Processing of single crystal silicon carbide for semiconductor material and chips applications · Clean Industry

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Country: Peru · Santa Anita, Lima **Category:** Clean Industry **Impact Areas:** Mitigation, Circular Economy **Stage:** Prototype **Team Size:** 3 **Website:** https://sites.google.com/d/1ddG2HovQkP4cHj95_9cJwH1NvZWIssZg/p/1XELD8W28bUI2Ve40kELb8aIXbrzhV4ri/edit?pli=1

Elevator Pitch

Produce monocrystal silicon carbide using low-cost raw material in controlled atmosphere, as the concept has a provisional patent at USPTO (United States Patent and Trademarks Office) US 63/724,687. It is possible to compete with Chinese technology.

Climate Problem

Conventional Acheson process of silicon carbide emits large amount of carbon dioxide, and the consumption of energy is large because requires 36 hr. Our process reaches a reduction of 30% in time and costs. Moreover, our method produces no CO2.

Solution

We use induction furnace, and a chamber in vacuum so little or no CO2 is produced. Polycrystal silicon carbide is our raw material, making its transformation in single crystal with no air emissions.

Revenue Model

We will produce Silicon carbide ingots to sell to wafers manufacturer; the actual price is between 5500 to 7000 USD/ingot; the trade market of SiC is growing by the using in EVs and on the high frequency operation chips for fast data processing.

Target Market

Single crystal silicon carbide semiconductor ingots, and wafer manufactures.

Social Impact

People of African Descent, Indigenous Peoples, Migrants, People Living in Extreme Poverty, Women

Demand Evidence

Global SiC ingots market was valued at USD 2.21 billion in 2025. It is projected to grow from USD 2.52 billion in 2026 to USD 7.24 billion by 2034, exhibiting a CAGR of 14.07% during this period. Source: https://www.fortunebusinessinsight.com/sic-ingots

Competitors

In South America only Brazil shares the global market by 1%, and their products are only for basic applications, and no semiconductor quality are being produced. We expected to compete with Chinese technology and marketing.

Founder Expertise

I worked in ceramics at University of Missouri-Columbia producing P-type semiconductor diamond for sensor applications. In Puerto Rico, I worked synthesizing alloy Si-Mn thermoelectric. In fact, I'm extensively trained in

Induction furnace operations.

External Support

Our concept was developed supported by own investment 25,000 USD to cover the purchasing of equipment, raw material, personnel, rent and services. Also, we are investing in paying our Patent at USPTO: US 63/724,687.

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