

ASX ANNOUNCEMENT

10 September 2024

CO-OPERATION AGREEMENT EXECUTED WITH INDONESIA'S PT HUADI

HIGHLIGHTS

- Suvo's wholly owned subsidiary Climate Tech Cement Pty Ltd (CTC) has executed a Co-operation Agreement with Indonesia's PT Huadi Bantaeng Industrial Park (PT HBIP).
- PT Huadi Nickel-Alloy Indonesia (PT HNI), a tenant of the Bantaeng Industrial Park, is a nickel pig iron (NPI) operation located in South Sulawesi, around 140 km southeast of the province's capital, Makassar.
- PT HNI produces and stockpiles significant quantities of a slag by-product (**the Material**) as part of its operations in Indonesia.
- CTC intends to undertake testing of the material to evaluate its suitability for use in the manufacture of geopolymers cement and or concrete products with the aim to replace traditional carbon-emitting clinker-based cement.
- CTC agrees to share the results with PT HBIP for the purpose of the parties considering whether to enter into a potential commercial arrangement, including with respect to the ongoing offtake of the material from PT HBIP and the commercialisation of the material by CTC.
- The worldwide production of cement equates to ~4.0 billion tonnes which results in ~3.2 billion tonnes of CO₂ per year, representing 8% of global greenhouse gas emissions.
- Geopolymer cement is formed by the reaction between an alkaline solution (chemicals and water) and an aluminosilicate source or feedstock (industrial by-product). Geopolymer is free from and a 100% potential replacement for the clinker-based cement powder within the building material known as concrete.

Aaron Banks
EXECUTIVE CHAIRMAN

Oliver Barnes
NON-EXECUTIVE DIRECTOR

Mark Pensabene
NON-EXECUTIVE DIRECTOR

Suvo Strategic Minerals Ltd. ABN 97 140 316 463
Head Office: Level 11, 40 The Esplanade, Perth, Western Australia 6000
Operations: 3610 Glenelg Highway, Pittong, Victoria 3360

suvo.com.au

ASX: SUV

Suvo Strategic Minerals Limited (ASX: SUV) (“Suvo” or “the Company”) is pleased to announce that its wholly owned subsidiary Climate Tech Cement Pty Ltd (**CTC**) has executed a Co-operation Agreement with Indonesia’s PT Huadi Bantaeng Industrial Park (**PT HBIP**), the managing Company of the Bantaeng Industrial Park.

PT Huadi Nickel-Alloy Indonesia (**PT HNI**), a tenant of the Bantaeng Industrial Park, is a nickel pig iron (**NPI**) operation located in South Sulawesi, around 140 km southeast of the province’s capital, Makassar. PT HNI produces and stockpiles significant quantities of a slag by-product (**the Material**) as part of its operations in Indonesia.

CTC intends to undertake testing of the material to evaluate its suitability for use in the manufacture of geopolymer cement or concrete products. CTC agrees to share the results with PT HBIP for the purpose of the parties considering whether to enter into a potential commercial arrangement including with respect to the ongoing offtake of the material from PT HBIP, and the commercialisation of the material by CTC.

Traditional Portland Cement vs Geopolymer

The worldwide production of cement equates to ~4.0 billion tonnes which results in ~3.2 billion tonnes of CO₂ per year, representing 8% of global greenhouse gas emissions. Cement powder is mixed with water and aggregates to make the building material known as concrete.

Portland cement production: *Source: cement.org/cement-concrete/how-cement-is-made/*



Mining and then grinding of raw material that includes limestone and clay; to a fine powder

CO₂ generation:

~5%

Drilling, blasting, hauling, crushing and grinding



Fine powder is heated at temperatures as high as 1450 °C in a kiln making clinker

~35%

Burning fuels to create energy (up to 1450 °C)



Clinker is ground with gypsum to create a fine powder known as cement

~55%

Release of CO₂ from calcination process during production



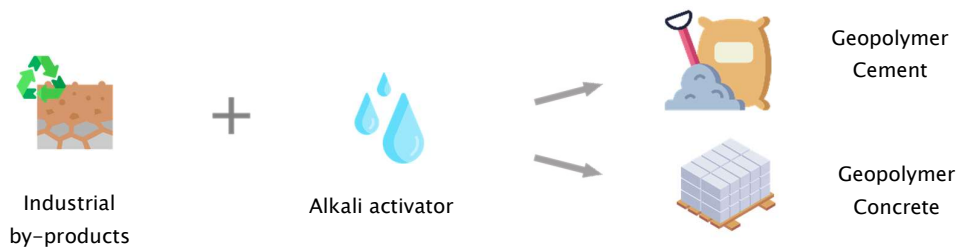
Cement powder is mixed with water and aggregates to make the building material; concrete

~5%

Transportation and logistics component of cement

Geopolymer cement and concrete

Geopolymer cement is formed by the reaction between an alkaline solution (chemicals and water) and an aluminosilicate source or feedstock (industrial by-product). Geopolymer is free from and a 100% potential replacement for the cement powder within the building material known as concrete.



Geopolymer market snapshot

The global geopolymer market size reached US\$7.3 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$40 Billion by 2032, exhibiting a growth rate (CAGR) of 20.9% during 2024–2032.

The growing focus on sustainable construction practices to reduce carbon footprint, rising awareness about environmental pollution, along with favourable government initiatives, and increasing demand for waste management solutions are some of the major factors propelling the market.

Geopolymer is an eco-friendly and sustainable choice for construction and infrastructure projects, the demand for geopolymers is rising across the globe.

Source: [imarcgroup.com/geopolymer-market](https://www.imarcgroup.com/geopolymer-market)

Executive Chairman Aaron Banks commented:

“We are excited to commence this workstream in Indonesia where we will be testing the by-product of one of the Country’s largest miners.

This has the potential to be a significant milestone for the Company as we intend to build on our intellectual property developed to date, locally here in Western Australia.

Our aim is to incorporate the slag by-product produced and stockpiled by PT Huadi in a geopolymer mix-design, with the goal being to make a geopolymer cement binder which could be an eco-friendly alternative to the high emitting traditional clinker-based cement binder currently used globally.”

Approved for release by the Board

–ENDS–

For further information, please contact

Aaron Banks
Executive Chairman
E: aaron.banks@suvo.com.au



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Co-operation Agreement Key Terms

Parties

Green Tech Cement Pty Ltd (CTC)
PT Huadi Bantaeng Industrial Park (PT HBIP)

Commencement Date

7 September 2024.

Term

This agreement will commence on the Commencement Date and will continue for a period 12 months from the Commencement Date unless terminated earlier in accordance with this agreement or law.

Either party may terminate this agreement if; subject to law, any insolvency event occurs with respect to the other party or the other party is in breach of this agreement and fails to remedy the breach within 30 days from receipt of a notice of breach by the terminating party.

Either party may terminate this agreement without cause by providing the other party 30 days' notice in writing.

Material

Slag by-product produced as part of the Indonesia operations.

Materials Transfer

Within 30 days from the Commencement Date, PT HBIP will endeavor to deliver the Material in such quantities, and within the time and place in Indonesia, agreed by CTC and PT HBIP.

Evaluation

CTC will use the Material to evaluate its potential for commercialisation as a component of a geopolymers cement or concrete products with the intention to create a local industry in Indonesia.

CTC will disclose to PT HBIP the details of the results of its evaluation of the Material. PT HBIP must treat the results as confidential information of CTC and must not use or disclose the results for any purpose other than to consider whether or not to enter into a further commercial relationship with CTC.

CTC will own any Intellectual Property Rights created as a result of its evaluation and testing of the Material including any CTC reports in relation to the evaluation and testing and any inventions or discoveries made by CTC using the Material.

Co-operation Meetings

The parties will confer either in person or using virtual meeting technology at least once a quarter during the Term to discuss in good faith the results of CTC's evaluation of the Material and a possible further commercial relationship between CTC and PT HBIP.

Financial Implications

The Co-operation Agreement is non-binding in nature and therefore no certainty can be provided at this point to successful deployment. Accordingly, there is no financial impact from this agreement.

Company Profile

Suvo Strategic Minerals Limited is an Australian hydrous kaolin producer listed on the Australian Securities Exchange (ASX:SUV). Suvo is focused on expanding sales of hydrous kaolin produced at its 100% owned Pittong operation located 40km west of Ballarat in Victoria. Suvo is also progressing commercialisation of the 'Murdoch Technology', namely Intellectual Property for a geopolymer concrete batching plant a low carbon geopolymer concrete formulation known as 'Collicrete', which it licenses under a worldwide and exclusive Intellectual Property License Agreement.

Pittong Operations

The 100% owned Pittong Operations, located in Victoria 40km west of Ballarat, is the sole wet kaolin mine and processing plant in Australia and has been in operation since 1972. Pittong comprises the Pittong, Trawalla and Lal Lal deposits located on approved Mining Licences MIN5408, MIN5365 and MIN5409 respectively. The Pittong processing plant has a name-plate capacity of 60,000 tonnes per annum.

At Pittong mining contractors deliver crude kaolin ore to stockpiles from the two currently operating mines, Pittong and Lal Lal. The plant takes its feedstock from the ROM and it is processed into four separate product forms for end users. These product forms are 10% moisture lump, high solids slurry, 1% moisture powder and 1% moisture pulverised powder. The solids slurry is used in paper and board manufacturing. The other products are used in paper, coatings, paint and specialist industries including rubber and pharmaceutical applications.

Geopolymer Concrete IP and Commercialisation

Suvo licenses the 'Murdoch Technology' from Murdoch University under a worldwide and exclusive Intellectual Property License Agreement. The Murdoch Technology is namely Intellectual Property for a geopolymer concrete batching plant a low carbon geopolymer concrete formulation known as 'Collicrete'.

Geopolymer concrete is a low carbon concrete that is made by reacting aluminate and silicate bearing materials with a caustic activator, such as metakaolin, flyash, ground blast furnace slag and other waste derived materials. Geopolymer concrete is a suitable replacement for concrete made using the traditional binder known as Ordinary Portland Cement (OPC). The manufacture of OPC is a highly emitting process representing 8% of global CO₂ emissions which is equivalent to the entire global car fleet.

Utilising the licensed IP, in a laboratory setting, Suvo has successfully produced three new geopolymer concrete formulations using caustic activators, metakaolin and flyash. The laboratory trials ran tests comprising five samples in each test returning an average compressive strength of 27 megapascal (MPa) up to 52MPa. The trials indicated the geopolymer concrete formulations using metakaolin and flyash showed a potential greenhouse gas emission reduction of up to ~70% compared to concrete made using OPC.

Suvo has entered into a binding Joint Development Agreement (JDA) with PERMAcast and is now in the process of incorporating a joint venture entity (SPV Entity) to develop and commercialize low-carbon geopolymer concrete (GPC) products. Under the binding JDA, Suvo and PERMAcast will prepare and test various formulations, assess their suitability for different applications, and determine the best route for commercialization through the jointly-owned special purpose vehicle.