

# SILT BASED COMPOSITE CONCRETE



## BACKGROUND

Fine-grained silt poses significant construction challenges due to moisture retention, leading to unstable ground and difficult foundation on which to work. Remote regions, rich in silt from glacial activity, face high costs and environmental impacts from imported traditional cement binders. Current methods for utilizing silt are limited, failing to fully leverage its potential or address associated environmental and logistical issues.

## DESCRIPTION

The innovators developed a composite material using locally sourced silty soils, eliminating the need for importing traditional Portland cement. It employs an alkali-activation process, mixing silt with water-based alkali activators to form a binder comparable to concrete. The method includes a curing regime that can use ambient temperature, compression, or solar-powered electrolysis to enhance strength. The process can be adapted for more clay-like soils and relies on compaction for higher strength, avoiding thermal curing.

## ADVANTAGES

- Lower environmental impact
- Enhanced material strength
- No thermal curing
- Non-corrosive activators

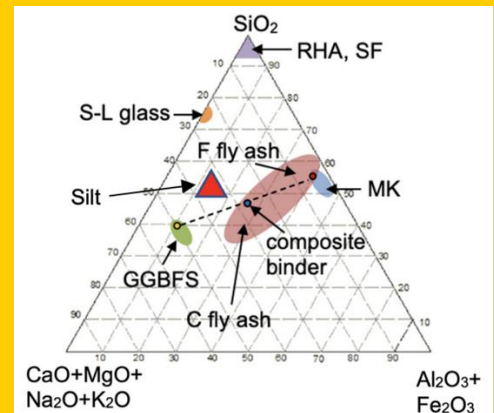
## APPLICATIONS

- Surface infrastructure - Durable roads and pavements
- Vertical infrastructure - Stable building foundations
- Soil stabilization - Preventing erosion and instability

## INTELLECTUAL PROPERTY

- Patent #63/798,299

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*Ternary phase diagram showing the composition of common aluminosilicate precursor materials used in the production of AACs. (RHA: Rice Husk Ash, SF: Silica Fume, MK: Metakaolin, GGBFS: Slag)*

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