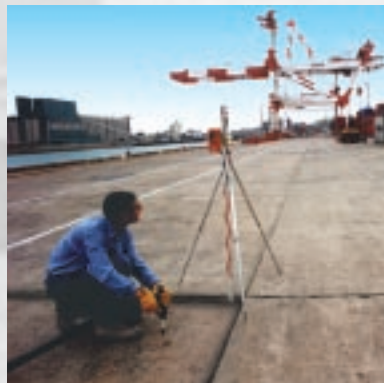
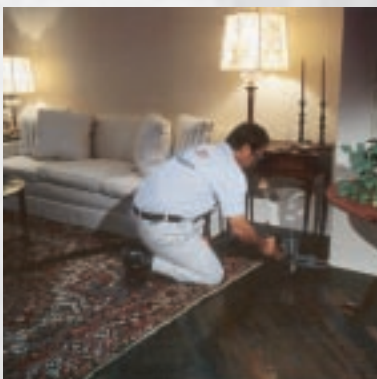
Settlement is often attributable to inadequate fill material or improper base compaction. A slab-on-grade should distribute and transmit loads evenly onto the base soil. When the material is poorly compacted, it will consolidate and leave voids. The URETEK Method® fills the voids and densifies the upper layer of base. URETEK's patented Deep Injection Method® is utilized to further densify soils at depths of 30 feet and beyond.

The URETEK Method®

The URETEK polymer is injected through small diameter holes. Upon injection, the polymer immediately expands. Voids are quickly filled and the chemical expansion gently raises the slab as necessary. Laser levels monitor the slab movement. It is possible to either lift the concrete or to restrict the operation to consolidation of the sub-base only. The degree of lift is a controlled and precise operation.



In areas where there are no significant voids the concrete will begin to lift immediately, resulting in a reduction of material consumption. The URETEK material offers the benefits of significantly increasing load bearing properties of the fill and sub-base, long term stability, thermal insulation and moisture sealing.



URETEK

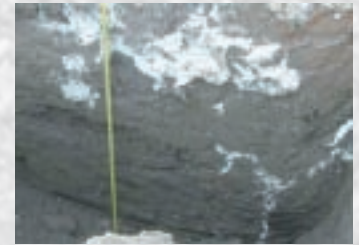
ICR

TECHNICAL DATA

Soils Testing

Soil Samples

Soil samples' characteristics are evaluated. URETEK materials are designed to permeate weak layers and desiccated sections to form a hard consolidated layer. URETEK material will also form a tough matrix to surround weak, unconsolidated materials and non-cohesive, granulated soils.



Soil Limitations

The parameters of the treatment technique make it suited to some cohesive soils including a wide range of clays up to 44% plasticity index. We are unable to treat clays with large volumetric, changes where thrust from the clay exceeds the dead load of the building or foundation weight. In addition we do not recommend the use of the system where highly organic soils such as peat are present.

It is always advisable to obtain a full site investigation report. The site investigation or monitoring of the structure should clearly indicate the cause of the problem.

BURIED TEST OF RIGID EXPANDED POLYMER

Test conditions: 12 X 12 X 2" sections buried to a depth of 10" in the ground in Delaware. A control sample was aged indoors.

Property	Control Aged Indoors	Buried in Groud	Property	Control (Aged Indoors)	Buried in Ground
Density, lb/ft3			Density, lb/ft3 Compression Strength, psi		
Original	2.1	2.1	Original	47	47
After 1 year	2.2	2.2	After 10 Years	50	46
After 10 years	2.1	2.1	K-Factor, BTU-in/hr - F		
Tensile Strength, psi			Original	0.123	0.123
Original	54	54	After 10 Years	0.144	0.168
After 1 year	68	59	Volume Change, % of original		
After 10 years	58	57	Original	0	0
			After 1 year	0	1.7
			After 10 years	0	4.2

by: E.I. DuPont

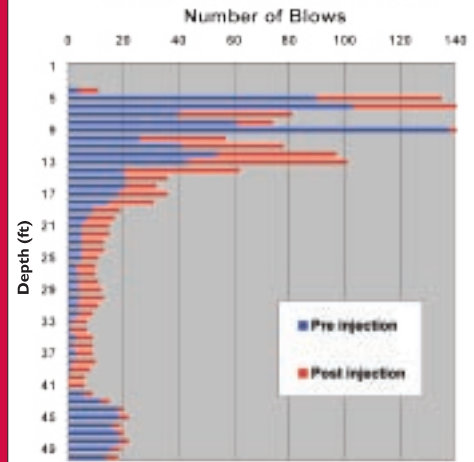
URETEK Penetrometer Testing

Penetrometer testing is the most frequent field test conducted by URETEK. This process allows numerous and precise, before and after, soil strength measurements at a relatively modest cost. Dynamic Cone Penetrometer testing is used to determine the penetration resistance offered by the subject soil strata.

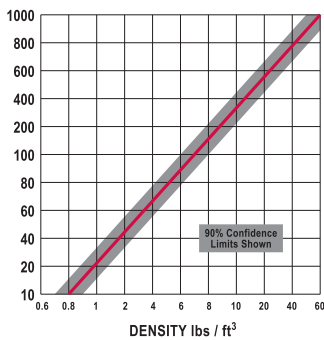
There are various types of penetrometers which may be used for such testing:

- URETEK uses a portable field cone penetrometer set, which provides the necessary comparison data.
- The URETEK penetrometer testing can be correlated with other standard cone penetrometer test systems.

BLOW COUNT COMPARISON



Shear Strength



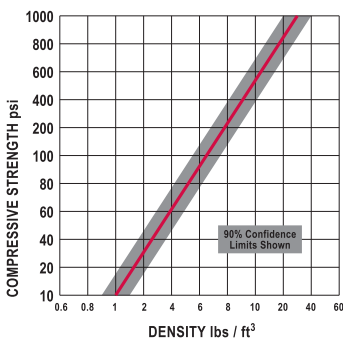
Material Testing

Changes in Physical Properties Relative to Increased Density

Within certain limits, the URETEK 486 Star material demonstrates elastic characteristics of expanded rigid polymers.

Only when the force exceeds the elastic limit is the internal cellular structure permanently modified and will not recover its initial form. The elastic limit depends on the density of the material. The two diagrams below indicate the effect of density on its resistance to forces of compression and shear.

Compressive Strength



Compressive Strength

Because the URETEK 486 Star material is primarily used to consolidate soil and to raise settled structures, it is clear that from a practical point of view, its most important property is compressive strength.

Diagram 1 relates the density of the URETEK 486 Star material to its compressive strength. The usual surface density of the URETEK material is typically 4.0 lbs./cubic ft. when injected beneath slabs and foundations. However, densities can reach 15-20 lbs./cubic ft. in Deep Injection projects involving great weights or depths.

Shear Strength

As shown in Diagram 2, the URETEK 486 Star material provides shear strength characteristics which make it ideal for soil densification.

URETEK

ICR

Environmental Impact

URETEK 486 Star/684 Star Materials have been extensively tested by independent laboratories for all EPA Standard Environmental test requirements. The material tests clearly demonstrate that URETEK's polymer is environmentally benign.

The chemical and solvent resistance of URETEK material is excellent, and resistance to grease and oil is excellent. The materials are stable in water solutions of common detergents, salts, acids, and bases. However, high volumes of strong acids and bases are not recommended around polymer material.

CHEMICAL RESISTANCE OF URETEK 486 POLYURETHANE FOAM

Acetone	Poor	Toluene	Excellent
Benzene	Excellent	Turpentine	Excellent
Brine (Saturated)	Good	Water	Excellent
Carbon Tetrachloride	Excellent		
Ethyl Alcohol	Good		
Kerosene	Good	Acids and Bases	
Linseed Oil	Good	Ammonium Hydroxide (10%)	Good
Methyl Alcohol	Good	Hydrochloric Acid (10%)	Good
Methylene Chloride	Fair	Nitric Acid (Concentrated)	Not Recommended
Methyl Ethyl Ketone	Poor	Sodium Hydroxide (Concentrated)	Excellent
Motor Oil	Excellent	Sodium Hydroxide (10%)	Excellent
Perchloroethylene	Excellent	Sulfuric Acid (Concentrated)	Not Recommended
Regular Gasoline	Good	Sulfuric Acid (10%)	Good



URETEK expanding polymers are inert to mildew and fungi. The material does not nourish insects or rodents. It is chemically neutral. When exposed to sunlight, ultraviolet rays cause a yellowing of the foam and a slight embrittlement of the surface. Polymer materials have shown to have no detrimental effect on the environment due to decomposition or degradation of the polymer.

For further detailed chemical resistance information, contact the URETEK ICR corporate office, or go to www.uretekicr.com.

URETEK's Deep Injection® Process

to *CONTROL* Concrete, Soil, and Infrastructure Problems at Depth

A fast and cost effective method for soil densification

- URETEK's patented Deep Injection Method® provides up to 500% increase in ground bearing capacity.
- The system can be used to inject at depths from 3 to 30 feet and beyond, beneath foundations, roadways and around utilities.
- Non-disruptive solution – foundations and floors are raised and stabilized quickly.
- 10 year standard material warranty.
- Widely accepted by Government Agencies and Consulting Engineers.
- The United States insurance market is increasingly recommending the URETEK Deep Injection Method® as a favored repair solution.

Residential, Commercial & Industrial Buildings

Cracks and settlement in buildings can ultimately result in damage, which is difficult and expensive to repair. A injection work carried out by URETEK is matched to the load bearing requirements of the project and accurately lifts and stabilizes the foundation systems.



- Filling of voids and consolidation of sub-base
- No need to vacate or interrupt local activities
- Raising slabs over 8 inches as necessary
- The rapid injection process enables treatment of extensive areas each work day. This minimizes repair time and disruption.
- Lightweight drilling equipment enables access to difficult areas where traditional underpinning and piling are either disruptive or impossible.
- The URETEK Deep Injection Method® is often successfully used without moving equipment, furniture, or merchandise.

URETEK's Deep Injection® Process

to **CONTROL** Concrete, Soil, and Infrastructure Problems at Depth

Soil Consolidation at Depth

Injections are applied at greater depths in the area of ground most affected by weak or unconsolidated soils.

The evaluation of the area to be treated, as well as the pattern and depth of the injection is made by specific project evaluation and on-site testing.

Factors such as the volume, compressibility and nature of the sub-soils as well as the type of structure to be treated are taken into consideration,



Methodology

The URETEK polymer is injected into the target soil depth through small diameter copper tubing. When the material fills the required areas, it expands in all directions. Once the laser levels detect movement at the surface, we know the foundation base soils have reached a degree of compression and density which are then capable of bearing the static and dynamic loads imposed by the structure above. The load-bearing capacity in the areas treated will reach values significantly higher than those necessary to support the loads.

The URETEK process consolidates and densifies fill material and sub-soils by:

- Elimination of voids as the viscous, high density expanding polymer is injected.
- Displacement of trapped water and air, which may be present.
- Formation of bonded soils and aggregates.



"...turned
the project
from out of
the park
to a walk
in the park..."

—Centerline Construction

URETEK

IGR