PowerFill™

Electrical Grounding Backfill

PowerFill™ is the economical solution for areas with difficult grounding problems. It is highly conductive wet or dry yet does not require moisture. PowerFill™ carries an NSF certification (Certified to ANSI/NSF standard 60) enabling installation around underground potable water systems.

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.

NSF®

Certified to NSF / ANSI / 60

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.
- Electronically 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

THICKNESS OF POWERFILL™ (INCHES) \ WIDTH OF TRENCH (INCHES)	4	6	8	10	12	14	16	18	20	22	24
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	84.9
8	16.4	24.7	32.3	40.4	48.5	56.6	64.7	72.7	80.8	88.9	97.0
9	18.5	27.8	36.4	45.5	54.6	63.7	72.7	81.8	90.9	100.0	109.1
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

AMOUNT OF POWERFILL REQUIRED:

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

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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	
HOLE SIZE	LBS. OF POWERFILL PER FT.
4"	6.5
6"	14.5
8"	25.8
10"	40.4
12"	58.1

GROUND RESISTANCE COMPARISON OF BARE ROD VS.	
HOLE DIAMETER WITH 5/8 BY 10' ROD IN CENTER OF 15' HOLE	PERCENT RESISTANCE COMPARED TO ROD ONLY (100%)
4"	52%
6"	47%
8"	44%
10"	42%
12"	40%

HORIZONTAL OR GRID CONSTRUCTION*

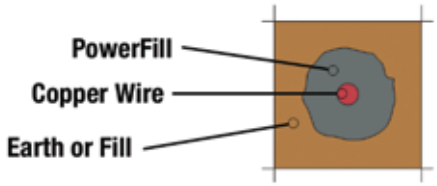
Pour into horizontal trench until level of ground wire is reached. Place ground wire. Pour in additional PowerFill™ until ground wire is covered to desired height. Cover with fill. No tamping is necessary.

For grid construction, pour PowerFill™ and spread over ground grid until desired thickness is achieved. Cover with fill.

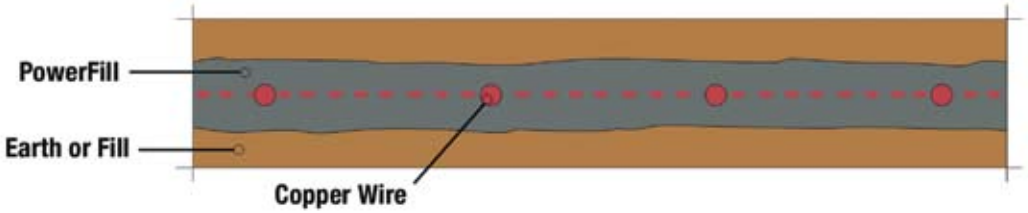
STEADY STATE LEAKAGE RESISTANCE** USING 4/0 COPPER WIRE VS. POWERFILL					
LENGTH	.475" DIAMETER WIRE ONLY	PERCENTAGE OF RESISTANCE WITH .475" WIRE PLUS POWERFILL IN VARIOUS DIAMETERS COMPARED TO WIRE ONLY (100%)			
		2"	3"	4"	6"
25'	100%	83%	78%	74%	69%
50'	100%	85%	81%	77%	73%
75'	100%	86%	82%	79%	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%

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

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



HORIZONTAL CONSTRUCTION



GRID CONSTRUCTION