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Recycled Aggregate Concrete - Current Challenges

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The construction industry is one of the most resource-intensive economic sectors in the world. In the EU, it is responsible for using around 50% of all raw materials mined. 90% of the raw materials used are non-renewable mineral raw materials such as stones, gravel and sand. Their mining causes extensive interventions in nature and landscape.

At the same time, the construction sector produces one of the most voluminous waste streams. It is responsible for about 30% of the waste generated in the EU. 65% of these are mineral waste (concrete, brick, mortar), with the highest proportion being concrete.

Over 80% of construction and demolition waste is recycled for low-grade reuse in a circular economy (e.g. as loose-fill in road construction) and around 10% ends up in a landfill.

Recycled concrete presents an excellent opportunity to increase resource conservation in the construction industry significantly and to return a significant part of the mineral waste masses to building construction, thus closing material cycles.

This presentation will discuss the current scientific, technical, economic, public and legal barriers and challenges to the broader use of recycled aggregate in concrete.

Keywords: Recycled aggregate, recycled aggregate concrete, challenges, mechanical properties, durability