

Insulating Quartzene® cool roof coating generates significant energy savings – new research project confirms the material's efficacy

An insulating cool roof coating containing Quartzene® is very efficient in saving energy – this has been confirmed in a research project at the University of Gävle. The aim of the project, which was carried out in 2022, was to simulate the energy consumption of a standard building covered with a Quartzene® cool roof coating. The good result is due, among other things, to the very high solar reflectance index (SRI) of Quartzene®.



Sana Sayadi and Jan Akander from the University of Gävle.

Svenska Aerogel carried out the analysis of the standard building's energy use in collaboration with PhD student Sana Sayadi and associate professors Jan Akander and Abolfazl Hayati at the University of Gävle. The university's representatives used ASHRAE's *Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs (ANSI/ASHRAE Standard 140-2017)* to simulate the energy savings from applying insulating cool roof coating containing Quartzene® to a standard building.

Sana Sayadi says the following about the research project:

“We started the project based on the need to reduce cooling energy use and carbon emissions. 30% of the world’s CO₂ production is from the buildings – especially old buildings that don’t comply with today’s sustainability standards. Insulating cool roof solutions containing Quartzene® reduce the energy requirement efficiently without having to go deep into renovating the old buildings.”

The results from the project show energy savings of 15% when Quartzene® is used instead of bitumen in cool roof coating in a hot climate. The good result is due, among other things, to the very high SRI of Quartzene®. On behalf of Svenska Aerogel, Research Institutes of Sweden (RISE) has previously evaluated the SRI of a Quartzene® cool roof paint. The SRI of the example formulation was then calculated to 123. SRI is a measurement of the thermal emissivity and solar reflectance of a material. The higher the value of a cool roof paint, the better it is at rejecting solar heat. The value of 123 means that the Quartzene® cool roof paint rejected solar heat very well.

In addition to its high SRI, Quartzene® has a very low thermal conductivity. When the material is used as a functional additive in cool roof coatings, it forces the absorbed heat energy to be emitted into the atmosphere. In other words, cool roof coating containing Quartzene® is both reflective and insulating, unlike other cool roof coatings on the market which focus solely on reflection. The low density of Quartzene® also facilitates the build-up of the film thickness. When applying an insulating cool roof coating, a thick layer is important.

The next step of the research project is to introduce it to the scientific community through a scientific peer-reviewed publication. This publication includes more in-depth studies and simulations of the energy savings from the coatings used in the project.

What are cool roof solutions?

Cool roof coatings and paints can be applied on roofs to reflect sunrays and reduce the heat absorbed by the building. In warm countries, this can reduce energy use due to reduced space conditioning, which in turn lowers the energy costs. Cool roof solutions contribute to healthier indoor environments for people, animals, and food. Read more about cool roof solutions on Svenska Aerogel’s [website](#).

For further information, please contact:

Tor Einar Norbakk, CEO. Telephone: +46 (0)70 616 08 67. E-mail: toreinar.norbakk@aerogel.se

About Svenska Aerogel Holding AB (publ)

Svenska Aerogel manufactures and commercializes the nanoporous material Quartzene®. Svenska Aerogel's business concept is to meet the market's need for new materials that are in line with global sustainability objectives. Quartzene® is flexible and can be tailored to different applications to add essential properties to an end product. The company's vision is to be the most valued business partner providing pioneering material solutions for a sustainable world.

Svenska Aerogel Holding AB is listed on Nasdaq First North Growth Market. Certified Adviser is FNCA, info@fnca.se, +46 8-528 003 99.

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