



**KELKEN**  
CONSTRUCTION SYSTEMS

3220 Bordentown Avenue  
P.O. Box 284 Parlin, NJ 08859  
732-721-0249 Fax 732-721-3918

## Superior Strength Construction Anchoring Systems

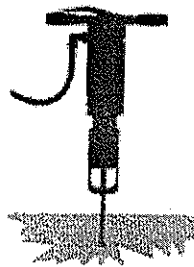
### KELKEN CONSTRUCTION SYSTEMS

Kelken's chemical structural anchoring systems have been approved, specified and used by major agencies and designers. Departments of Transportation, The Army Corps of Engineers, the FHWA, The Bureau of Reclamation, US Navy, Mass Transportation, and others are just a few that accept, specify, and use our anchoring products. Designed to be used with rebar and threaded anchors.

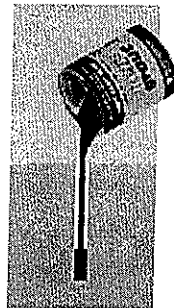
### KELKEN ANCHORING SYSTEMS & ACCESSORIES

Used for: Bridge & Highway, Sewerage Treatment, Railroad, Tunnels / Dams, Marine, Airport, Industrial Plants & Equipment, Mechanical / Electrical, Commercial.

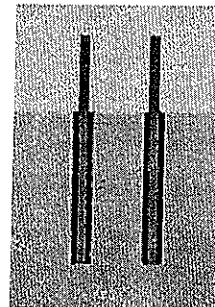
#### Installation of Kelken Anchors



Drill Hole



Pour Keligrout or  
Inject Keligrout 101-P



Insert Kelianchor  
or Rebar

Keligrout/Keligrout 101-P is designed to be used with rebar and threaded anchors. This chemical structural anchoring systems is a high strength material, which is pourable or injected and is used instead of cast-in-place hook bolts or as a retrofit anchor in the most demanding applications. Over 40 DOT's, the Army Corps of Engineers, the FHWA, the Bureau of Reclamation and others specify, and many agencies buy, or anchoring products for their own use. Some of the features of our product are that it may be used in freezing conditions and is moisture insensitive. It is available in quarts, ½ quarts and 4 oz units, and cartridges for horizontal applications. For further information visit Kelken Construction Systems on our Website at [www.kelken.com](http://www.kelken.com) or call our office at 732-721-0249 located at 3220 Bordentown Ave., Parlin, NJ 08859

TOMORROW'S CONSTRUCTION PRODUCTS TODAY

# KeligROUT

## PRODUCT DESCRIPTION

### AND

## TECHNICAL DATA

### Product Description

KeligROUT™ is a superior high strength polyester resin anchoring material with guaranteed pullout values exceeding ACI 318 requirements in very shallow drilled holes.

### Product Features

- easy mixing by hand.
- no special equipment required for mixing or pouring KeligROUT.
- assured curing
- hardening powder provided will cause exothermic gel (set) in 20 min. at 70°f.
- may be used in freezing conditions down to 10°f by keeping resin warm (70° to 90°) immediately prior to use.

### GUARANTEE

**KELIGROUT strengths are guaranteed and certified. Every lot of KeligROUT is performance tested by tension loading (to ASTM E488 Standards). A 5/8" diameter, A325 strength (or greater) KELIBONDANCHOR is embedded 6 inches in a 3/4" diameter air drilled hole. If we do not exceed a pullout of 26,000 (1.25 yield) KELKEN will not ship the lot of KeligROUT.**

### Packaging

30 fluid oz. in quart containers  
16 fluid oz. in quart containers  
7 fluid oz. in pint containers  
4 fluid oz. in 1/2 pint container  
All KeligROUT is shipped with properly proportioned hardening powder in a plastic jar. During cold months Kelken provides two jars per container.

### Uses

- anchoring Kelibondanchors™, dowels, rebars, rock anchors and mine roof bolts to concrete or rock.

### KELIGROUT Technical Data

|                                       |   |
|---------------------------------------|---|
| Color                                 | Grey  |
| Compressive Strength                  | (ASTM D695) 17,000 PSI  |
| Tensile Strength                      | (ASTM D638) 5,510 PSI   |
| Tensile Modulus                       | (ASTM D638) 1.14 X 10 <sup>6</sup> PSI                        |
| Flexural Modulus                      | (ASTM D790) 1.06 X 10 <sup>6</sup> PSI                        |
| Temperature Range During Installation | 10°f to 110°f   |
| Temperature Range While In Use        | -40°f to 200°f  |
| Open Time                             | 20 minutes at 70°f<br>10 minutes at 80°f<br>5 minutes at 90°f |

### Pullout Strength

**ALWAYS ABLE TO DEVELOP FULL YIELD OF ANY ANCHOR- NO MATTER WHAT STRENGTH STEEL USED- IF PROPERLY INSTALLED AT RECOMMENDED EMBEDMENTS AND DRILLED HOLE DIAMETERS.**



## KELKEN CONSTRUCTION SYSTEMS, INC.

P.O. BOX 284 • 3220 BORDENTOWN AVENUE • PARLIN, NEW JERSEY 08859-0284  
Phone (732) 721-0249 • Fax (732) 721-3918

# KeligROUT

## INSTRUCTIONS AND INSTALLATION PROCEDURES

### Drilled Holes

KELKEN-GOLD recommends that all holes for anchors be made with air tools whenever possible. Pneumatic drilling cleans the hole and prepares it for easy bonding. Sinker drills will make a hole much faster than comparably priced electric tools. Holes made with hollow bits will need only an air blowout FROM THE BOTTOM UP using an air pipe.

### Surface Preparation

Electric drilled holes should be wire-brushed in addition to air blowouts so that concrete dust can be cleared allowing for good bonding. If holes were DIAMOND CORE DRILLED, KELKEN-GOLD RECOMMENDS that the sides of the holes be scored which will allow the resin to develop a keying action to the concrete surface.

### Mixing

1. Pour pre-proportioned hardening powder into can.
2. Stir thoroughly with anchor for 90 seconds or until thoroughly distributed throughout resin.
3. Pour mixed KELIGROUT directly into the bottom 1/3 of the prepared hole.
4. Push anchor to the bottom of the hole and rotate the anchor to assure full wetting.
5. Do not disturb the anchor for one (1) hour.

### Installation

A heat producing hardening powder is poured from the plastic container into KeligROUT resin. It is hand mixed by stirring vigorously with the rod for 90 seconds. It is then poured into the bottom 1/3 of several clean air blown drilled holes. The holes may be damp but may not have running or standing water present.

The rods are pushed to the bottom of the holes and rotated to assure total "wetting". They are left undisturbed until gel occurs, which happens within minutes to 1 hour depending on the ambient temperature at the time of installation.

After the material has cooled it will have 50 to 60% of its ultimate strength. Complete cure is assured within 24 hours.

### Shelf Life

The shelf life of KeligROUT is 6 months from date (our lot number) which is stamped on every can. Store KeligROUT at 70°F out of direct sunlight. Storage temperatures should never exceed 85°F.

### Shipping

When shipping KeligROUT always use D.O. T. # Adhesive UN1133.

### Hot Weather

1. Keep KeligROUT cool until immediately before using. An insulated cooler (and a little ice on really hot days) will do a good job. Do not let cans get wet.
2. Keep containers of KeligROUT out of direct sunlight.

### Cold Weather

1. Always use two containers of hardener when temperature is below 45°F.
2. Keep Kelibondanchor, rebar or coilrod and KeligROUT warm (70°F) until immediately before using.
3. A 100 watt bulb enclosed in a lockup box or insulated cooler works well at the job site. Material can also be warmed under a compressor engine's cover or in a truck cab.

### Caution

Solvents for KeligROUT are highly flammable and volatile. DO NOT SMOKE OR USE NEAR OPEN FLAME OR SPARKS.

Do *not* use KeligROUT in drilled or formed holes that are over 1/4" larger than the anchor's diameter without contacting Kelken-Gold.

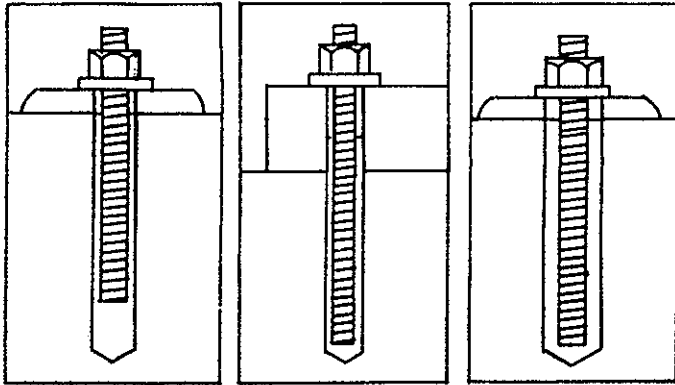
See MSDS for complete information regarding use.

**FOR PROFESSIONAL USE ONLY!**

## INSTALLATION INSTRUCTIONS

**A**lways drill an exact depth hole for the embedment needed. KELKEN-GOLD provides approximately twice the amount of Kelgrout required to anchor each Kelanchoring

System to the specified embedment. These amounts can be easily determined using displacement formulas. If you get less than the chart below shows, check for these causes:



*Hole is too deep. Resin lies beneath anchor that "hangs" from nut put on before installation.*

*Too much resin was poured into hole. The anchor displaced surplus into "clear-hole" in material being anchored.*

*Too large a diameter hole was drilled. Always follow instructions as to diameter.*

| Anchor Diameter | Hole Diameter | Minimum Number of Inches Per 32 oz. |
|-----------------|---------------|-------------------------------------|
| 1/4             | 9/32          | 375                                 |
| 3/8             | 7/16          | 310                                 |
| 1/2             | 5/8           | 220                                 |
| 5/8             | 3/4           | 200                                 |
| 3/4             | 7/8           | 180                                 |
| 7/8             | 1             | 175                                 |
| 1               | 1 1/8         | 160                                 |
| 1 1/8           | 1 1/4         | 120                                 |
| 1 1/4           | 1 3/8         | 90                                  |
| 1 1/2           | 1 3/4         | 60                                  |

## DEEPER HOLES OR LARGER DIAMETERS ARE NEITHER REQUIRED NOR RECOMMENDED

DRILL DIAMETER AND DEPTH TO ACHIEVE THE FOLLOWING:  
 BREAKSTEEL STRENGTH A-36 / SS 304  
 YIELD STRENGTH A-325/A 449

| SIZE  | HOLE DIA. | HOLE DEPTH |
|-------|-----------|------------|
| 3/8   | 7/16      | 2 1/2      |
| 1/2   | 5/8       | 4 1/4      |
| 5/8   | 3/4       | 6          |
| 3/4   | 7/8       | 6 1/2      |
| 7/8   | 1         | 7          |
| 1     | 1 1/8     | 8          |
| 1 1/8 | 1 1/4     | 10         |
| 1 1/4 | 1 3/8     | 12         |
| 1 3/8 | 1 1/2     | 15         |
| 1 1/2 | 1 3/4     | 18         |

LARGER DIAMETERS AVAILABLE UPON REQUEST

### ACI 318-77 REQUIREMENT

| Size | Drilled Hole Dia. | Depth For 1.25 Yield | 1.25 X Yield |
|------|-------------------|----------------------|--------------|
| 4    | 5/8               | 5                    | 15,000       |
| 5    | 3/4               | 6                    | 23,250       |
| 6    | 7/8               | 8                    | 33,000       |
| 7    | 1 1/8             | 9                    | 45,000       |
| 8    | 1 1/4             | 10                   | 59,250       |
| 9    | 1 3/8             | 12                   | 75,000       |
| 10   | 1 1/2             | 14                   | 95,250       |
| 11   | 1 5/8             | 15                   | 117,000      |
| 14   | 2                 | 20                   | 168,750      |
| 18   | 2 1/2             | 24                   | 300,000      |

ASTM A615 REBAR GRADE 60

ALWAYS TEST KELIGROUT FOR JOB SUITABILITY. WE ARE RESPONSIBLE FOR PROVEN CHEMICAL FAILURES ONLY. WARRANTY IS LIMITED TO REPLACEMENT OF ANCHOR AND RESIN ONLY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OF ANY NATURE.



# KELKEN CONSTRUCTION SYSTEMS, INC.

P.O. BOX 284 • 3220 BORDENTOWN AVENUE • PARLIN, NEW JERSEY 08859-0284  
 Phone (732) 721-0249 • Fax (732) 721-3918



## INSTALLATION PROCEDURES KELIGROUT™101-P

### DRILLING HOLES:

Surface preparation is important in all chemical anchoring applications. Kelken Construction Systems recommends that all holes for anchors/rebar be made with air tools. Pneumatic drilling cleans as well as provides a rough texture inside the hole for easy bonding. If electric drilled, holes must be wired brushed in addition to air blowouts so that concrete dust and debris be cleared to allow for good bonding. When holes are DIAMOND CORED, the sides of the holes must be scored which allows the resin to develop a keying action to the concrete surface.

### INSTRUCTIONS KELIGROUT 101-P™

1. Fit twin cartridges into 101 Hand Gun
2. Remove two black half-moon stoppers.
3. Fix mixing nozzle tube with retainer nut.
4. Discard initial 1-2 inches of flow from nozzle.
5. Inject directly into prepared clean hole.  
Keligrout 101-p can be used underwater with no adverse effects when properly installed. **Caution should be taken** to insure that the hole, after air drilling, has no debris and all anchors should be torqued to assure proper adhesion.
6. Push anchor/dowel to the bottom of the hole rotating to assure full wetting.
7. Do not disturb the anchor for one (1) hour, 24 hours full cure.
8. It is recommended that after 2 -3 hours, review residue assuring that material had been properly mixed.

### IMPORTANT KELIGROUT 101-P™ INFORMATION

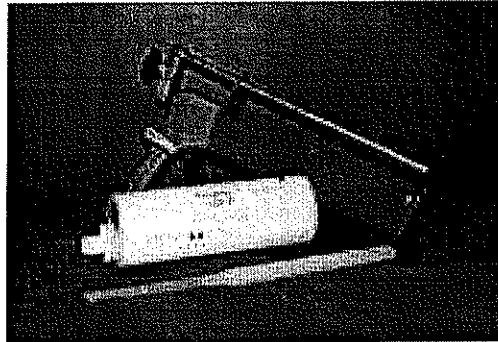
1. Shelf life of KELIGROUT 101-P™ is 6 months from date (lot number) which is stamped on every tube. KELIGROUT 101-P™ should be stored at 70°F out of direct sunlight. Storage temperatures should never exceed 85°F.
2. Do not use Keligrout 101-P™ in drilled or formed holes that are over ¼" larger than the anchor/rebar diameter without contacting Kelken. (see copy of technical sheet)
3. Always test Keligrout 101-P™ for job suitability.
4. Technical sheets included in every case.



# KELKEN

CONSTRUCTION SYSTEMS

3220 Bordentown Avenue  
P.O. Box 284 Parlin, NJ 08859  
732-721-0249 Fax 732-721-3918



## KELIGROUT™ 101-P

Horizontal, vertical or angled up/overhead with cap. Easy-to-use large capacity cartridges. Cartridges are much larger than most competitor's, decreasing labor cost of frequent changes. Easier to pump than most viscous epoxy cartridges.

Easier to pump than more viscous epoxy cartridges.

Can be used at sub-freezing temperatures or in rainy weather.

May be used underwater.

Sizes: 30 oz. tube

## KELIGROUT™ 101-P APPLICATIONS

KeligrouT is designed to be used with Rebar and Threaded Anchors. Applications which include:

### Bridge & Highway

- Barriers
- Bridge Bearings
- Railings
- Guard Rails
- Expansion Joints
- Fences
- Anchorages

### Marine

- Fender Systems
- Crane Rails
- Bollards
- Ladders
- Eyes
- Curbs
- Railings

### Industrial

- Tanks
- Column Bases
- Machine Bases
- Rack Systems
- Equipment Anchors
- Crane Railings

TOMORROW'S CONSTRUCTION PRODUCTS TODAY



**KELKEN**  
CONSTRUCTION SYSTEMS

3220 Bordentown Avenue  
P.O. Box 284 Parlin, NJ 08859  
732-721-0249 Fax 732-721-3918



### **KELIGROUT™**

Vertical application or angled down. Keligrout™ is a superior high strength polyester resin anchoring material with guaranteed pullout values exceeding ACI-349-85.

Hand Mixed & Pour

The certainty of "powder" catalyst, easily stirred into resin, then poured into hole.

Can be used at sub freezing temperatures or in rainy weather.

May be used under water.

### **KELIGROUT™ APPLICATIONS**

Keligrout is designed to be used with Rebar and Threaded Anchors. Applications which include:

#### **Bridge & Highway**

- Barriers
- Bridge Bearings
- Railings
- Guard Rails
- Expansion Joints
- Fences
- Anchorages

#### **Marine**

- Fender Systems
- Crane Rails
- Bollards
- Ladders
- Eyes
- Curbs
- Railings

#### **Industrial**

- Tanks
- Column Bases
- Machine Bases
- Rack Systems
- Equipment Anchors
- Crane Railings

**TOMORROW'S CONSTRUCTION PRODUCTS TODAY**



**KELKEN**  
CONSTRUCTION SYSTEMS

3220 Bordentown Avenue  
P.O. Box 284 Parlin, NJ 08859  
732-721-0249 Fax 732-721-3918

## INSTALLATION PROCEDURES KELIGROUT™

### DRILLING HOLES:

Surface preparation is important in all chemical anchoring applications. Kelken Construction Systems recommends that all holes for anchors/rebars be made with air tools. Pneumatic drilling cleans as well as provides a rough texture inside the hole for easy bonding. If electric drilled, holes must be wired brushed in addition to air blowouts so that concrete dust and debris be cleared to allow for good bonding. When holes are DIAMOND CORED, the sides of the holes must be scored which allows the resin to develop a keying action to the concrete surface.

KeligROUT can be used underwater with no adverse effects when properly installed. **Caution should be taken** to insure that the hole, after air drilling, has no debris and all anchors should be torqued to assure proper adhesion.

### MIXING KELIGROUT™

1. Pour pre-proportioned hardening (catalyst) powder into qt can.
2. Stir thoroughly by hand with anchor or an electric paint mixer for at least 65 stirs (90 seconds) mixing thoroughly from the **bottom to the top**. With either method making sure the catalyst is **distributed throughout the resin**.
3. Pour mixed KELIGROUT™ directly into the bottom 1/3 of the prepared hole.
4. Push anchor to the bottom of the hole rotating to assure full wetting.
5. Do not disturb the anchor for one (1) hour, 24 hours full cure.
6. It is recommended that after 2 -3 hours, review residue left on sides and bottom of can assuring that material had been properly mixed. ( If it is cured in the can it will be cured in hole.)

### IMPORTANT KELIGROUT™ INFORMATION

1. Shelf life of KELIGROUT™ is 6 months from date (lot number) which is stamped on every can. KELIGROUT™ should be stored at 70°F out of direct sunlight. Storage temperatures should never exceed 85°F.
2. Always use two containers of hardener when temperature is below 45°F.
3. Do not use Keligrout™ in drilled or formed holes that are over ¼" larger then the anchor/rebar diameter without contacting Kelken. (see copy of technical sheet)
4. Always test Keligrout™ for job suitability.
5. Technical sheets included in every case.