

Amorphous materials for surface heating

Safety on snow and ice

Hanau - A cutting-edge and unusual application of the amorphous material VITROBRAZE® is its use in modern, efficient and cost-effective infrared heating systems. Hence, sports facilities, driveways, roofs or taxiways are accessible throughout the year.

Originally, the rapidly solidified VITROBRAZE foils were developed as brazing materials. Typical applications are exhaust gas recirculation coolers (EGR) or brazed plate heat exchangers. The composition of the amorphous materials is extremely homogeneous, and Ni and Ni-Fe based VITROBRAZE additionally offers almost unlimited shelf life. VITROBRAZE is available as strips with a width from 2.5 mm to 200 mm and a thickness from 20 µm to 50 µm. More and more new applications can be established wherever the electrical and/or mechanical properties of the amorphous foil become decisive instead of the traditionally required soldering properties.



The Dutch specialist HSI, with its VITROBRAZE-based heating systems, has not only been successful on the international market for years: in 2016 the company won an award in the Sustainable Heating Solutions Industry for this solution. The heart of the heating systems is the amorphous foil, which is laid out in strips, coated and connected. The use of VITROBRAZE in combination with the software developed by HSI reduces energy consumption by up to 30% compared to conventional copper-based systems for identical surfaces. The heating time can also be accelerated by a factor of up to four, depending on the installation depth in the floor. At the heated surfaces, the temperature changes are more than 20% lower. Due to the great efficiency advantages and the associated savings potential, the heating systems are used for surface heating, both indoors and outdoors. The European Union elected HSI in 2018 to further develop and market heating systems for autonomous and energy-efficient snowmelt technology.

"We are enthusiastic about our customers' ideas, which exploit the versatility of our material and constantly open up new areas of application. As a development partner, we are happy to work our way into new application solutions to provide our customers with optimum support," says Dr. Julia Hahn, Product Manager for amorphous materials.

VACUUMSCHMELZE (VAC) is among the world's most highly innovative developers of magnetic materials, inductive components and other related products. With a global network of Sales and Field Application Engineers, VAC designs and manufactures tailor-made solutions for a wide variety of industries, comprising renewable energies, automotive, industrial automation installation technology, and aviation.

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