Press release

Vaccine logistics: Silica from Evonik as part of the cold chain

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Minus 70 Degrees Celsius. During the COVID-19 pandemic, this figure was coupled to great hopes and significant challenges. Its inextricable link to one of the first mRNA vaccines came about due to the innovative technology which requires very cold storage temperatures. In transport logistics for medical and pharmaceutical products, silica from Evonik can contribute to the solution – as a small but highly efficient part of the cold chain.

People all over the world place their hopes in vaccines for protection against highly contagious infectious diseases and in blood reserves, clinical samples or pharmaceutical products. The logistical challenges of transporting these products are enormous, also because of the precise cooling: How can these temperature-sensitive substances get from the production sites to vaccination centers, doctors' practices, hospitals, and also to people in hard-to-reach regions of the world without loss of efficacy and without interrupting cooling throughout the entire supply chain?

Cooling with electricity is energy-intensive and expensive. An alternative are passive cooling methods that do not require an external energy supply because they are lined with vacuum insulation panels (VIP). VIPs with AEROSIL®, a fumed silica, can achieve insulation values up to ten times better than those achieved by conventional materials while also being significantly thinner.". Therefore, they are ideal for the production of insulating containers or boxes for temperature-controlled transport of goods that must not be exposed to temperature fluctuations, such as vaccines, pharmaceutical products or blood products.

"This requires great effort for storage and temperature monitoring as any deviations can result in the blood products no longer being reliable and as such, they can no longer be used," explains Dr. Veronika Brixner from the Hesse | Baden-Württemberg Blood Donor Service.

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"Passively cooled transport units are a vital part of our PharmaChain. They use VIPs and, depending on the required temperature, either cool packs or dry ice," confirms logistics service provider Kühne+Nagel, which is involved in the delivery of COVID-19 vaccines.

5 benefits of VIP with AEROSIL® fumed silica for cooled transportation

- Reliable passive cooling
- Lower energy consumption and CO_2 emissions thanks to energy retention
- Up to 20% more transport and storage volume thanks to thin-walled boxes
- Low weight
- Sustainable thanks to long life cycle of over 30 years

Making the logistics of critical refrigerated goods sustainable is one of Kühne+Nagel's highest goals. "One prerequisite is to reduce CO_2 emissions through lower weight and volume, but also the ability to reuse transport containers which prevents waste," explains the logistics company. VIPs with AEROSIL® from Evonik convince all along the line.

Read interviews and more facts about the benefits of AEROSIL® in VIPs for use in cold chains in our **Product Story.**

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Company information
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The Smart Materials division includes businesses with innovative materials that enable resource-saving solutions and replace conventional materials. They are the smart answer to the major challenges of our time: environment, energy efficiency, urbanization, mobility and health. The Smart Materials division generated sales of €3.24 billion in 2020 with about 7,900 employees.

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