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(57) Abstract :

A layered nanocomposite panel (100) for high-temperature structural insulation includes a ceramic-coated polymeric barrier (101), a nano-silica aerogel layer (102), and a CNT-reinforced epoxy core (103). These layers are bonded with a heat-resistant adhesive (104) and supported by a carbon-fiber frame (105). The panel withstands temperatures up to 1200°C, offering low thermal conductivity and high mechanical strength.

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