Electronic Supplementary Material

High-efficiency and uniformity continuous-flow microwave heating system based on impedance gradient structure

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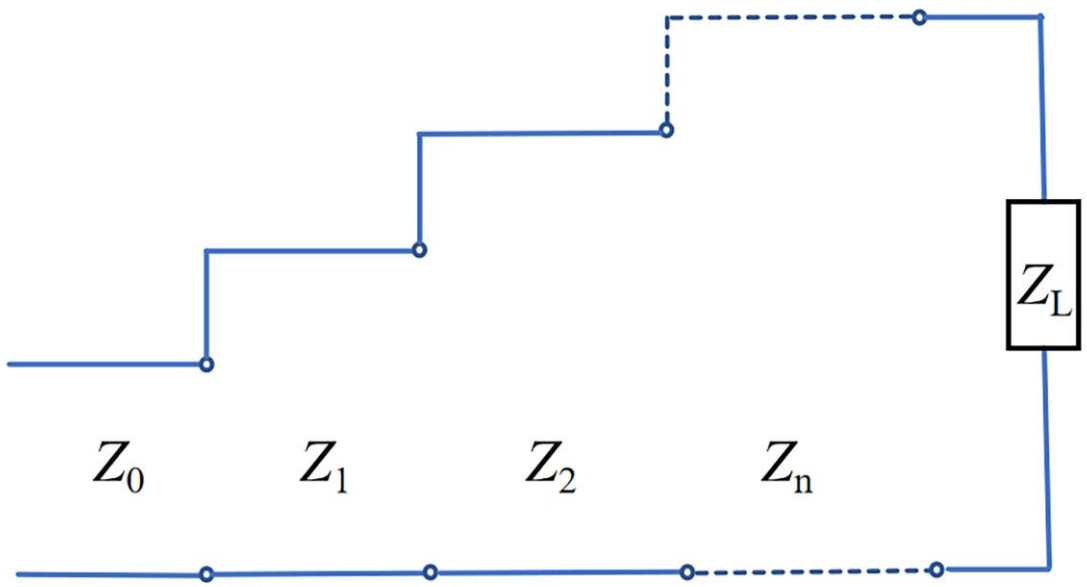

Figure S1. Schematic of tapered impedance structure.

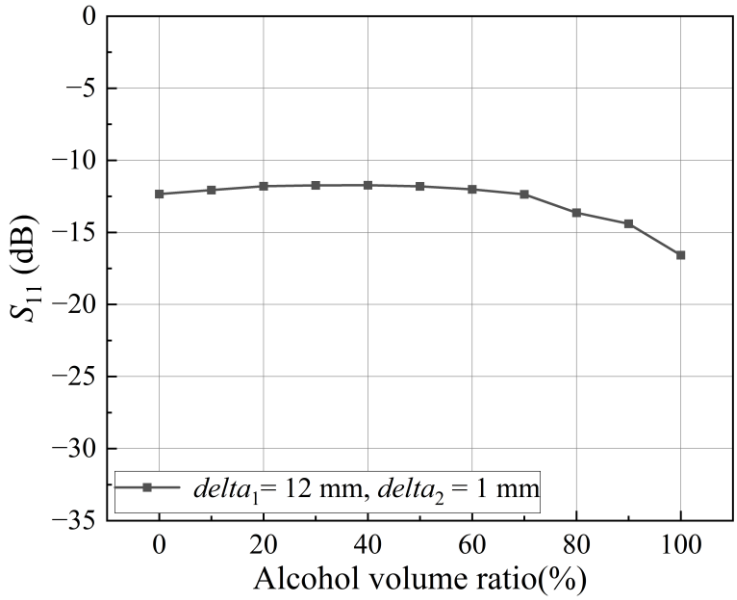

Figure S2. Reflection coefficients of porous SiC filled with ethanol solutions of different volume ratios.

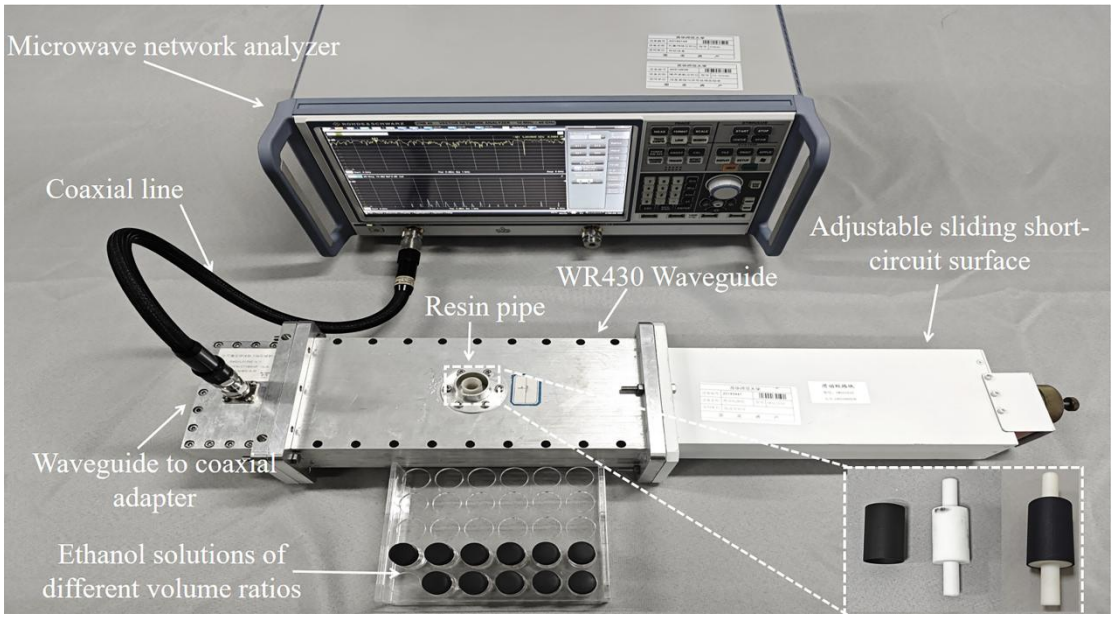

Figure S3. Energy utilization measurement system.

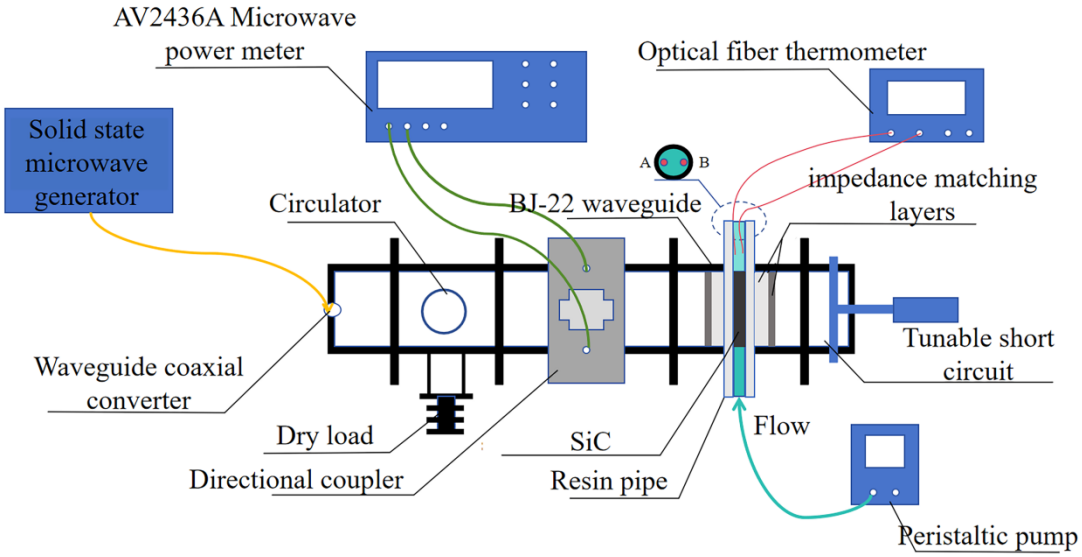

Figure S4. Schematic diagram of the continuous-flow heating system.

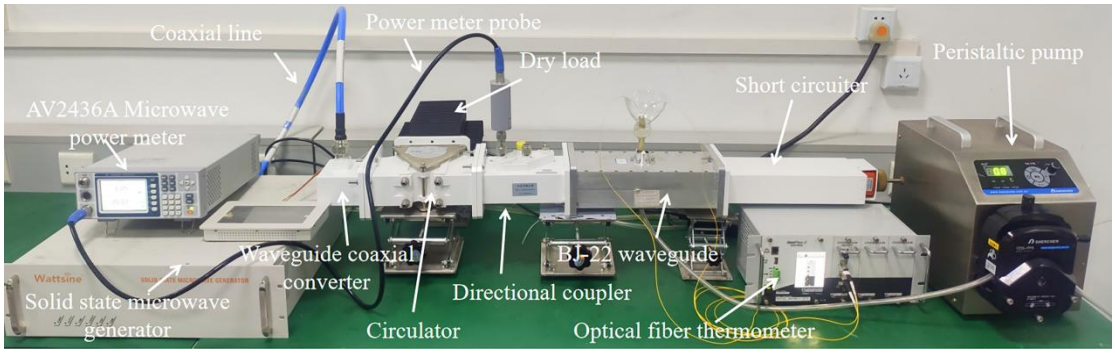

Figure S5. Microwave continuous-flow heating system.

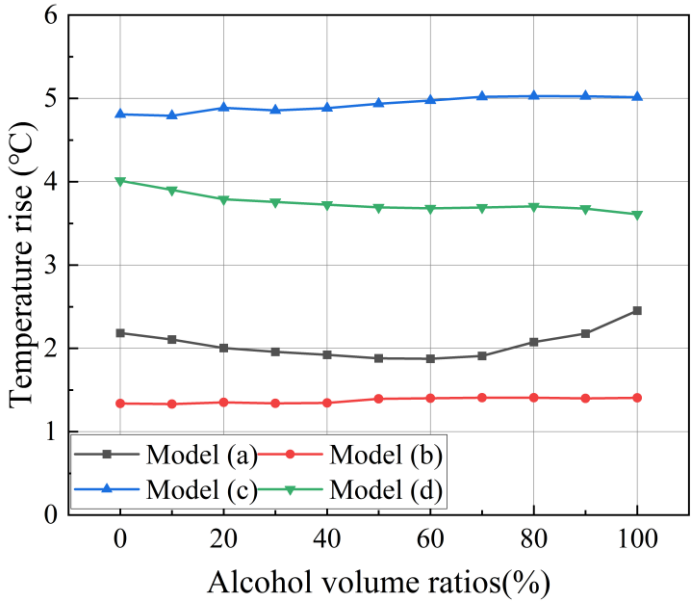

Figure S6. Mean temperature rise of the four models.

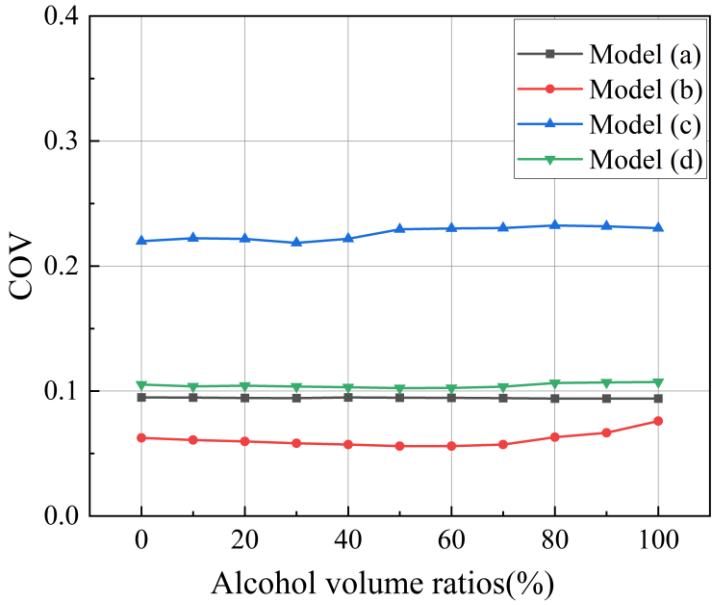

Figure S7. COV of the four models.

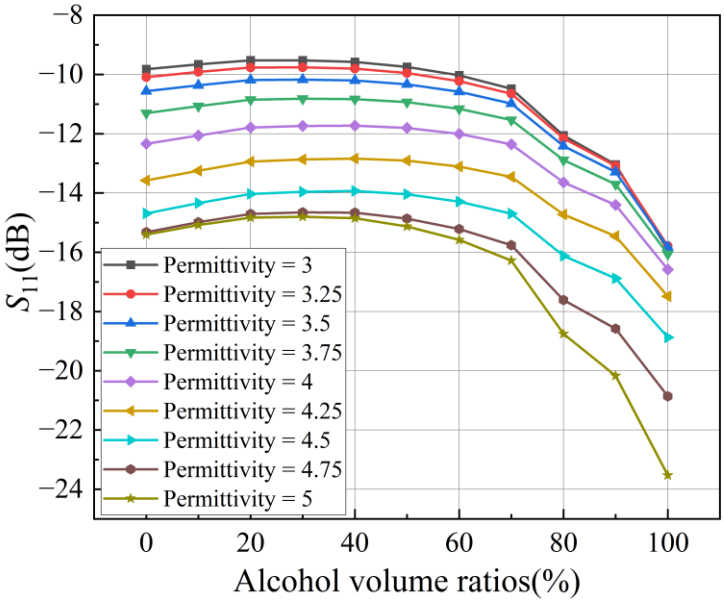

Figure S8. Reflection coefficients with different relative permittivity values of the tube.

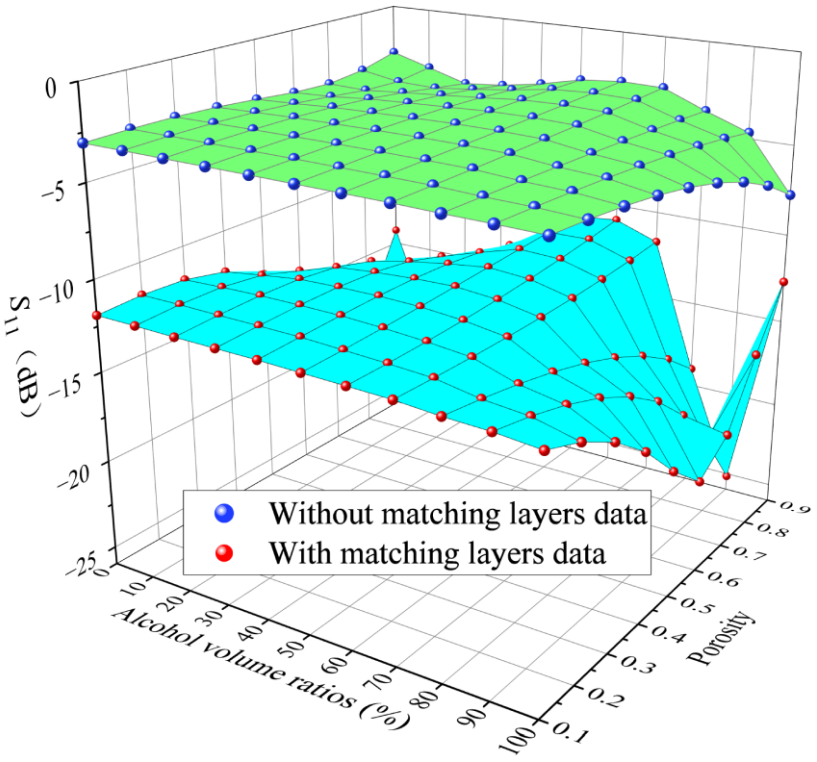

Figure S9. Reflection coefficients with different porosities.

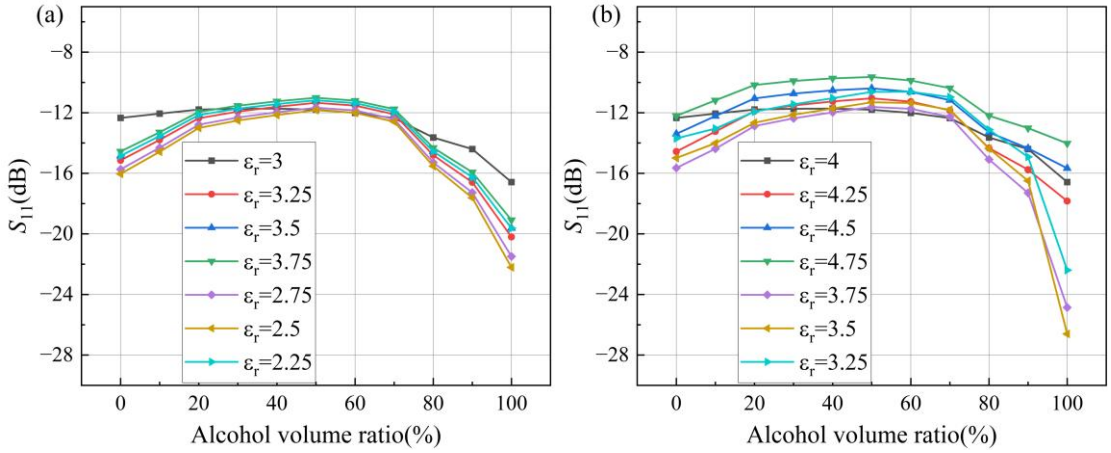

Figure S10. Reflection coefficients with different relative permittivity values of the matching layers. (a) the relative permittivity of the nylon matching layer is varied, and (b) the relative permittivity of the resin matching layer is varied.

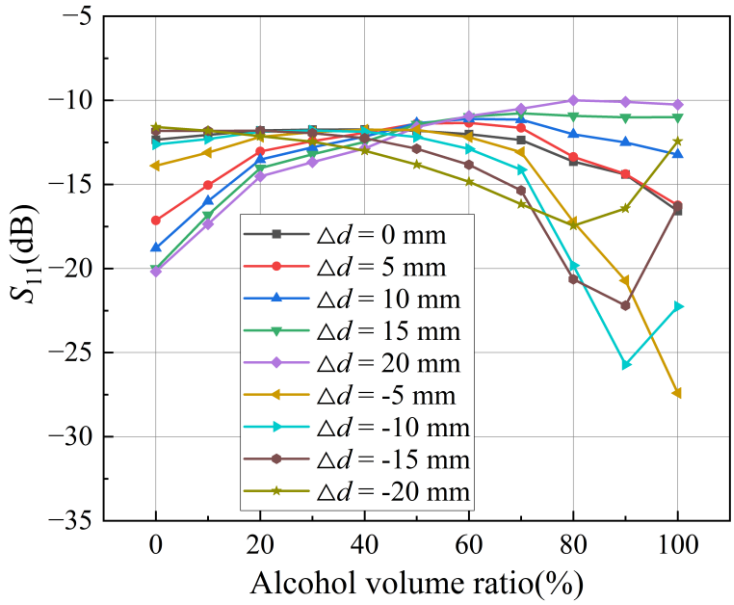

Figure S11. Influence of the distance between the resin tube and the short circuit on the reflection coefficient.

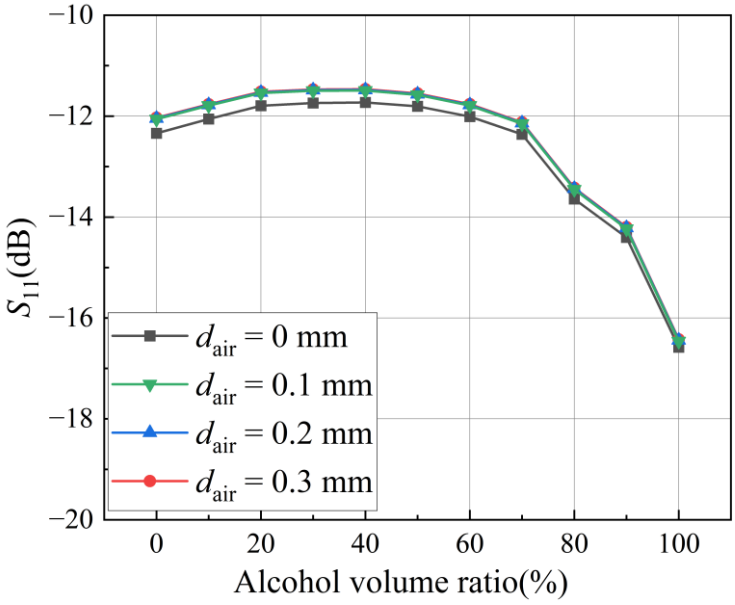

Figure S12. Effect of air gap on reflection coefficient.