



# LIGHTNING ELIMINATORS

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## CHEM-ROD®

### Low-Impedance Chemical Grounding Electrode

*An efficient grounding system is critical to personnel safety and uninterrupted operations. But conventional ground rods are typically insufficient for industrial uses where target resistance can be less than 1 ohm.*

The Chem-Rod solves problems found with conventional ground rods by requiring less real estate and fewer electrodes to meet specified resistance.

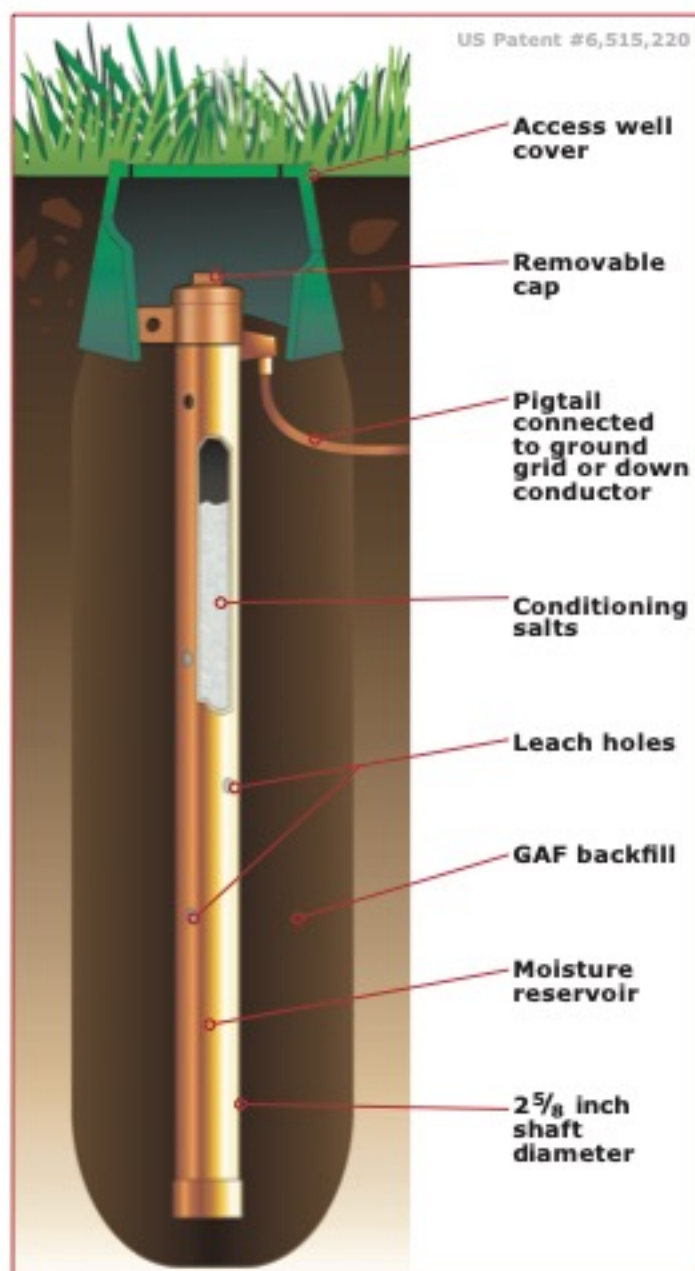
Each Chem-Rod creates an optimal electrical connection to earth with a large conductive surface. The earth/electrode interface is further enhanced by conductive backfill and electrolytic salts, ensuring a consistent path to ground. Engineered to meet applicable design and safety standards, the Chem-Rod is uniquely suited for both general grounding and as the foundation of a complete lightning protection system.

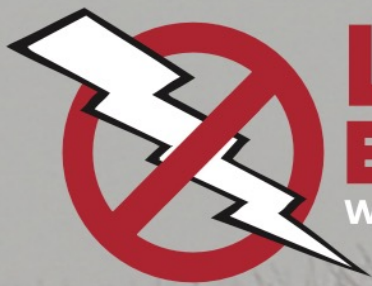
### Low-Impedance Grounding

The Chem-Rod uses advanced engineering to achieve a consistent, low-impedance electrical connection with the earth, even in unfavorable and varying ground conditions (like permafrost).

- **Large surface area:** The wider 2<sup>5</sup>/<sub>8</sub> inch diameter provides a larger surface area for a better connection to the earth.
- **Electrolytic salts:** In the presence of moisture, these salts dissolve and seep out of leach holes along the electrode. The salts continually increase the soil's conductivity, further reducing impedance and resistance.

- **Soil augmentation:** Ground Augmentation Fill (GAF) is a combination of organic soil materials which optimize the conductivity of the soil around the Chem-Rod. Increasing the amount of GAF can decrease the overall system resistance, increasing the system efficiency.





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- **Easy refills:** Every Chem-Rod comes with a standard removable cap and access cover for easy maintenance of the ground salt charge.
- **Optimized pigtail:** The 2-foot long, 4/0 AWG stranded pigtail is exothermically welded to the body of the Chem-Rod.

## Designed with Lightning in Mind

High-frequency transient events like lightning force current flow to the surface of an object. In these events, electrodes with more surface area have less impedance.

A copper Chem-Rod has about four times more surface area than a traditional ground rod. This larger surface area helps create the low-impedance connection required to safely channel high-frequency lightning currents to earth.

## Improved Safety

The damage caused by a single lightning strike or stray current can cost millions in equipment losses, downtime, and personnel injury. The Chem-Rod can reduce these risks more

effectively than other ground rods by providing the most efficient earth interface. In addition, it meets or exceeds relevant design codes and safety standards for protection of personnel, property, and sensitive equipment.

## Applications

Efficient grounding systems reduce the risk of electrical arcing and fires. The Chem-Rod improves reliability for many applications, including:

- Lightning protection systems
- Prevention of accidents caused by static charge and stray currents
- Protection of central communications, electronics, and AC power systems
- Meeting grounding safety requirements for electrical substations
- Ground fault neutralization
- Safeguarding critical instrumentation and process-control equipment

Available in Copper or Tinned Copper. Horizontal and vertical models in standard 8' and 10' lengths

## NFPA Study Results

Site Location, USA	Soil Resistivity (ohm*cm)	Electrode Resistance in Ohms		
		Standard ground rod 3/8" x 8'	CR-10 in 10' hole with GAF	CR-10H in 9' trench with GAF
Las Vegas, Nevada	8,579	85.0	<b>19.0</b>	N/A
Northbrook, Illinois	2,647	7.3	<b>2.9</b>	4.3
Dallas, Texas	2,739	4.7	2.3	<b>2.0</b>
Poughkeepsie, New York	22,407	137.3	<b>24.8</b>	33.8
Staunton, Virginia	11,701	33.9	<b>15.4</b>	18.6

**Bold** numbers indicate lowest reading of all electrodes. CR-10 = 10' vertical Chem-Rod; CR-10H = 10' horizontal Chem-Rod  
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