



# POWERFILL™

## GROUNDING BACKFILL

Loresco PowerFill™ is an economical low-resistivity grounding backfill designed especially for the electrical grounding industry.

PowerFill™ is the economical solution for areas with difficult grounding problems. It is highly conductive wet or dry yet does not require moisture to lower the resistance of a grounding system. PowerFill™ carries an NSF certification (Certified to NSF/ANSI standard 60) enabling installation around underground potable water systems. PowerFill™ also contains a corrosion inhibitor which forms a film on the copper creating a barrier against corrosion.

PowerFill™ is designed to be used in conjunction with all standard copper grounding equipment allowing for a greater variance in design that would otherwise be uneconomical.

PowerFill™ can be poured in dry or pumped in slurry form. No tamping required. It is very worker friendly. No special tools are required.

### **Advantages:**

- Positive low resistance, electrical connection to the earth.
- Compatible with all copper grounding systems.
- Does not contain any hazardous chemicals.
- Will not leech into the ground.
- Never needs recharging.
- Electrically conductive.
- Environmentally friendly.
- Stable permanent ground for the life of the grounding system.
- Contains a corrosion inhibitor to protect copper.
- Will not expand or experience any shrinkage.
- Not affected by freezing.
- Simple to install.
- Excellent shelf life with no performance effects.

To calculate the amount of material required to fill a trench. First, determine your desired thickness of PowerFill™. Second, move to the right until you are under the known width of the trench. This number will be the weight of the material lbs/linear ft. Take this number and multiply by the length of the trench in feet. Your answer will be the amount of PowerFill™ material required to fill the trench to the desired level in lbs.

| Material Required Per Linear Foot of Trench |    |                          |      |      |      |      |      |      |      |       |       |       |
|---|----|--------------------------|------|------|------|------|------|------|------|-------|-------|-------|
|   |    | WIDTH OF TRENCH (INCHES) |      |      |      |      |      |      |      |       |       |       |
|   |    | 4                        | 6    | 8    | 10   | 12   | 14   | 16   | 18   | 20    | 22    | 24    |
| THICKNESS OF<br>PowerFill™<br>(INCHES)      | 2  | 4.1                      | 6.2  | 8.1  | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 20.2  | 22.2  | 24.2  |
|   | 3  | 6.2                      | 9.3  | 12.1 | 15.2 | 18.2 | 21.2 | 24.2 | 27.3 | 30.3  | 33.3  | 36.4  |
|   | 4  | 8.2                      | 12.3 | 16.2 | 20.2 | 24.2 | 28.3 | 32.3 | 36.4 | 40.4  | 44.5  | 48.5  |
|   | 5  | 10.3                     | 15.4 | 20.2 | 25.3 | 30.3 | 35.4 | 40.4 | 45.5 | 50.5  | 55.6  | 60.6  |
|   | 6  | 12.3                     | 18.5 | 24.2 | 30.3 | 36.4 | 42.4 | 48.5 | 54.6 | 60.6  | 66.7  | 72.7  |
|   | 7  | 14.4                     | 21.6 | 28.3 | 35.4 | 42.4 | 49.5 | 56.6 | 63.7 | 70.7  | 77.8  | 84.8  |
|   | 8  | 16.4                     | 24.7 | 32.3 | 40.4 | 48.5 | 56.6 | 64.7 | 72.7 | 80.8  | 88.9  | 96.9  |
|   | 9  | 18.5                     | 27.8 | 36.4 | 45.5 | 54.6 | 63.7 | 72.7 | 81.8 | 90.9  | 100.0 | 109.0 |
|   | 10 | 20.6                     | 30.8 | 40.4 | 50.5 | 60.6 | 70.7 | 80.8 | 90.9 | 101.0 | 111.1 | 121.2 |

### Example:

Thickness = 6 inches

Width = 12 inches

Answer = 36.4 lbs/linear ft.

36.4 lbs/linear ft. x 50 ft. of trench = 1820 lbs. of PowerFill™

### Vertical Installation:

- Drill or dig the earth hole to the desired diameter and depth.
- Suspend groundrod in center of hole to be filled.
- Pour PowerFill™ until desired level is obtained. No tamping is necessary.

| Dry Volume of PowerFill vs. Hole Size |                           | Ground Resistance Comparison of Bare Rod vs.             |  |
|---------------------------------------|---------------------------|--|--|
| HOLE SIZE                             | LBS. OF POWERFILL PER FT. | HOLE DIAMETER WITH 5/8" BY 10' ROD IN CENTER OF 15' HOLE | PERCENT RESISTANCE COMPARED TO ROD ONLY (100%) |
| 4"                                    | 6.5                       | 4"   | 52%  |
| 6"                                    | 14.5                      | 6"   | 47%  |
| 8"                                    | 25.8                      | 8"   | 44%  |
| 10"                                   | 40.4                      | 10"  | 42%  |
| 12"                                   | 58.1                      | 12"  | 40%  |

### Horizontal or Grid Construction

Entire grounding system should be surrounded by PowerFill™. Conductors should be insulated as they exit the PowerFill™ column.

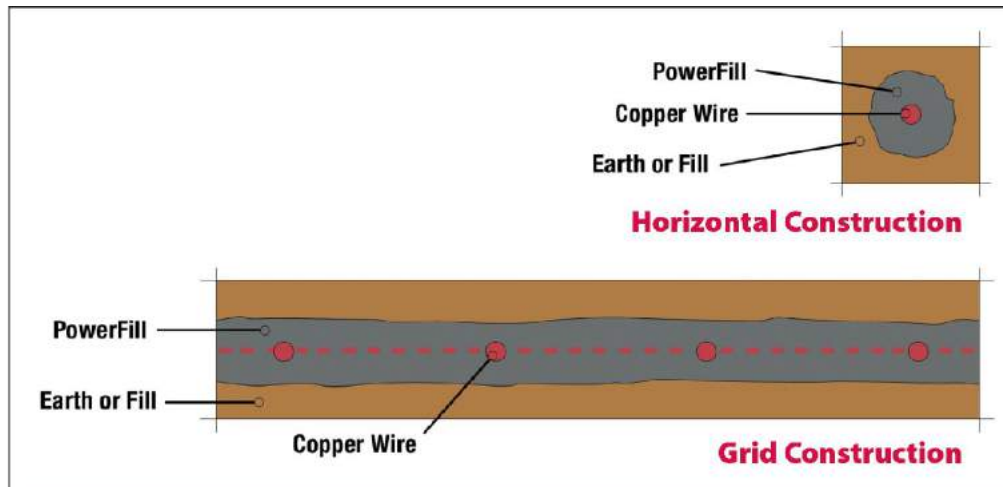
### Horizontal Construction:

- Pour into horizontal trench until level of ground wire is reached.
- Place ground wire.
- Pour in additional PowerFill™ until ground wire is covered to desired height.
- Cover with fill. No tamping necessary.

### Grid Construction:

- Pour PowerFill™ and spread over ground grid until desired thickness is achieved.
- Cover with fill.

The use of PowerFill™ around the grounding system will reduce surge impedance by increasing the effective contact area of the electrode to soil.



**Steady State Leakage Resistance™  
Using 4/0 Copper Wire vs. PowerFill**

| LENGTH | .475" DIAMETER WIRE ONLY | PERCENTAGE OF RESISTANCE WITH .475" WIRE PLUS POWERFILL IN VARIOUS DIAMETERS COMPARED TO WIRE ONLY (100%) |     |     |     |
|--------|--------------------------|---|-----|-----|-----|
|        |                          | 2"  | 3"  | 4"  | 6"  |
| 25'    | 100%                     | 83%   | 78% | 74% | 69% |
| 50'    | 100%                     | 85%   | 81% | 77% | 73% |
| 75'    | 100%                     | 86%   | 82% | 79% | 75% |
| 100'   | 100%                     | 87%   | 83% | 80% | 77% |
| 150'   | 100%                     | 88%   | 84% | 82% | 78% |
| 200'   | 100%                     | 88%   | 85% | 83% | 79% |
| 250'   | 100%                     | 89%   | 85% | 83% | 80% |
| 300'   | 100%                     | 89%   | 86% | 84% | 80% |

Loresco PowerFill™ is shipped in fifty (50) pound (22.7 kg) coated, woven polypropylene bags. Pallets are available with fifty bags per pallet. Proven export packaging is available. Bulk bags are also available.