Press Release

“SmartStreet” research by PORR

When AI gets involved with asphalt and concrete

Vienna, 17.02.2026 – When recycled material is added to asphalt and concrete, their properties change. The “SmartStreet” research project by PORR, in collaboration with the University of Innsbruck, now uses artificial intelligence to determine in advance what properties the finished product will ultimately have. This enables recycled materials to be upgraded and used more efficiently.

Including a high proportion of recycled content in construction materials reduces emissions and conserves natural resources. However, when natural aggregates in asphalt or concrete production are replaced with recycled material, the material properties change. This can also affect the durability of the construction materials. At some point, the material may no longer be suitable for its intended purpose. The catch is that – until now - it has only been possible to determine exactly how a specific concrete mix design performs in practice through product testing. This involves preparing small samples with varying proportions and different grain sizes of recycled material in complex processes and then testing them.

Using AI to determine material properties

The “SmartStreet” research project by PORR, in cooperation with the University of Innsbruck (Department of Materials Technology), is now training an AI system to do this. A neural network is learning how to determine the mechanical properties the final asphalt or concrete will have when different quantities and types of recycled material are added. The project runs from October 2025 to October 2028 and is funded by the Austrian Research Promotion Agency (FFG).

“It is, to our knowledge, the first research project of its kind”, says PORR CEO Karl-Heinz Strauss. The aim is to unlock the circularity potential of concrete and asphalt and to upgrade the recycled product. Since a large number of parameters influence the end result in concrete and asphalt mixes, the AI model incorporates various datasets, such as calculation results and test data. Future datasets can be added as well to continuously improve the AI model.

Insights for future construction projects

Karl-Heinz Strauss: “Virtually every construction project, especially in civil engineering, requires different concrete mix designs. The same applies to asphalt. Naturally, we aim to achieve the optimal mix both for the application and the highest possible recycled content. We see great potential in AI to make the process more efficient and to generate insights for future construction projects. At the same time, we have the opportunity to incorporate future findings and contributions from other partners”.

PORR is a pioneer in asphalt and concrete recycling. It is not only one of the leading construction materials recyclers in the sector - producing around 1.5 million tonnes of recycled material across the Group - but also operates Austria’s most advanced asphalt mixing plant at its Vienna-Simmering site, enabling a recycled content of up to 100%. The “SmartStreet” project is part of PORR’s group-wide innovation and sustainability strategy. It supports the

decarbonisation targets under the lever “Optimized Mixing Processes” and strengthens the circular economy field of action.

Reducing greenhouse gas emissions in the production of concrete and asphalt is a hot topic worldwide. Cement, used as a binding agent in concrete, is responsible for around 8% of global GHG emissions due to its energy-intensive production. In Austria, approximately 12.3 million cubic metres of concrete were produced in 2024.

Photos:

PORR asphalt mixing in Vienna-Simmering © PORR

Concrete is not just concrete © PORR

The press release including high-resolution images is available for download from the PORR Newsroom.

About the PORR Group

Top performance driven by innovation – that's what PORR has embodied for over 150 years. With around 21,000 employees and production output of around EUR 6.7 bn (business year 2024), PORR is one of the largest construction companies in Austria and among the top players in Europe. As a full-service provider, PORR offers every aspect of building construction, civil engineering and infrastructure construction along the entire value chain. The focus is on the home markets of Austria, Germany, Switzerland, Poland, the Czech Republic, Slovakia and Romania. PORR also works in selected international project markets such as Norway, the UK and Qatar. The PORR share is listed in the prime market segment of the Vienna Stock Exchange and is part of the ATX, Austria's leading index (ISIN: AT0000609607).
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