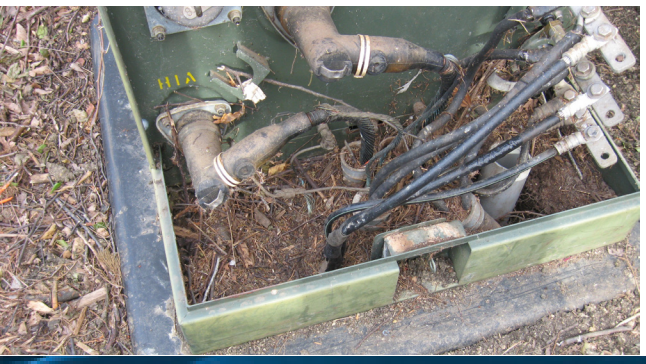
American Polywater Corporation

TECHNICAL TALK

A PUBLICATION FOR ENGINEERS INVOLVED IN CABLE INSTALLATION



Animals Cause Electrical Outages

Rodents, snakes, spiders, and insects such as wasps and fire ants present safety hazards and often cause costly damage that leads to electrical outages and service disruptions. Typical damage occurs when animals burrow up or enter through earthen gaps into transformer pad enclosures and cross phases, build nests, or chew cables or apparatus.

Examples of field damage include giant earthen mounds, tunnels, nests made of sticks and debris, and bite marks from rodents chewing on elbows.

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Technical Talk is an opt-in, technical publication from American Polywater Corporation issued on an irregular basis. Technical Talk presents original product and applications research in the general area of electrical and utility construction.

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Same Old Solutions

Common remedies to prevent animals and water from entering pad enclosures are concrete grout or pea gravel to cover transformer pad openings. Another method is to turn an enclosure upside down and bury it under the pad to create an impenetrable barrier that animals can't burrow through. These costly solutions hamper change-outs and perform poorly over time.

Concrete can be hazardous to work with and is very difficult to deploy safely when equipment is energized or when working in congested areas. When digging under enclosure pads to perform transformer or cable change-outs, heavy, cracked concrete can collapse as earth is removed.

Improve Electrical System Reliability with InstaGrout™ Sealant

Polywater® InstaGrout™ Sealant Barrier is a unique high-performance alternative to conventional enclosure sealants based on new "Polymer Matrix Technology". It offers excellent adhesion to fiberglass, polymer concrete, and concrete pads. It tolerates environmental extremes and effectively seals around complex conduit stub-ups. Unlike concrete, InstaGrout™ will not settle, crack, or collapse when performing service work or transformer change-outs. The strong, lightweight polymer matrix seal withstands freeze-thaw cycles and environmental extremes. It is compatible with cable jacket materials and will not corrode metal. InstaGrout™ also fixes small exposed gaps in transformer pad windows caused by transformer change-outs that don't line up with the existing pad. InstaGrout™ Sealant is designed to flow as a liquid, cure to a strong polymer matrix, and seal around complex stub-ups. It naturally expands to a thickness of 3 to 4 inches. Kit coverage is calculated using a 3-inch fill depth. Its working temperature range is 40° F to 110° F (4° C to 43° C).

Calculate Quantity Needs

Determine the amount of InstaGrout™ Sealant required using Polywater's quantity guideline worksheet. InstaGrout™ Sealant is available in multiple sizes to fill different pad volumes.

Cat#	Area Covered	Volume Filled
PMT-1	1 square foot at 3-inch depth	0.25 cubic feet
PMT-3	3 square feet at 3-inch depth	0.75 cubic feet
PMT-10	10 square feet at 3-inch depth	2.50 cubic feet

Carefully measure the area to be sealed by multiplying the width (in feet) by the length (in feet) of the pad opening in the structure. Do not subtract any conduits or other stub-up utilities. Use this measurement to estimate the minimum quantity needed. Round up to determine the quantity of InstaGrout™ Sealant required. It is good practice to rely on field measurements to calculate quantity, rather than measurements from plans or specs. Actual pad opening dimensions may vary from drawings due to manufacturing variances or earlier pad change-outs.

Factors that increase quantity requirements include:

- Complex geometry, such as a large number of conduits or channels
- Coarse fill for base, such as a crushed rock bed
- Unleveled surface or minor slopes
- Irregular ground with small holes or pits
- The need for a deeper seal

AREA PREPARATION

1) After calculating the amount to be used, prepare the target surface area. Fill any deep holes or rocky crevices, and cover pea gravel with at least one inch of sand or dirt. Uncovered pea gravel allows InstaGrout™ matrix material to filter through before curing, causing a poor seal. Make the surface as level as possible. InstaGrout™ Sealant Barrier flows to and fills low spots on the target surface, but works best on flat areas. Sand is the preferred surface filler for InstaGrout™.

MIXING AND APPLICATION

2) For large coverage areas use the PMT-3. Begin mixing by placing the empty pail provided in the PMT-3 kit on the ground. Pour the bottle of InstaGrout™ Sealant PMT-3 Part A into the pail. Next, shake 1 bottle of InstaGrout™ Sealant PMT-3 Part B to pre-mix, and pour into the pail. Mix well for 30 seconds using the stir stick included. The mixed product should be a uniform gray. After mixing, set aside the stir stick for later use in directing the flow of the InstaGrout™. (For the PMT-10 we recommend using a paint mixer available at paint or home improvement stores. Use a cordless drill to mix the product. Deploy the product similarly to the PMT-3 The mixed InstaGrout™ Sealant should be applied within 5 minutes after mixing.

3) Slowly pour the InstaGrout™ Sealant mixture into the target area. Rapid pouring can cause unwanted pooling of the material. Initially, the mixed material is thin and has good flow properties. Pour from a low height (i.e., below the knee) to prevent the product from driving deeply into the sand layer, which can prevent sealant from flowing and curing as desired.

4) A 2-inch diameter or larger conduit may be used as a pour spout or a chute to safely direct InstaGrout™ Sealant into hard-to-reach spots, such as between conduit stub-ups, to adequately distribute product and fill all small gaps.

5) Once the entire InstaGrout™ Sealant kit is deployed, observe the flow of the liquid throughout the area. Pools of InstaGrout™ Sealant may be directed and spread with the stir stick for several minutes. Once InstaGrout™ Sealant starts to thicken, allow it to react undisturbed. InstaGrout™ Sealant will continue to flow and expand for up to 20 minutes after mixing. This process takes time; allow it to expand and rise before pouring more InstaGrout™ into the area to be covered.

6) The PMT-1 is excellent for filling gaps created by transformer change-outs, smaller pedestal areas, DOT switch cabinets, or repaired areas. After mixing, direct the PMT-1 Part A cap into the target area and squeeze the bottle, distributing InstaGrout™ throughout the repair area. Initially, the mixed material is thin and has good flow properties. For best results, pour the material into several spaced points in the target area. If conduits are present, direct the flow at the stub-ups to ensure coverage between them.

   Empty the bottle within 3 minutes of shaking.

7) Inspect the seal to ensure that InstaGrout™ Sealant adheres to all component edges and surfaces so that no gaps are apparent.

8) Mix and install each InstaGrout™ Sealant kit individually, waiting for each kit to react before deploying the next kit (approximately 20 minutes). InstaGrout™ bonds well to itself so that multiple applications have the same strength as a single deployment of InstaGrout™ Sealant Barrier.

Completed Seal

InstaGrout™ is re-enterable. It may be drilled or sawed like wood to create the opening needed when a new service is required. Be sure to follow all company work method procedures when operating in and around energized equipment.

To view the InstaGrout™ video visit: **http://www.youtube.com/watch?v=PsU2fghkmgQ&feature=youtu.be** Protect electrical systems from costly outages and potential safety hazards. Use InstaGrout™ proactively in conjunction with Polywater FST™ Foam Duct Sealant to prevent water and animals from infiltrating pad enclosures.

American Polywater | P.O. Box 53 | Stillwater, MN 55082 USA
1-(651) 430-2270 (Voice) | 1-(651) 430-3634 (Fax) | 1-(800) 328-9384 (Toll-Free US/Canada Only)
www.polywater.com | custserv@polywater.com