

New Technologies

Anti-ice conductors

DESIGNED FOR EXTREME WEATHER





Anti-ice treated conductors

Design / Research and Develop Department

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ABSTRACT

De Angeli Prodotti has developed, in collaboration with our partner, a new super-hydrophobic surface treatment. A new production line at our site utilizes the best technologies in the market to perform a well known process to meet client satisfaction.

INTRODUCTION

Ice formation on overhead conductors is a problem that affects overhead lines in many different countries all around the word. Since this phenomenon can lead to serious problems (in worst case also to the breakage of the line) the study of a solution is of particular interest.

De Angeli Prodotti accepted the challenge and studied different possible improvements to **reduce the ice load formation** on the conductor. This can be done in two ways: by retarding the formation of the ice on the conductor or by facilitating the removal of the already existing ice.

De Angeli Prodotti considered two different approaches: one that consider the geometry of the conductor and the other one its surface.

The most promising solution in based on a particular treatment that gives a **super-hydrophobic surface**. After years of research a specific varnish was developed and a new production line installed in the factory.

ENGINEERING

The first solution studied by De Angeli Prodotti was based on the study of a **particular geometry** of the conductor, designing the layers in order to have an overall zero torque.





Figure 1. Zero torque geometry.

In order to obtain an even more efficient and versatile solution De Angeli Prodotti, together with an important partner, have developed an anti-ice coating based on the deposition of a thin layer of varnish using the UV technology. The result is an **eco-friendly process** that can be applied to all kind of conductor.



Figure 2. Field test on treated conductor.

CONCLUSIONS

De Angeli Prodotti has developed innovative geometry and surface treatment to reduce the ice formation on the conductor.

On-field test confirm the efficiency of the treatment highlighting a retarded formation of ice on treated sample and a faster removal of it compared to a standard conductor.

CONTACTS

Visit our web site for more information. www.deangeliprodotti.com