

# Evaluation of state-of-the-art anti-icing surface solutions using a large scale icing test set-up

08 June 2021, 02:00

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*Icing events during wintertime or at high altitudes still form a major obstacle in many industries, such as aviation, construction, (wind) energy and transportation. Companies are seeking for solutions to mitigate ice or to limit the efforts of ice removal. Research is often focused on designing new structured surfaces or using advanced coating technologies. In order to fully understand the potential of such technologies, there is a need to test such systems in realistic environments. Sirris comes prepared.*

Icing causes performance loss, material degradation and can create safety issues in many systems and applications. This happens especially in polar regions where severe icing occurs frequently, but also in Belgium, where icing events are less frequent.

Companies are seeking for solutions to mitigate ice or to limit the efforts of ice removal by using both active de-icing systems and passive methods, using coatings or functional surfaces.

Many ongoing research projects are focused on designing new structured surfaces or using advanced coating technologies with ice repellent functionality or low ice adhesion strength. In order to fully understand the potential of such technologies, often used in combination with active de-icing systems, there is a clear need to test such systems under realistic circumstances, in realistic

environments.

### Icing testing in climatic chamber

In recent years, Sirris has developed different services in cold temperature testing in the large climatic chamber, located in the Port of Antwerp. Today, with the help of European funding in the NewSkin project, Sirris is expanding the climatic chamber infrastructure with an icing testing nozzle array, capable of covering an area up to 30 m² in ice. By defining and controlling parameters, Sirris is able to produce different types of ice (rime ice, glaze ice and mixed ice).

The icing test set-up allows for large scale product testing or large series of coupon testing. Companies have the opportunity to perform reliability tests, frost accumulation tests, ice-break tests or to evaluate new coatings, ice detection systems or de-icing systems.

### Fighting Icing

During the COOCK project Fighting Icing, Sirris will explore new ice detection methods and benchmark a series of anti-icing coatings and structured surfaces.

The focus of the project is to demonstrate the potential of ice mitigating systems under realistic conditions with a focus on exploring important aspects, such as durability and repairability of coatings, potential energy saving of coatings when used in combination with active de-icing systems.

The project also acts as a platform to gather end-users, asset owners and solution providers active in different sectors.

Sirris will play an active role in collective development projects, such as the RAINBOW project in which realistic simulation of icing conditions is required to test future developments.

Furthermore, Sirris is collaborating with other research partners on the topic of anti-icing to become your key partner.

Recently Sirris was invited as a speaker at the Winterwind conference to present the new large scale icing test setup. A recording of this presentation is available on the Sirris YouTube channel.

Click here for an interesting read (in Dutch).

## Authors



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