

## LafargeHolcim supplies high-performance concrete for the European XFEL super laser in Germany

High performance concrete from LafargeHolcim lines the 3.4 kilometer tunnel housing the world's most powerful X-ray laser, European XFEL near Hamburg, Germany.

The European XFEL generates extremely intense X-ray flashes that are used by researchers from all over the world. The flashes produced in underground tunnels allow scientists to map atomic details of viruses, film chemical reactions, and study the processes in the interior of planets.

LafargeHolcim, through its local company Holcim Deutschland, delivered specialist concrete for the facility's extensive underground tunnel system including easy-to-pump heavy concrete for radioprotection and underwater concrete.

LafargeHolcim's concrete engineers also developed special concrete mixes specifically for European XFEL. These fulfilled the building contractor's requirements for reduced content of aluminum, sodium, silica and magnesium, which can traditionally be found in concrete and may have interfered with the highly sensitive measurements. Some concrete mixes, for instance, required the use of special limestone chippings to deliver particularly low silica levels. Together with the contractor, the Group carried out extensive chemical and physical tests for every concrete mix to ensure the highest performance levels for the project could be reached.

LafargeHolcim also developed an integrated logistics solution for the European XFEL. As part of the concept the Group had to make sure that deliveries complied with strict traffic, dust and noise regulations.

Today, with its global R&D center in Lyon, France, and building on the extensive tunneling expertise available in the Group, particularly in Switzerland, LafargeHolcim is uniquely placed to support architects and engineers by delivering construction materials to handle the specifications of technologically challenging projects all over the world.



High-performance concrete by LafargeHolcim for the tunnels of the European XFEL (Photo: European XFEL)

## About LafargeHolcim

LafargeHolcim is the leading global building materials and solutions company serving masons, builders, architects and engineers all over the world. Group operations produce cement, aggregates and ready-mix concrete which are used in building projects ranging from affordable housing and small, local projects to the biggest, most technically and architecturally challenging infrastructure projects. As urbanization increasingly impacts people and the planet, the Group provides innovative products and building solutions with a clear commitment to social and environmental sustainability. With leading positions in all regions, LafargeHolcim employs around 90,000 employees in more than 80 countries and has a portfolio that is equally balanced between developing and mature markets.

More information is available on [www.lafargeholcim.com](http://www.lafargeholcim.com)  
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## About LafargeHolcim in Germany

In Germany, LafargeHolcim employs around 2,200 people working at 150 sites in 13 German federal states. The Group is present through Holcim Deutschland and Holcim Süddeutschland. In its German markets, LafargeHolcim is one of the largest manufacturers of building materials. The Group's core business includes the production and sale of cement and special binding agents, aggregates, ready-mix concrete, and precast concrete parts, supplemented by services in research & development, logistics, and export. The Group's German companies have contributed to landmark projects such as the Elbe tunnel (Hamburg), Nord Stream: two 1,224-kilometer natural gas pipelines through the Baltic Sea (Russia - Mecklenburg-Vorpommern), the Elbphilharmonie (Hamburg), the newly constructed Schierstein Bridge (Hesse/Rhineland-Palatinate), the Vodafone Germany headquarters (Düsseldorf), and the construction of the highway A7 (Schleswig-Holstein).