Conductive Concrete: Conducrete®

CONDUCRETE® GROUNDING

Conducrete® is a conductive concrete, which creates safe zones in areas where traditional methods are unsuitable, components steel, or enhanced safety is required. Conducrete® helps to create safe systems where before there would be threats to life. The applications of Conducrete® are vast and in a wealth of our projects it has demonstrated astounding theft-resistance of material elements. The versatility of this product makes it difficult to provide an exhaustive list of its capabilities; new applications for Conducrete® are being discovered frequently.

Conducrete® is provided in powder form and is available in 25kg bags (in line with manual handling requirements), or smaller 11.5kg bags . It is easy to install dry directly from the bag, or mixed with water in a slurry format and pumped into the trench or hole.

Conducrete® adds substantial protection to any system where low impedance earthing/grounding is required and it has been successfully utilized to enhance and protect earthing/grounding systems across many industries including the following: Electrical Utilities, Telecommunications, Broadcasting, Wind Farms, Mining, Oil and Gas, Industrial and Manufacturing, Municipal and Institutional and Military.

Part number	Type	Pack quantity	Unit weight kg
DM100	Conducrete® standard sized bag	1 bag	25
DM050	Conducrete® smaller sized bag	1 bag	11.5

Summary of Conducrete®'s Key Features and Benefits

1. Protects earthing/grounding systems from theft and sabotage
2. Environmentally neutral
3. Significantly extends the life of earthing/grounding systems
4. Dramatically enhances the performance of earthing/grounding systems for superior electrical and lightning protection for your assets
5. Excellent overall value
6. The knowledge that your site shares the same standard as an array of prestigious structures around the world.

Theft Resistant and Maintenance Free

- Conducrete® protects the underlying earthing/grounding system from theft and sabotage. Theft is increasingly becoming a pervasive problem worldwide, which substantially increases the costs from the loss of material and outages. Because Conducrete® solidifies into a high strength conductive concrete, the likelihood of such issues is substantially reduced.
- Conducrete® electrodes are maintenance-free over their functional lifetime. There are no hydration or salt replacement requirements with Conducrete®.

Compressive Strength and Low Shrinkage

- Conducrete® has a compressive strength of 21MPa (3045 psi) after 28days. This means that Conducrete® electrodes are permanent, will not wash away and will withstand heavy earth/ground fault currents.
- Conducrete® testing yields shrinkage of 0.015% at 28 days. This means that Conducrete® bonds or knits to the surrounding soil resulting in a superior electrode due to the constant contact with the surrounding soil.

Environmentally Neutral/pH Neutral

- Conducrete® has no negative impact on the environment. In fact, it has been approved for use by regulatory agencies in many environmentally sensitive areas where aquifer cross-contamination is a concern.
- Conducrete® is water impermeable and pH neutral when set up and will not corrode copper conductors.
- No salts will leach into, or contaminate, the soil. Leachate testing shows that Conducrete® has levels far below acceptable leachate limits.

Long Life Expectancy

- Independent testing indicates that Conducrete® can reduce electrolytic corrosion.
- Conducrete® can extend the life of earthing/grounding systems by a factor of 10. Electrodes protected by Conducrete® will last far in excess of 25 years in many cases.

High Voltage/Current Test Results

In independent testing in a high voltage lab precast Conducrete® electrodes withstood 1682V/688 amp fault for a duration of 500ms. Other earthing/grounding enhancement materials of lower compressive strength have exploded under these test conditions which would render the protection system useless. Conducrete® is the only earthing/grounding backfill that has documented evidence of high fault current withstand.

Water Absorption

Conducrete® is a very hygroscopic material. Lab testing shows that Conducrete® will absorb up to 34% of its weight in water. This quality is especially important in arid environments. Conducrete® is constantly hydrating and therefore continuously absorbing any available moisture from the surrounding soil. The result is an electrode that delivers more stable resistance to ground over time even during dry conditions.

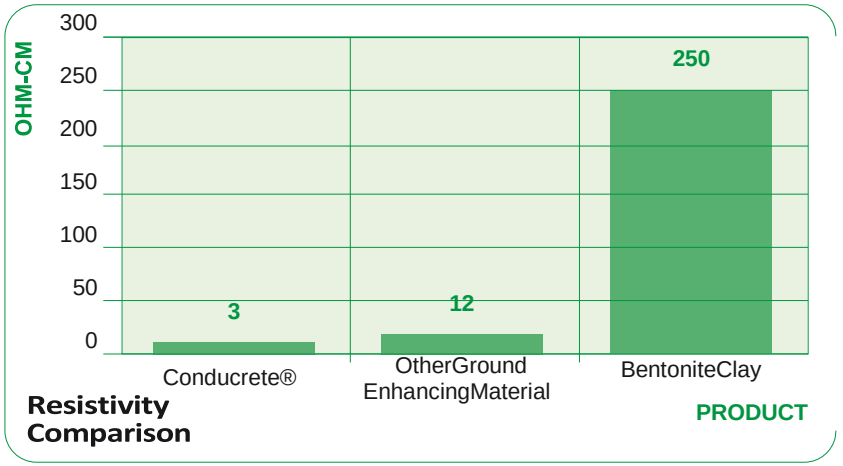
Superior Operating Performance (low impedance, lower resistance, superior conductivity and capacitance)

Low impedance: the ability to provide low impedance is critical to dissipate lightning energy quickly in order to protect assets from damage. Conducrete®'s low impedance is due to the low resistance, high capacitance and low inductance of the unique blend of materials.

Lower resistance and superior conductivity:

- Lower resistance results in superior conductivity
- Independent lab testing indicates that Conducrete® has a very low resistivity (3.06 ohm-cm)

Figure 1 illustrates that Conducrete® has a resistivity of less than half of another leading brand of earth/ground enhancing material and approximately 50 times lower than bentonite clay.



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Increased capacitance: the conductive and insulating materials used in the formulation of Conducrete® gives it a capacitive nature. Conducrete® has the ability to store and release energy the same way that a capacitor will store energy until it is earthed/grounded or allowed to release the energy into a circuit. The material quickly absorbs high rise time electrical surges keeping earth/ground potential rise in check and preventing equipment interruption and infrastructure damage.