

Towards low-carbon and energy-efficient building materials

Dear Readers,

Welcome to the 5th issue of 2026, which brings together a wealth of cutting-edge research, industry dynamics, and innovative practices from around the world, focusing on the core theme of low-carbon transformation and sustainable development of the cement and building materials sector.

The **Spotlight** section presents the latest developments from global industry leaders for the low-carbon aim: from the innovative carbon capture and utilization (CCU) technology developed by the Rohrdorfer team, the low-carbon cement production exploration via electrified clay calcination, to the cooperation between Ecocem and TATA Steel on steel slag valorisation, which is also an indirect carbon-reducing routine by reducing clinker use at the end of concrete manufacturing. The layout adjustments and project progress of Heidelberg Materials, Holcim and other giants across Europe and Asia are all pursuing the aim.

The Process section features the industrial demonstration results of low-carbon supplementary cementitious materials prepared via CO₂-mineralization of steel slag, a landmark achievement in the synergistic reduction of industrial solid waste and carbon emissions. The Market Trends section further analyzes the global market prospect of steel slag valorisation. The Sustainability section reports the innovative integration of aerogel and gypsum-based materials for building energy efficiency. For those original academic research papers, it covers the frontier research of phosphogypsum foam concrete, gypsum board modification, cement clinker calcination in CO₂/O₂ atmosphere, and other directions, reflecting the latest academic achievements in the field.

This issue continues to uphold the current positioning of ZKG International, integrating global industry dynamics, academic research and engineering practice, and providing a professional communication platform for peers in the global building materials industry. I hope that all the news, perspectives, and insights presented in this issue will be helpful and interesting to you.



A stylized, handwritten signature in black ink, appearing to read 'Zuhua Zhang'.

Zuhua Zhang
Editor-in-chief