GEM Ground Enhancement Material




Ground Enhancement Material (GEM) is a superior conductive material that solves your toughest grounding problems. It is the ideal material to use in areas of poor conductivity, such as rocky ground, mountain tops and sandy soil. GEM dramatically reduces earth resistance and impedance measurements. Furthermore, GEM may reduce the size of the grounding system where conventional methods are unsatisfactory. Once installed, GEM is maintenance-free, not requiring periodic charging or the presence of water to maintain its conductivity. Third-party testing has been completed to verify that GEM conforms to IEC® 62561-7. This standard introduces a benchmark for electrical performance and corrosion of earth enhancement materials that has been absent from the industry to date.

- Maintains constant resistance for the life of the system once in its set form
- Performs in all soil conditions even during dry spells
- Does not require periodic charging treatments or placement
- Does not require the continuous presence of water to maintain its conductivity
- Fully sets within 3 days, fully cures within 28 days
- Does not dissolve, decompose, or leach out with time
- Non-corrosive
- Reduces vandalism and theft since conductors are hard to remove from concrete
- Easy-to-handle 25 lb (11.3kg) bags
- Requires only one person to install
- Exceeds IEC® 62561-7 which sets the benchmark for corrosion, leaching, sulfur content, and other environmental regulations
- Complies to the U.S. Environmental Protection Agency (EPA) Toxicity Characteristic Leaching Procedure (TCLP), EPA test method 1311
- Can be installed using trench or ground rod backfill methods

Unit Weight: 25 lb

Part Number	Packaging	Complies With
GEM	Bag with handles	IEC® 62561-7
Suggested Specifications		
Parameter	Recommended Values	Test Method
Standards Compliance		Full compliance to IEC 62561-7 EPA Toxicity Characteristic Leaching Procedure (TCLP), test method 1311
Leaching	Arsenic < 1.5 mg/L, Barium < 60 mg/L, Cadmium < 0.15 mg/L, Chromium < 3.0 mg/L, Lead < 1.5 mg/L, Mercury < 0.06 mg/L, Elenium < 1.0 mg/L	EC 62561-7 EN 12457-2
Sulfur Content	< 2%	ISO 14869-1
Resistivity	<2 Ω-cm for powder <20 Ω-cm for mixed and cured material	Compressed powder according to ASTM G187-12 Mixed and cured per ASTM D991-89
Corrosion Performance	For copper-plated earth electrodes, the polarization resistance shall be	IEC 62561-7, Sec 5.5, aggressive environment
	> 8 Ω x m2 for aggressive environments For galvanized earth electrodes, the polarization resistance shall be > 7.6Ω x m2 for aggressive environments	
Flexural Strength	300-450 psi [2070-3100 kPa]	ASTM C293
Compressive Strength	100-200 psi [690-1390 kPa] after 672 hours curing time	ASTM C109

Estimated Linear Feet of Ground Conductor Covering with Each Bag of GEM							
Trench Width		Total Thickness of GEM					
		in	cm	in	cm	in	cm
Inches	Centimeters	4	10.2	5	12.7	6	15.2
4	10	3.5	1.0m	2.8	0.8m	2.3	0.7m
6	15.2	9.3	0.7m	1.8	0.5m	1.5	0.4m
8	20.3	7	0.5m	1.4	0.4m	1.1	0.3m
10	25.4	5.6	0.4m	1.1	0.3m	0.9	0.3m
12	30.5	4.7	0.3m	0.9	0.3m	0.7	0.2m

Estimated Bags of GEM for Backfilling Around Ground Rods to a Density of 63.5 lb/ft ³ (1,017 kg/m³)													
Diameter of Hole		ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
Inches	entimeters	5	1.5	6	1.8	8	2.4	10	3	15	4.6	20	6.1
4	10.2	2		2		2		3		4		5	
6	15.2	3		3		4		5		8		10	
8	20.3	5		6		8		9		14		18	
10	25.4	7		9		12		14		21		28	
12	30.5	10		12		16		20		30		40	