

Electronic Supplementary Information:

Green co-precipitation byproduct-assisted thermal conversion route to submicron $\text{Mg}_2\text{B}_2\text{O}_5$ whiskers

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Preparation of various precursors and comparative experiments:

To investigate the effect of washing modes on the final calcined product, the as-obtained cake was pounded to pieces and immersed in 200 mL DI water for complete cleaning for 15 min and then filtered again before drying (Precursor-II), or simply and directly dried without washing (Precursor-III), or showered with alcohol instead of DI water before drying (Precursor-IV), with other conditions kept the same. For comparison, the white slurry originated from room temperature coprecipitation was directly transferred into the crucible and experienced calcination. Besides, a comparative experiment similar to the traditional flux method^[12, 21] for $\text{Mg}_2\text{B}_2\text{O}_5$ whiskers was also carried out (900 °C, 1.5-6.0 h) to see the facile post treatment of the calcined product in the present case, using the same reactants however assisted by additionally introduced abundant flux agent (molar ratio of additional $\text{NaCl}:\text{MgCl}_2$ *ca.* 3:2).

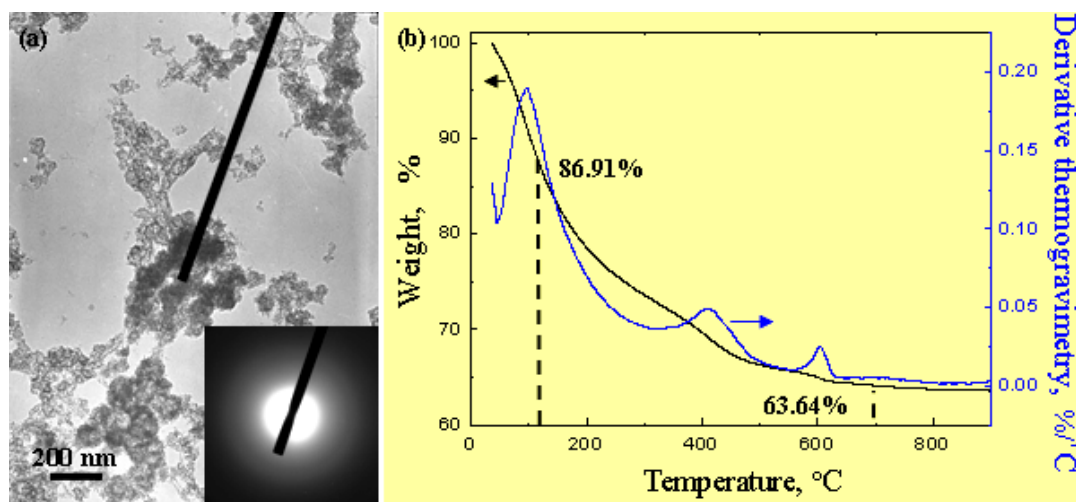


Figure S1. TEM image (a), SAED pattern (inset), and TGA (b) results of Precursor-I derived from the room temperature coprecipitation.

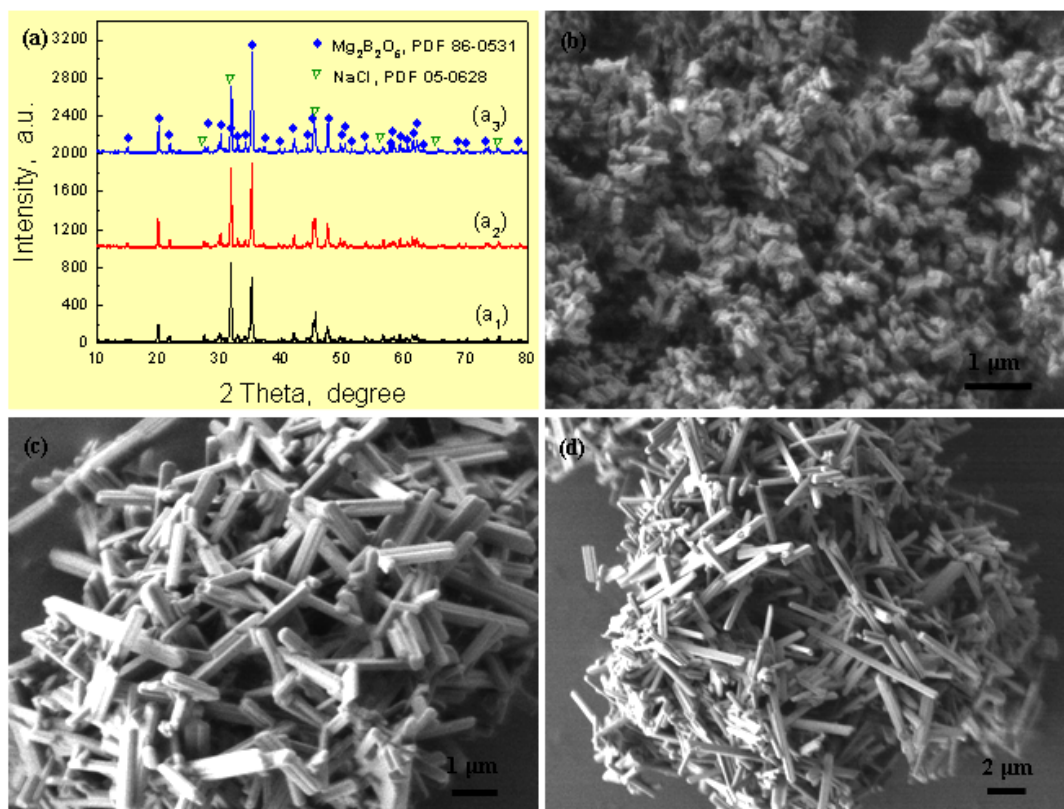


Figure S2. Composition (a) and corresponding morphology (b-d) of the products calcined at different temperatures, derived from Precursor-IV. Temperature (°C): (a₁,b)-700; (a₂,c)-800; (a₃,d)-900.