



*Climate change: melting glaciers, diminishing water resources, trapped sunrays increase global warming*



# **ADSORPTION COOLING: UNPRECEDENTED PERFORMANCE WITH ZEOLITE TECHNOLOGY**

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Adsorption cooling has become a viable option for many cooling applications in which waste heat is available. Using waste heat instead of electricity to drive a thermal pump unlocks significant energy and cost savings. However, the spatial requirements of current adsorption chillers, and the temperature ranges prescribed by current silica gel based technology, still leave conventional cooling more viable for some applications.

After years of research and development, an alternative technology is now ready for broad rollout: Zeolite crystals instead of silica gel enable smaller, more cost efficient and more powerful chillers, and at the same time allow for tailoring of the temperature ranges involved. The driver behind this technological leap is a patented coating technology: Zeolite crystals are not glued or externally attached to the active surfaces, but instead are grown directly out of the heat exchanger's base material in a sophisticated chemical process. There is no adhesive to interfere with thermal conductivity, and the coating process can reach arbitrarily small structures, which enables maximizing the surface area.



New applications which become feasible with this new technology include data center cooling, with CPU temperatures of around 50°C, or thermal management in cars, where drive temperatures are high and available space is very scarce.

**Fahrenheit AG** is the leading developer and manufacturer of adsorption technology and of products which create cold from heat. The company is headquartered in Munich and has manufacturing facilities in Halle, Germany.

