

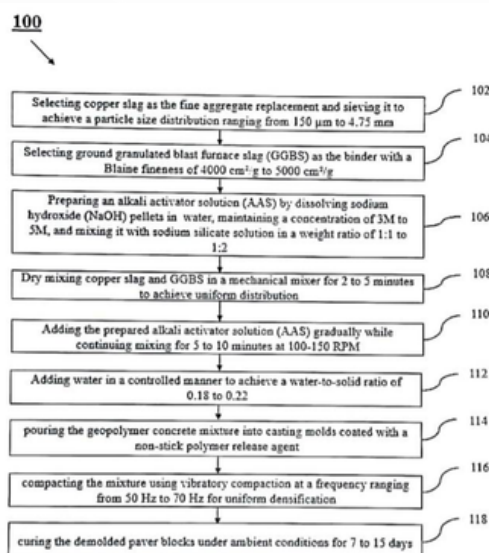
GEOPOLYMER BLOCKS AND METHOD OF MANUFACTURING THEREOF

Seeking parties interested in licensing and commercialization of technology.

Technology Brief

This technology relates to a sustainable geopolymer concrete block composition and manufacturing method that utilizes industrial by-products to eliminate the need for conventional cement and natural sand. The composition combines copper slag (CS) as a 100% fine aggregate replacement with ground granulated blast furnace slag (GGBS) as the primary binder, activated using an alkaline solution of sodium hydroxide and sodium silicate with controlled water content. Through mechanical dry mixing, liquid activation, vibratory compaction, and ambient-air curing, the geopolymer matrix achieves high early strength and exceptional durability. The resulting eco-friendly paver blocks reduce CO₂ emissions, divert heavy industrial waste from landfills, and minimize chemical activator consumption while delivering high-performance structural capabilities suitable for heavy-traffic civil infrastructure.

Block Diagram



Technical Applications

This technology is primarily applied in civil engineering, urban infrastructure, and sustainable construction projects requiring heavy-duty load-bearing performance. It is particularly well-suited for high-traffic paving applications, including municipal roads, pedestrian sidewalks, parking structures, industrial flooring, port terminal yards, and highway pavements.

Salient Features

- ✓ 100% Cement & Sand Replacement
- ✓ Superior Strength at Reduced Chemical Demand
- ✓ Energy-Efficient Ambient Curing

Glimpse of the Technology



REFERENCE NUMBER

ITNT-TECH-0185



TECHNOLOGY SECTOR

Clean Energy & Sustainability



IP STATUS

Patent Granted



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202541085790



TECHNOLOGY READINESS LEVEL

TRL 4

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