

Production of Gravel from Lunar Soil Simulant by Rapid Microwave Sintering

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Process	Product Material
Compaction	Improved ground, Foundations
Packing in bags	Regolith bags
Mixing binder agents	Concrete, Geopolymer
Sintering	Bricks, Paving materials
Melting	Cast materials, fibers, rods
Reduction	Metals

Needs for Forming/Molding Works

➤ Conditions

Raw material: Lunar Soil Simulant (FJS-1)

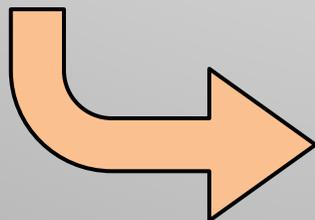
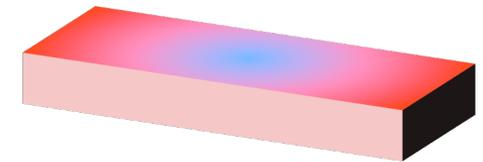
Product shape: Brick

Microwave: Multi-mode

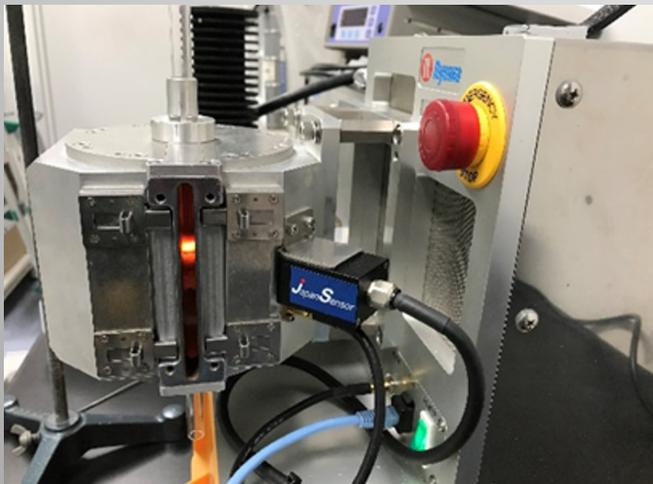
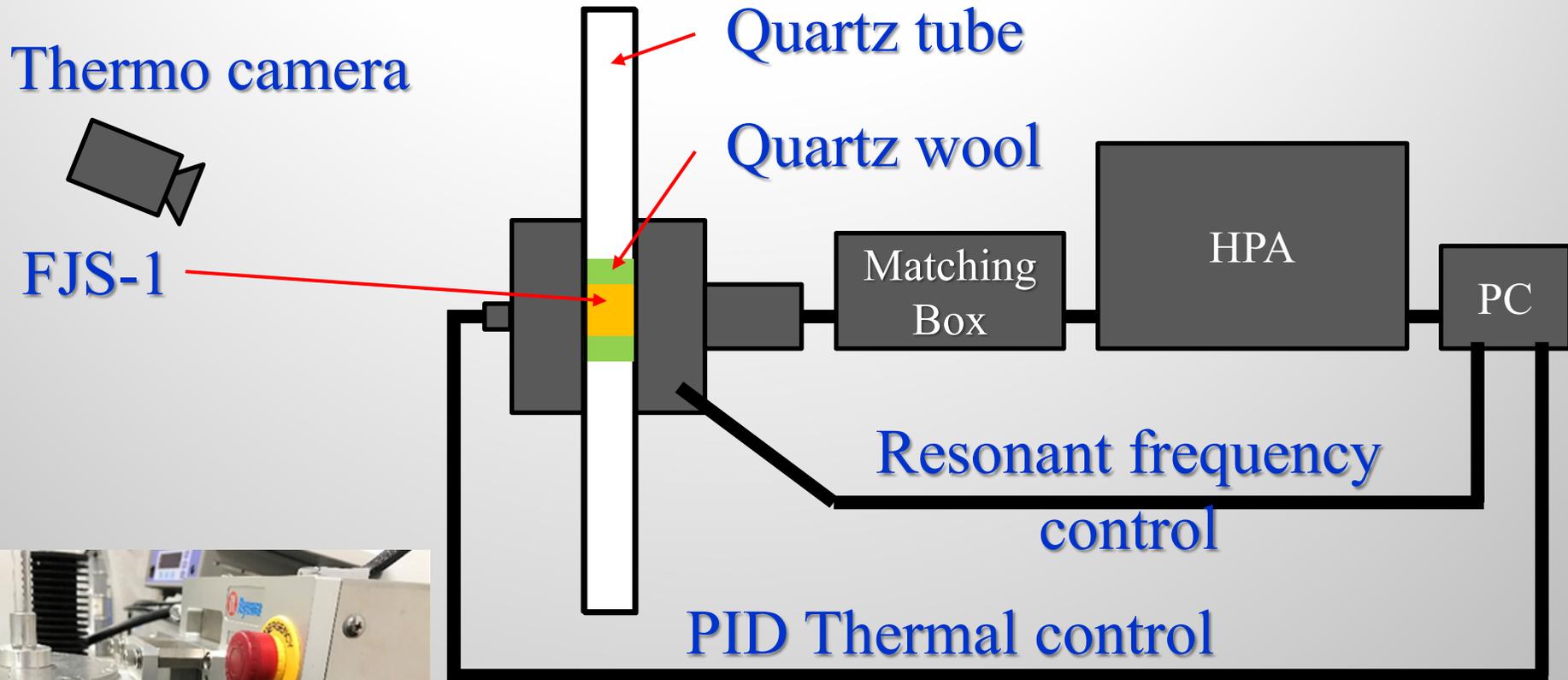
➤ Problems

Susceptor is required for sufficient sintering.

Homogeneous sintering was difficult.



Single-mode microwave resonator
Semiconductor microwave generator



Raw material: FJS-1

Microwave: Single-mode (TM_{010})

Air/ Vacuum



Technology Advancement Node for SpAce eXploration