CUBIS


# Cubis **SAN-EARTH**
# Conductive Concrete

www.cubis-systems.com

### A proven solution in the prevention of infrastructural conductivity grounding difficulties

Cubis SAN-EARTH is a cementitious and carbonaceous material which provides an environmentally safe long term solution to many grounding problems.

SAN-EARTH grounding electrodes are easily installed by spreading the dry powder in a strip over and around a conductor in a horizontal trench. When the trench is refilled SAN-EARTH absorbs moisture from the surrounding soil and hardens to become part of the grounding electrode.

The surface area of the electrode is thus dramatically increased and resistance to ground is substantially reduced. In addition, surge impedance is also lowered significantly. The feature of SAN-EARTH electrodes has a positive impact on both equipment performance and personnel safety.

Cubis SAN-EARTH was first developed in the 1970s to aid in the grounding of electric power transmission lines in mountainous areas where construction is difficult and soil resitivities tend to be high. Since then, it has proven effective in a wide variety of applications such as telecommunications, utilities and other infrastructure.

#### Reduces opportunity for theft

Traditional grounding systems are prone to theft due to the scrap value of copper. By using SAN-EARTH, the grounding system is safe from threat of theft or sabotage.

#### Easy to install anywhere

SAN-EARTH was first to aid in the grounding of electric power transmission lines in mountainous areas where construction is difficult and soil resitivities tend to be high. It can be installed straight out of the bag without water and in vertical or horizontal trenches.

#### Technical Performance

**Resistance to Ground**

- SAN-EARTH electrode resistance is 60-70% lower than bare copper counterpoise wire.
- Installation costs are similar
- Resistance of the 5m SAN-EARTH electrode is the same as the twenty-meter long bare copper wire
- Ideal contact with the soil is achieved because SAN EARTH conforms to the shape of the trench.
- The effective surface area of the SAN-EARTH grounding electrode is about 25 times larger than the counterpoise wire.

## SAN-EARTH Product Features

#### Excellent Grounding Qualities

SAN-EARTH, usually installed in dry powder form, is both convenient and effective. It makes ideal contact with the ground possible over large effective areas and has qualities far superior to more traditional grounding techniques. SAN-EARTH has been shown to reduce resistance to ground by up to 50%; lower resistivity results in superior conductivity.

#### Electrolytic Corrosion Resistance

SAN-EARTH significantly extends the life of grounding systems. In normal conditions, an electrolytic reaction occurs when any metal buried in the ground is exposed to a positive electric current, resulting in serious corrosion of the metal.

Covering the metal with SAN-EARTH creates conduction between the metal and SAN-EARTH reducing the electrolytic reaction and preventing the metal from corroding.

#### Cost Efficient Grounding

In general, no water is required when grounding with SAN-EARTH. Once installed, it absorbs moisture from the surrounding soil and hardens. Common obstacles such as rocks or stumps will not interfere with grounding and need not be removed.

Because SAN-EARTH is granular and not liquid in nature, trouble free installation is possible even when the site is sloped.

#### Environmentally Safe

SAN-EARTH provides completely pollution free grounding because it is composed of very safe inert chemical matter. It will neither melt into the soil nor change into an electrolyte.

Figure 1: Resistance to Ground

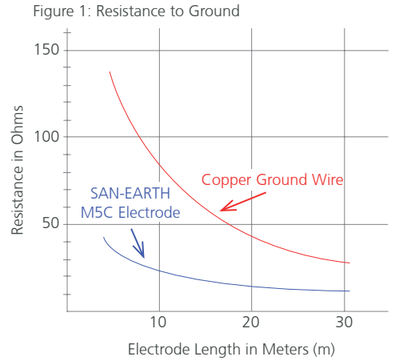
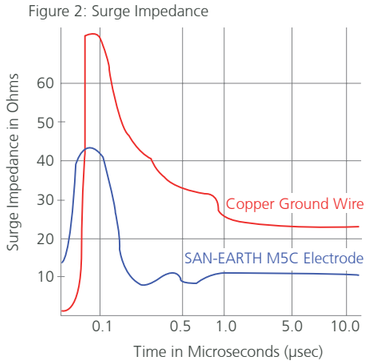



Figure 2: Surge Impedance




**Surge Impedance**

- Surge impedance is reduced by more than 50%.
- The surge impedance of the SAN-EARTH electrode was particularly low during the first critical 0-0.1 µsec of the surge.
- Fast response provides enhanced protection for sensitive equipment.
- Significant advantage over other grounding methods.