Since 1971, Rainbow Technology Corporation has been developing, testing, and marketing quality products for the telecommunication, utility, and contractor industry. We develop our products with regard to the safety of the personnel, the equipment/outside plant, and the environment. Our product line includes foams and sealants, power and telecom cable cleaners, precision cleaners, heavy-duty cleaners, cable lubricants, personal protection, insecticides, herbicides, paints, and hand cleaners.

The integrity and quality, by which Rainbow Technology’s products have been viewed, has set the standard in the telecom/utility industry. We provide the same integrity and quality in our Rainbow Pole Setting Foam that we are known for in our total product line. As you review the following pages, you will see the commitment to testing and quality assurance as well as providing a quality product that is safe for your employees, safe for your equipment/outside plant, and safe for the environment.

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Rainbow’s Pole Setting Foam helps save time and money, and increases efficiency. It is a very versatile product and replaces traditional methods of backfilling distribution. Here are just a few examples of the many different ways that Rainbow’s Pole Setting Foam can be used to aid in your everyday work.
POLE SETTING FOAM saves money and increases efficiency. It replaces traditional methods of backfilling distribution and transmission poles during installation.

POLE SETTING FOAM is a hydrophobic, two-part polyurethane foam that expands to fill the peripheral void between a utility pole and the hole. It forms low-density, high-strength foam that can structurally support the pole and maintain its upright positioning. POLE SETTING FOAM also serves as a redundant environmental barrier between the pole material and its surroundings.

POLE SETTING FOAM displays excellent adhesion to all pole materials, including wood poles treated with pentachlorophenol, CCA, and ACA without the use of primers. After mixing, it foams immediately and reaches 50% of full strength in approximately 3 minutes and 80% within 60 minutes. Once mixed and poured, the POLE SETTING FOAM expands approximately 15 times its original volume and sets the pole in 3 minutes to create solid foundation material. It eliminates the need to backfill by traditional methods and the “tamping” associated with it.

POLE SETTING FOAM significantly reduces labor as no additional backfilling is required and hardware can be strung after 15 minutes.

Because POLE SETTING FOAM is hydrophobic, its physical properties will not be affected by wet soil or small amounts of standing water in the hole; however, we recommend the standing water does not exceed 2” with the structure in the hole.

APPLICATION:

- Prepare hole for pole.
- Pour mixture in prepared hole with pole.
- Pour Part B container into Part A container.
- Mix together.
- Let sit for 15 minutes. Hardware is ready to be strung.

Please see page 18-20 for complete instructions for use.
<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
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<tr>
<td>Color</td>
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<tr>
<td>Part A</td>
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<tr>
<td>Part B</td>
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<tr>
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<td>Working Life</td>
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<td>Rise Time</td>
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<td>2.5 Minutes - 3 Minutes</td>
<td>ASTM D2471</td>
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<td>Tack Free Time</td>
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<td>Full Cure Time</td>
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<td>Drasitic Temperature Change</td>
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<td>Performance (cured)</td>
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<tr>
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Technical Highlights
Listed below are a few key elements that show the advantages of using Rainbow’s Pole Setting Foam over crushed rock for your structural foundations.

- **Rainbow’s Pole Setting Foam** achieves 100% compaction every time and is therefore structurally superior to compacted crushed rock or gravel.

- **Rainbow’s Pole Setting Foam** eliminates damage to the right-of-way caused by heavy equipment required to transport and install crushed rock or gravel.

- **Rainbow’s Pole Setting Foam** installation speed greatly reduces weather exposure to employees during the construction process, a major concern when repairing storm damage.

- **Rainbow’s Pole Setting Foam** achieves higher skin friction values and uniform transfer of load into the soil, resulting in approximately twice the uplift values of crushed rock or gravel. Because of the closed-cell physical properties of the foam, corrosion protection is enhanced for steel poles.

- **Rainbow’s Pole Setting Foam** structural efficiencies reduce the hole diameter requirements.

- **Rainbow’s Pole Setting Foam** portability and size make it the perfect backfill for applications where larger vehicles will have difficult access to the individual structures or sites.
Wooden poles set with Rainbow’s Pole Setting Foam will exhibit greater moisture content at and below ground line than sites where no foam was used. This will maintain more consistent moisture content throughout the year, and will reduce checking in the ground line area.

Sometimes poles will be set that have checks; when this is the case, Pole Setting Foam, will fill the checks with foam, thus removing areas which could hold water that could lead to rot and decay.

Pole Setting Foam serves as a redundant environmental barrier between the pole material and its surroundings. With the preservative penetration behind the foam, the preservative moves into the heartwood instead of out of the pole. The use of Pole Setting Foam maintains higher levels of preservative at and below the ground line.

Wooden poles that are embedded in concrete or asphalt that have been damaged by storms, vehicle collisions or below ground decay, and need to be replaced, are excellent applications for Pole Setting Foam. Typically this type of replacement offers little or no native backfill and in some applications guy wires cannot be used. The structural efficiencies of Pole Setting Foam reduce the hole diameter requirements for your structures and provide the backfill needed for the setting of new poles.
Rainbow’s Pole Setting Foam’s excellent adhesion to steel poles assures that the entire volume of backfill material is solidly bonded to the pole. Pole Setting Foam backfill helps to transfer the uplift or compressive loads into the soil. Pole Setting Foam adhesion to the soil greatly exceeds the shear strength of the soil.

Pole Setting Foam is a closed-cell, hydrophobic material with low moisture permeability and expands approximately 15 times its original volume. It provides an inert substance that cannot be dissolved by any common hydrocarbon or chlorinated solvents.

Pole Setting Foam, unlike mechanical tampers, does not damage the galvanization or pre-coating on the pole. The manufacturers of directly embedded steel poles have historically coated the embedded portion of the pole with asphaltic coating to help manage soil corrosion problems. This coating acts as a barrier in eliminating electron transfer and the oxidation of the metal in steel poles.

Pole Setting Foam’s polyurethane properties share the basic urethane soil coating rating and provide the same protective advantages as the coatings used by steel pole manufacturers.
Setting H-Frame structures can be done without hauling in crushed stone, concrete, or native backfill to a remote site. During the actual line construction, re-plumbing on the pole is not necessary. This makes setting operations easier and requires less manpower and equipment. Rainbow’s Pole Setting Foam will increase uplift resistance up to three times that of conventional backfill. May be used on wood, concrete, steel, and fiberglass poles with no harm to the structure.

Pole Setting Foam displays excellent adhesion to most pole materials, including wood poles treated with pentachlorophenol, CCA, and ACA, without the use of primers. Pole Setting Foam helps to protect the environment by sealing in pole preservatives.
Storm damage can leave transmission and distribution lines and poles in a terrible mess. Often the soil is wet and muddy, creating a difficult environment in which repair crews must re-set poles in order to restore service to customers. There is no need to haul native soil or crushed rock backfill for setting poles.

Rainbow’s Pole Setting Foam is a hydrophobic, two-part polyurethane foam that expands to fill the peripheral void between a utility pole and the ground. With a low density and high strength, it can structurally support the pole, and its physical properties will not be affected by wet soil conditions. Pole Setting Foam has a compressive strength that is up to three times greater than properly tamped native soil.

With Pole Setting Foam, pole structures can be set with less manpower and equipment. No tamping is required, and no outside power source is needed for mixing.

After mixing, it foams immediately and reaches 50% of full strength in approximately 3 minutes and 80% of full strength within 60 minutes. Once poured, the Pole Setting Foam expands to approximately 15 times its original volume and sets the pole in 3 minutes, creating a proven solid foundation material. Hardware and transformers can be set faster than applications with conventional backfill.
Use Pole Setting Foam when poles are set in poor soil or rocky conditions that requires a push brace support.

Pole Setting Foam will structurally support both the pole and the push brace with low-density and high-strength foam.

According to industry standard testing procedures, Pole Setting Foam achieves a minimum of 75 psi compressive strength. That results up to three times greater than that of properly tamped soil.

Pole Setting Foam reaches 50% of full strength in approximately 3 minutes and 80% of full strength within 60 minutes. Hardware can be strung after 15 minutes.

Rainbow’s Pole Setting Foam expands up to 15 times its premixed volume to form a tightly packed anchoring foundation that is greater than the pole itself. It hardens into a virtually indestructible pole-to-backfill-to-ground bond.

The tightly packed molecular structure creates a bond with the pole. The foam actually contours to the shape of the excavated area and locks itself to the pole and ground.

Unlike any alternative backfill, Pole Setting Foam is impervious to moisture. Unlike other backfills it is resistant to heat, cold, micro-bacterial attack, and physical stress. It has a compressive strength that is up to three times greater than properly tamped native soil.
With Pole Setting Foam, pole structures can be straightened with less manpower and equipment. No tamping is required, and no outside power source is needed for mixing.

Rainbow’s Pole Setting Foam is a hydrophobic, two-part polyurethane foam that expands to fill the peripheral void between the pole and undisturbed ground. With low density and high strength it can structurally support the pole, and the physical properties of the pole will not be affected by wet soil conditions. Pole Setting Foam has a compressive strength that is up to three times greater than that of properly tamped native soil.

After mixing, it expands immediately and reaches 50% of full strength in approximately 3 minutes and 80% of full strength within 60 minutes. Once poured, the Pole Setting Foam expands to approximately 15 times its original volume. When using Pole Setting Foam to straighten a leaning pole it is recommended to keep the pole plumb for 15-20 minutes due to the tension on the pole from guy wires, cables, hardware, and transformers. This will give the foam time to cure to support the pole.
Advantages of Direct Buried Decorative Light Poles:
- Lower labor cost.
- Lower construction equipment costs associated with pole installation.
- Reduced or eliminated need for lifting equipment.
- Reduced traffic interruptions and required traffic management costs.
- Faster, simpler, easier, less expensive site preparation.
- No concrete foundation needed.
- Ideal for underground wiring applications.

Problems Associated with Direct Buried Decorative Light Poles:
- Poles with tapered bases cannot be properly tamped, causing the poles to lean.
- Tamping can cause damage to the pole structure.
- Corrosion below ground level of pole.
- Poor soil conditions require the use of concrete.
- Concrete is very difficult to re-enter.
- Heavy trucks and concrete trucks cause damage to the landscape.

Advantages of Using Rainbow’s Pole Setting Foam:
- Kits available for installing and straightening decorative lighting poles.
- No tamping required.
- No concrete needed.
- Kits can be carried on trucks.
- Set poles in minutes - not hours or days compared to concrete.
- Three times stronger shear strength than native backfill.
- Can be easily re-entered.
- Eliminates below-ground corrosion.
- No damage to landscape caused by heavy equipment and trucks.
- Will not HARM CABLES OR WIRES.

All this results in significant cost saving and NO LEANING POLES.
Setting poles for sports, recreational, and athletic lighting may be done without hauling crushed stone, concrete, or native backfill to the site. Rainbow's Pole Setting Foam will increase uplift up to three times that of conventional backfill. It may be used on wood, concrete, steel, and fiberglass poles with no harm to the structure.

There is no need for heavy cement trucks, which cause damage to the landscape. Just plumb the pole, mix the appropriate size kit of Pole Setting Foam and within 60 minutes the hardware and lights can be installed.

Pole Setting Foam displays excellent adhesion to steel poles, ensuring the entire volume of backfill material is solidly bonded to the pole. Pole Setting Foam backfill helps transfer the uplift or compressive loads into the soil. Pole Setting Foam adhesion to the soil greatly exceeds the shear strength of the soil.

Pole Setting Foam, unlike mechanical tampers, will not damage the galvanization or pre-coating on the pole. The manufacturers of directly embedded steel poles have historically coated the embedded portion of the pole with asphaltic coating to help manage soil corrosion problems. This coating acts as a barrier in eliminating electron transfer and oxidation of the metal in steel poles. The polyurethane properties of Pole Setting Foam share the same urethane soil coating rating and provide the same protective advantages as the coatings used by the steel pole manufacturers.

Pole Setting Foam can be used with Precast Concrete Bases or direct-buried poles with no need for tamping of native soils or the use of additional concrete.
There are occasions when pad-mounted equipment will begin to sink or shift due to poor soil conditions, erosion, or improperly tamped native soil. Leveling of the pad-mounted equipment can be done simply, economically, and quickly using Rainbow’s Pole Setting Foam. There is no need for hauling in rock or crushed stone, or trying to shovel material under the pad in an attempt to make the pad level.

Pole Setting Foam will expand under the pad to form a level and strong base for the pad and equipment to rest on and has a minimum compressive strength (75 psi) that is up to three times greater than that of properly tamped native soil. Pole Setting Foam is not affected by water or wet soil conditions.

Pole Setting Foam is closed-cell foam and will assist in preventing insects and rodents from entering the equipment and burrowing under the pad. The Pole Setting Foam will also help prevent further erosion of the soil under the pad and can be used with all types of concrete and fiberglass pads.

Once the pad-mounted equipment has been leveled with either a hydraulic jack or digger derrick, mix the required Pole Setting Foam Kit according to the directions and pour the mixed foam under the pad. The foam is self-leveling and will become hard within minutes so the pad can be released from the support. If any excess foam escapes from under the pad, it can be trimmed and removed with a shovel.

Pole Setting Foam has many applications in telecommunication and utility markets for leveling such equipment as pad-mounted transformers, power substations, cross-connect boxes, DLC cabinets, and pad-mounted phone booths.
**KIT SIZES:**

**79701 - Street Lighting Kit:**

This kit contains:
- 1 Plastic container “A”
- 1 Plastic container “B”
- 1 Pair of vinyl gloves

This kit will yield approximately 1 cubic foot of foam. It is designed for setting street lights, decorative lights, leveling pads, and DOT signs.

Mixing directions and directions for disposal are on all containers. This size kit is designed to be shaken. Both containers A and B are shipped in a sturdy corrugated box.

**79702 - Straightening Kit:**

This kit contains:
- 1 Plastic container “A”
- 1 Plastic container “B”
- 1 Pair of vinyl gloves

This kit will yield approximately 2 cubic feet of foam. It is designed mainly to straighten leaning distribution poles and DOT signs and to level pad-mounted equipment.

Mixing directions and directions for disposal are on all containers. This size kit is designed to be shaken. Both containers A and B are shipped in a sturdy corrugated box.

**79703 - Straightening Kit:**

This kit contains:
- 1 Plastic container “A”
- 1 Plastic container “B”
- 1 Pair of vinyl gloves

This kit will yield approximately 3 cubic feet of foam. It is designed for straightening leaning transmission poles, setting street lights or decorative poles, and leveling pad-mounted equipment.

Mixing directions and directions for disposal are on all containers. This size kit is designed to be shaken. Both containers A and B are shipped in a sturdy corrugated box.
79705 - Pole Setting Kit:
This kit contains:
1 Plastic container “A”
1 Plastic container “B”
1 Stirring stick
This kit will yield approximately 5 cubic feet of foam. It is designed to set distribution poles.
Mixing directions and directions for disposal are on all containers. Both containers A and B are shipped in a sturdy corrugated box.

79706 - Pole Setting Kit:
This kit contains:
1 Plastic container “A”
1 Plastic container “B”
1 Stirring stick
This kit will yield approximately 6 cubic feet of foam. It is designed mainly for setting larger distribution poles and smaller transmission poles.
Mixing directions and directions for disposal are on all containers. Both containers A and B are shipped in a sturdy corrugated box.

79707 - Pole Setting Kit:
This kit contains:
1 Plastic container “A”
1 Plastic container “B”
1 Stirring stick
This kit will yield approximately 7 cubic feet of foam. It is designed mainly for setting larger distribution poles and smaller transmission poles.
Mixing directions and directions for disposal are on all containers. Both containers A and B are shipped in a sturdy corrugated box.

79709 - Pole Setting Kit:
This kit contains:
1 Plastic container “A”
1 Plastic container “B”
1 Stirring stick
This kit will yield approximately 9 cubic feet of foam. It is designed mainly for setting larger distribution poles and smaller transmission poles.
Mixing directions and directions for disposal are on all containers. Both containers A and B are shipped in a sturdy corrugated box.
Instructions for the use of Rainbow’s Pole Setting Foam 1, 2, and 3 Cubic Feet Kits

Rainbow’s Pole Setting Foam is designed for the rapid, intermediate backfilling of pole holes. It provides a strong foundation, where hardware may be attached within 15 to 30 minutes after pouring. For lower temperatures wait a full 30 minutes. It may be used with any type of pole in any type of soil or rock. The Volume Index Chart can be used to estimate the amount of material required for each pole based on the pole diameter, and diameter and depth of hole.

1. Once the pole is placed in the hole and backfilled to comply with the local bonding and grounding practices, the annular (void between pole and ground) space should be measured and checked for standing water.

2. Although our foam is hydrophobic, reacting on top of the water, we suggest using our foam in no more than 2” of standing water in the pole hole due to the void that will be left in the hole bottom. To ensure butt stabilization and strength, we suggest to pump or backfill to this recommended water level. Either continue to fill the hole with soil until no water is visible or pump the hole to remove the standing water.

3. Using the Volume Index Guide provided, select the correct size kit or combination of kits required for intermediate filling. In those cases in which the pole base is to be landscaped it is advisable to leave one (1) foot of soil above the foam. Where the pole base will be paved, the paving specifications should be consulted for the unfilled amount to be left for the base and paving.

4. The foam is self-adhesive and will bond to existing foam but it is best to have the correct number of kits at the site to be filled; however, a hole may always be topped off.

5. Each kit contains a container of polyol (Part A), a container of pre-polymer (Part B) and gloves in a box. The larger (Part A) container serves as a mixing vessel. Note: Where multiple kits are required to fill a hole, the expansion of the subsequent kits may be accelerated by the heat generated by the first kit.

6. Remove the containers, and gloves from the box. Use eye protection according to local practices when handling any chemical. The gloves are supplied to prevent skin contact with the foam system. They should not be used in place of work gloves. Put on the gloves supplied or other approved protective glove. Then remove the caps from both containers and pour the Part B into the container containing Part A. Be sure to completely empty the container into the other container as they contain the exact mix needed to produce the best foam.

**CAUTION: MATERIAL EXPANDS RAPIDLY AFTER MIXING AND WILL RUPTURE CONTAINER IF CAP IS NOT REMOVED.**

**DO NOT REPLACE CAP ON CONTAINER A BEFORE MIXING, INSTEAD PLACE GLOVED HAND OVER SPOUT AND HOLD FIRMLY WHILE SHAKING.**

7. Place gloved hand over spout of container A and hold firm while shaking. Shake vigorously for 30 seconds at 70°F; add 10 seconds of shaking for each 10°F below 70°F. For temperatures above 70°F, reduce shaking time by 5 seconds for each 10°F increment.

8. After mixing, remove hand and begin pouring the foam into the hole. **Note: Immediately pour material before expansion starts!** Where appearance is not a factor, it may be helpful to wet the pole above finished grade with some foam to seal the ground line level. The liquid is self-leveling and can be poured from one side of the hole unless the distance between the pole and the wall is less than 2 inches. If such is the case, it will be better to pour the liquid around the pole or post. Rising will begin slowly and will be complete within 2 minutes.

9. The empty Part A container should be placed in the box. The empty Part B container should have an ounce or two of water poured into it and placed in the box. Dispose of empty containers in an approved manner.

10. Hold pole for 3 minutes (or 5 minutes in windy conditions). When using Pole Setting Foam to straighten a leaning pole, it is recommended to keep the pole plum for 15-20 minutes due to the tension on the pole from guy wires, cables, hardware, and transformers. This will give the foam time to cure to support the pole.

**Mixing Times**

- **100°F - 15 Seconds**
- **90°F - 20 Seconds**
- **80°F - 25 Seconds**
- **70°F - 30 Seconds**
- **60°F - 40 Seconds**
- **50°F - 50 Seconds**
- **40°F - 1 Minute**

**Equipment Required:** Pair of safety goggles and protective gloves

**Storage & Handling:** Store in a dry location between 50°F and 90°F

Containers of Pole Setting Foam should be stored in an enclosed dry area out of the weather and extreme temperatures should be avoided. Cold temperatures do not ruin the material, but when material is below 70° during mixing, the material will not react and expand as efficiently as it should. Excessively hot temperatures make the material react too fast, giving little time to mix and pour.

When handling Rainbow’s Pole Setting Foam chemicals, contact with the skin and clothing should be avoided. Disposable gloves should be worn. When mixing the material, protective goggles should be worn to avoid splashing chemicals in eyes.

**Material Safety Data Sheet available beginning on page 28.**

Disposal should be in accordance with local, state, and Federal regulations. For unused or expired material, completely mix the two-components together and dispose as non-hazardous waste after product has cured.

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Instructions for the use of Rainbow’s Pole Setting Foam 1, 2, and 3 Cubic Feet Kits
For Leveling Pad-Mounted Equipment

Rainbow’s Pole Setting Foam may also be used for leveling Pad-Mounted Equipment due to sinking or shifting caused by poor soil conditions or improperly tamped native soil. Leveling of the pad-mounted equipment can be done simply, economically, and quickly using Rainbow’s Pole Setting Foam.

1. Once the pad-mounted equipment has been leveled with either a hydraulic jack or digger derrick, mix the required Pole Setting Foam Kit according to the directions and pour the mixed foam under the pad. In most cases either the 1 cubic foot or the 2 cubic foot kit will fill the void under the pad.

2. In cases where there is extreme erosion or shifting of soil under the pad it maybe necessary to construct a form around the pad to contain the foam until it has hardened. The form maybe constructed of any lightweight material to keep the foam in place. If any excess foam escapes from under the pad, it can be trimmed and removed with a shovel. The foam is self-leveling and will become hard within 5 minutes so the pad can be released from the support.

3. Rainbow’s Pole Setting Foam is closed-cell foam and will assist in preventing insects and rodents from entering the equipment and burrowing under the pad. The Pole Setting Foam will also prevent further erosion of the soil under the pad and can be used with all types of concrete and fiberglass pads.

4. The foam is self-adhesive and will bond to existing foam but it is best to have the correct number of kits at the site to be filled; however, a void under the pad may always be topped off with additional foam.

5. Each kit contains a container of polyol (Part A), a container of pre-polymer (Part B) and gloves in a box. The larger (Part A) container serves as a mixing vessel. Note: Where multiple kits are required to fill the void under the pad, the expansion of the subsequent kits may be accelerated by the heat generated by the first kit.

6. Remove the containers, and gloves from the box. Use eye protection according to local practices when handling any chemical. The gloves are supplied to prevent skin contact with the foam system. They should not be used in place of work gloves. Put on the gloves supplied or other approved protective glove. Then remove the caps from both containers and pour the Part B into the container containing Part A. Be sure to completely empty the container into the other container as they contain the exact mix needed to produce the best foam.

   CAUTION: MATERIAL EXPANDS RAPIDLY AFTER MIXING AND WILL RUPTURE CONTAINER IF CAP IS NOT REMOVED.

   DO NOT REPLACE CAP ON CONTAINER A BEFORE MIXING, INSTEAD PLACE GLOVED HAND OVER SPOUT AND HOLD FIRMLY WHILE SHAKING.

7. Place gloved hand over spout of container A and hold firm while shaking. Shake vigorously for 30 seconds at 70°F; add 10 seconds of shaking for each 10°F below 70°F. For temperatures above 70°F, reduce shaking time by 5 seconds for each 10°F increment.

8. After mixing, remove hand and begin pouring the foam into the hole. Note: Immediately pour material before expansion starts! Rising will begin slowly and will be complete within 2 minutes.

9. The empty Part A container should be placed in the box. The empty Part B container should have an ounce or two of water poured into it and placed in the box. Dispose of empty containers in an approved manner.

Mixing Times

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<th>Time</th>
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<tbody>
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</tr>
<tr>
<td>40°F</td>
<td>1 Minute</td>
</tr>
</tbody>
</table>

Equipment Required: Pair of safety goggles and protective gloves

Storage & Handling: Store in a dry location between 50°F and 90°F

Containers of Pole Setting Foam should be stored in an enclosed dry area out of the weather and extreme temperatures should be avoided. Cold temperatures do not ruin the material, but when material is below 70° during mixing, the material will not react and expand as efficiently as it should. Excessively hot temperatures make the material react too fast, giving little time to mix and pour.

When handling Rainbow’s Pole Setting Foam chemicals, contact with the skin and clothing should be avoided. Disposable gloves should be worn. When mixing the material, protective goggles should be worn to avoid splashing chemicals in eyes.

Material Safety Data Sheet available beginning on page 28.

Disposal should be in accordance with local, state, and Federal regulations. For unused or expired material, completely mix the two-components together and dispose as non-hazardous waste after product has cured.
Instructions for the use of Rainbow's Pole Setting Foam 5, 6, 7, and 9 Cubic Feet Kits

Rainbow's Pole Setting Foam is designed for the rapid, intermediate backfilling of pole holes. It provides a strong foundation, where hardware may be attached within 15 to 30 minutes after pouring. For lower temperatures wait a full 30 minutes. It may be used with any type of pole in any type of soil or rock. The Volume Index Chart can be used to estimate the amount of material required for each pole based on the pole diameter, and diameter and depth of hole.

1. Once the pole is placed in the hole and backfilled to comply with the local bonding and grounding practices, the annular (void between pole and ground) space should be measured and checked for standing water.

2. Although our foam is hydrophobic, reacting on top of the water, we suggest using our foam in no more than 2" of standing water in the pole hole due to the void that will be left in the bottom of the hole. To ensure butt stabilization and strength, we suggest to pump or backfill to this recommended water level. Either continue to fill the hole with soil until no water is visible or pump the hole to remove the standing water.

3. Using the Volume Index Chart provided, select the correct size kit or combination of kits required for intermediate filling. In those cases in which the pole base is to be landscaped it is advisable to leave one (1) foot of soil above the foam. Where the pole base will be paved, the paving specifications should be consulted for the unfilled amount to be left for the base and paving.

4. The foam is self-adhesive and will bond to existing foam but it is best to have the correct number of kits at the site to be filled; however, a hole may always be topped off.

5. Each kit is made up of a pail of polyol (Part A) with a mixing stick inside, and a pail of pre-polymer (Part B). The larger (Part A) pail serves as a mixing vessel. Note: Where multiple kits are required to fill a hole, the expansion of the subsequent kits may be accelerated by the heat generated by the first kit.

6. Use eye protection according to local practices when handling any chemical. Tear the tab to completely remove the top of the pails and set the tops aside to serve as a cover when disposing of the empty containers. Pour Part B into the pail of Part A. Be sure to completely empty the Part B pail into the Part A pail as they contain the exact mix needed to produce the best foam. Stir vigorously for 30 seconds at 70°F; add 10 seconds of stirring for each 10°F below 70°F. For temperatures above 70°F, reduce mixing time by 5 seconds for each 10°F increment. Material will turn to a tan color just prior to expansion.

7. After mixing, begin pouring the foam into the hole. Note: Immediately pour material before expansion starts! CAUTION: MATERIAL BECOMES VERY HOT AFTER MIXING. Where appearance is not a factor, it may be helpful to wet the pole above finished grade with some foam to seal the ground line level. The liquid is self-leveling and can be poured from one side of the hole unless the distance between the pole and the wall is less than 2 inches. If such is the case, it will be better to pour the liquid around the pole or post. Rising will begin slowly and will be complete within two minutes.

8. The empty Part B pail should have an ounce or two of water poured into it. Replace the lids and dispose of both pails in an approved manner.

9. Hold pole for 3 minutes (or 5 minutes in windy conditions). When using Pole Setting Foam to straighten a leaning pole, it is recommended to keep the pole plum for 15-20 minutes due to the tension on the pole from guy wires, cables, hardware, and transformers. This will give the foam time to cure to support the pole.

CAUTION: MATERIAL BECOMES VERY HOT AFTER MIXING

Mixing Times

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Mixing Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>90°F - 20 Seconds</td>
<td></td>
</tr>
<tr>
<td>80°F - 25 Seconds</td>
<td></td>
</tr>
<tr>
<td>70°F - 30 Seconds</td>
<td></td>
</tr>
<tr>
<td>60°F - 40 Seconds</td>
<td></td>
</tr>
<tr>
<td>50°F - 50 Seconds</td>
<td></td>
</tr>
<tr>
<td>40°F - 1 Minute</td>
<td></td>
</tr>
</tbody>
</table>

Equipment Required: Pair of safety goggles and protective gloves
Optional Equipment: High Speed Drill (replaces manual mixing)

Storage & Handling: Store in a dry location between 50°F and 90°F

Containers of Pole Setting Foam should be stored in an enclosed dry area out of the weather and extreme temperatures should be avoided. Cold temperatures do not ruin the material, but when material is below 70° during mixing, the material will not react and expand as efficiently as it should. Excessively hot temperatures make the material react too fast, giving little time to mix and pour.

When handling Rainbow’s Pole Setting Foam chemicals, contact with the skin and clothing should be avoided. Protective gloves should be worn. When mixing the material, protective goggles should be worn to avoid splashing chemicals in eyes.

Material Safety Data Sheet available beginning on page 28.

Disposal should be in accordance with local, state, and Federal regulations. For unused or expired material, completely mix the two-components together and then dispose as non-hazardous waste after product has cured.
1. Follow the chart to the correct hole diameter.

2. Follow the chart to the correct pole butt diameter (inches) and hole depth (feet).

3. The number will indicate the correct amount of foam needed in cubic feet.*

Example: 7 cubic feet of foam

<table>
<thead>
<tr>
<th>Pole Diameter (Inches)</th>
<th>Hole Depth (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18” Hole Diameter</td>
<td>6</td>
</tr>
<tr>
<td>11.0</td>
<td>7</td>
</tr>
</tbody>
</table>

*These numbers have been rounded to the nearest cubic foot (+/-) to determine the needed amount of foam per application.

Example: 18" Hole Diameter
11" Pole Diameter
6" Depth
7 Cubic Feet of Foam

You can use the formula below to calculate the cubic feet of foam needed. In the formula, all dimensions are in inches.

Formula:

\[
\frac{(H^2-P^2)D}{2200}
\]

Pole (P)

Hole (H)

Depth (D)

Catalog Number 79701 = 1 cubic foot kit
Catalog Number 79702 = 2 cubic feet kit
Catalog Number 79703 = 3 cubic feet kit
Catalog Number 79705 = 5 cubic feet kit
Catalog Number 79706 = 6 cubic feet kit
Catalog Number 79707 = 7 cubic feet kit
Catalog Number 79709 = 9 cubic feet kit

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Components A and B

There are occasions when pouring A into B or B into A that some of the liquid remains in one of the containers.

Proper Disposal of Residue:

After mixing and pouring of Rainbow’s Pole Setting Foam, pour as much of the residue as you can into the mixing container.

Either component will react with any residue in the mixing container to become “inert” polyurethane.

If unable to pour all the liquid residue, 40 CFR 261 is applicable, since the liquids A or B are classified as non-hazardous waste. As long as liquid residue is less that 1” or 3% of the total volume by weight in a container of less than 110 gallons, the waste may be disposed of as non-hazardous.

In some locations, a solid landfill that accepts high-density polyethylene containers is a suitable disposal site.

Refer to all state and local regulations for your location concerning types of landfill available.

Solids

For purposes of definition, Solid shall mean cured polyurethane foam.

Once the components A and B have been mixed and “foamed-up” and cured (full curing time is 12 hours), it becomes an inert material. This is a material in which no further chemical reaction will take place.

In accordance with the 1992 EPA TCLP test, Rainbow’s Pole Setting Foam does not leachate any material detrimental to the environment.

The inert, “foamed-up” Rainbow’s Pole Setting Foam may be disposed of to a solid landfill that accepts inert solid materials.

Refer to all state and local regulations for your location concerning the type of landfills available.

Storage and Handling

Containers of Rainbow’s Pole Setting Foam should be stored in an enclosed dry area out of the weather and extreme temperatures should be avoided. The material should be stored between 50° and 90°F. Cold temperatures do not ruin the material, but when material is below 70° during mixing, the material will not react and expand as efficiently as it should. Excessively hot temperatures make the material react too fast, giving little time to mix and pour.

When handling Rainbow’s Pole Setting Foam chemicals, contact with the skin and clothing should be avoided. Disposable gloves should be worn. When mixing the material, protective goggles should be worn to avoid splashing chemicals in eyes.

Points to Remember

1. Read all directions carefully.
2. Use proper safety equipment, goggles, and gloves.
3. Do not auger holes too large. This will result in excessive material usage. Hole diameter need only be 4 to 6 inches larger than pole diameter.
4. Avoid extreme storage temperatures. Store between 50° and 90°F.
5. Mix close to hole. Once the chemicals are combined, the reaction cannot be stopped.
6. The colder the materials, the slower the reaction time. The hotter the materials, the faster the reaction time. Excessively hot or cold material may increase density or reduce expansion, causing an increase in material requirements.
7. Cleaning solvent will not dissolve Rainbow’s Pole Setting Foam that has completely cured.
8. Avoid skin and eye contact. In case of contact, flush with water. Obtain medical attention if necessary.*
9. Avoid breathing vapors. Use only in well-ventilated areas.*
10. Keep containers tightly closed. Do not allow water contamination.

Rainbow Technology Corporation assumes no risk whatsoever as a result of the use or misuse of Rainbow’s Pole Setting Foam. The customer’s exclusive remedy as to any breach of warranties or negligence claim shall be limited to the material’s purchase price.

*If necessary, refer to Material Safety Data Sheet and/or call: Chem-Tel Inc 1-800-255-3924
TEST REPORT

RE: DETERMINATION OF EXPANSION RATIO FOR Q-SET 275 POLE SETTING FOAM

Introduction

Three samples of Q-Set 275 foam were received from Chemque for determination of the expansion ratios.

NOTE: Tested on behalf of Rainbow Technology Inc. and material submitted by Chemque.

The results of testing the samples are outlined in this report.

Results

The Chemque Mixing and Dispensing Instructions were used to mix and pour the foam into a box measuring approximately 15 x 15 x 15 cm. The box was lined with polyethylene film. After 1 hour of curing, the foam blocks were separated from the film.

Square specimens were cut from the three foam blocks, measuring roughly 2.5 x 2.5 x 2.5 cm. The weight of the foam specimens was measured directly. The expanded volume of the foam blocks was measured by water displacement.

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Page 1 of 2

Cambridge Materials Testing Limited

Per  

QUALITY ASSURANCE

Per  

TECHNICIAN
Results (Cont'd)

<table>
<thead>
<tr>
<th>Cartridge</th>
<th>Sample #</th>
<th>Foam Weight (g)</th>
<th>Initial Volume cm³</th>
<th>Expanded Volume cm³</th>
<th>Volume Expansion Ratio</th>
<th>Foam Density (g/cm³)</th>
<th>Foam Density (lb/ft³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.904</td>
<td>1.641</td>
<td>23</td>
<td>14.0:1</td>
<td>0.083</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.865</td>
<td>1.608</td>
<td>20</td>
<td>12.4:1</td>
<td>0.093</td>
<td>5.8</td>
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<tr>
<td></td>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td>13.2:1</td>
<td>0.088</td>
<td>5.5</td>
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<td>2</td>
<td>1</td>
<td>1.986</td>
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<td>5.6</td>
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<tr>
<td></td>
<td>2</td>
<td>1.677</td>
<td>1.446</td>
<td>19</td>
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<td>0.088</td>
<td>5.5</td>
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<td></td>
<td>Average</td>
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<td></td>
<td></td>
<td>13.0:1</td>
<td>0.089</td>
<td>5.6</td>
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<tr>
<td>3</td>
<td>1</td>
<td>1.763</td>
<td>1.520</td>
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<td>13.8:1</td>
<td>0.084</td>
<td>5.2</td>
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<td></td>
<td>2</td>
<td>1.762</td>
<td>1.519</td>
<td>20</td>
<td>13.2:1</td>
<td>0.088</td>
<td>5.5</td>
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<tr>
<td></td>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td>13.5:1</td>
<td>0.086</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Calculation Methods

Specific Gravity of Samples (before Mixing) = 1.16

Initial Volume = Foam Weight / 1.16

Expansion Ratio = Expanded Volume / Initial Volume

Foam Density (g/cm³) = Foam Weight (g) / Expanded Volume (ml)

Foam Density (lb/ft³) = Foam Density (g/cm³) x 62.42796
Report For: Chemque Inc./Rainbow  
266 Humberline Dr.  
Rexdale, Ontario  
M9W 5X1  
Phone: 416-679-5676  
Fax: 416-679-0511  

Laboratory #: 323507-02  
Report Date: January 7, 2003  
Received Date: December 24, 2002  

Attention: Bruce Russell  
Specimen: Rigid Cellular Material, Q-Set 275 Pole Setting Foam

**COMPRESSION TEST REPORT**

Tested on behalf of Rainbow Technology Inc. Material submitted by Chemque.

Fifteen specimens were subjected to compression testing in accordance with ASTM D1621-00 with a test speed of 0.1"/minute. The nominal dimensions of the specimens were 2" x 2" by 1" thick. The specimens were conditioned for a minimum of 40 hours at 23 ± 2°C and 50 ± 5% relative humidity prior to testing.

**RESULTS**

<table>
<thead>
<tr>
<th>Sample I.D.</th>
<th>Modulus of Elasticity in Compression (psi)</th>
<th>Compressive Strength (psi)</th>
<th>Percent Core Deformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>929</td>
<td>98.0</td>
<td>10.0</td>
</tr>
<tr>
<td>2</td>
<td>1,568</td>
<td>124.8</td>
<td>8.3</td>
</tr>
<tr>
<td>3</td>
<td>1,123</td>
<td>122.3</td>
<td>10.0</td>
</tr>
<tr>
<td>4</td>
<td>911</td>
<td>97.8</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>1,078</td>
<td>112.8</td>
<td>10.0</td>
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<tr>
<td>6</td>
<td>1,296</td>
<td>110.5</td>
<td>9.2</td>
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<tr>
<td>7</td>
<td>1,030</td>
<td>124.5</td>
<td>9.6</td>
</tr>
<tr>
<td>8</td>
<td>1,584</td>
<td>124.3</td>
<td>10.0</td>
</tr>
<tr>
<td>9</td>
<td>953</td>
<td>120.3</td>
<td>10.0</td>
</tr>
<tr>
<td>10</td>
<td>1,122</td>
<td>118.0</td>
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</tr>
<tr>
<td>11</td>
<td>1,000</td>
<td>117.5</td>
<td>10.0</td>
</tr>
<tr>
<td>12</td>
<td>974</td>
<td>126.5</td>
<td>10.0</td>
</tr>
<tr>
<td>13</td>
<td>1,144</td>
<td>110.0</td>
<td>10.0</td>
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<td>14</td>
<td>1,506</td>
<td>121.3</td>
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<tr>
<td>15</td>
<td>1,189</td>
<td>121.5</td>
<td>10.0</td>
</tr>
<tr>
<td>Average</td>
<td>-</td>
<td>116.7</td>
<td>-</td>
</tr>
</tbody>
</table>

The yield point occurred before 10% deformation for specimen #s 2, 6, & 7; therefore their compressive strength and percent core deformation were determined at the yield point. For all other specimens the yield point had not occurred before 10% deformation; therefore their compressive strength was determined at 10% deformation.

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Q O R E
Property Sciences

DIRECT SHEAR TEST (ASTM D-3080)

Project Name: Direct Shear Testing
Location of project: Birmingham, AL
Job Number: 10650
Boring No.: NA
Sample No.: 1
Depth of Sample: NA
Date of Testing: 8/26/02

Description of Soil Tested By:
Hydrophobic Pole Setting Foam
Clark Lamb

Conditions:
Mixed in dry (no water)

Drainage:
NA

<table>
<thead>
<tr>
<th>Point</th>
<th>Normal stress</th>
<th>Shear stress</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.9</td>
<td>23.0</td>
<td>psi</td>
</tr>
<tr>
<td>2</td>
<td>13.9</td>
<td>23.0</td>
<td>psi</td>
</tr>
<tr>
<td>3</td>
<td>27.8</td>
<td>23.1</td>
<td>psi</td>
</tr>
</tbody>
</table>

cohesion friction 22.9 psi 0.3 degrees

Direct Shear Results, ASTM D 3080
Project Name: Direct Shear Testing  
Location of project: Birmingham, AL  
Job Number: 10650  
Boring No.: NA  
Sample No.: 1  
Depth of Sample: NA  
Date of Testing: 37557  

Description of Soil Tested By: Hydrophobic Pole Setting Foam  
Clark Lamb  

Conditions: Mixed w/ 10% water of volume  
Drainage: NA  

<table>
<thead>
<tr>
<th>Point</th>
<th>Normal stress</th>
<th>Shear stress</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.9</td>
<td>21.4</td>
<td>psi</td>
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<tr>
<td>2</td>
<td>13.9</td>
<td>21.9</td>
<td>psi</td>
</tr>
<tr>
<td>3</td>
<td>27.8</td>
<td>22.8</td>
<td>psi</td>
</tr>
</tbody>
</table>

cohesion 20.9 psi  
friction 3.8 degrees  

Direct Shear Results, ASTM D 3080