

Reactions and Morphologies of Mg and Mg/Teflon/Viton Particles during Oxidation

Yifan Li ¹, JieWang ¹, Dong Shen ², Haoying Liu ¹, Dongming Song ¹ and Yanchun Li ^{1,*}

¹ Department of Chemical Engineering, Nanjing University of Science and Technology, Nanjing 210097, China

² Zhejiang Material Industry Guanghua Civil Explosive Materials Co., Ltd., Hangzhou 310008, China

* Correspondence: liyanchun@njjust.edu.cn; Tel.: +86-13601457975

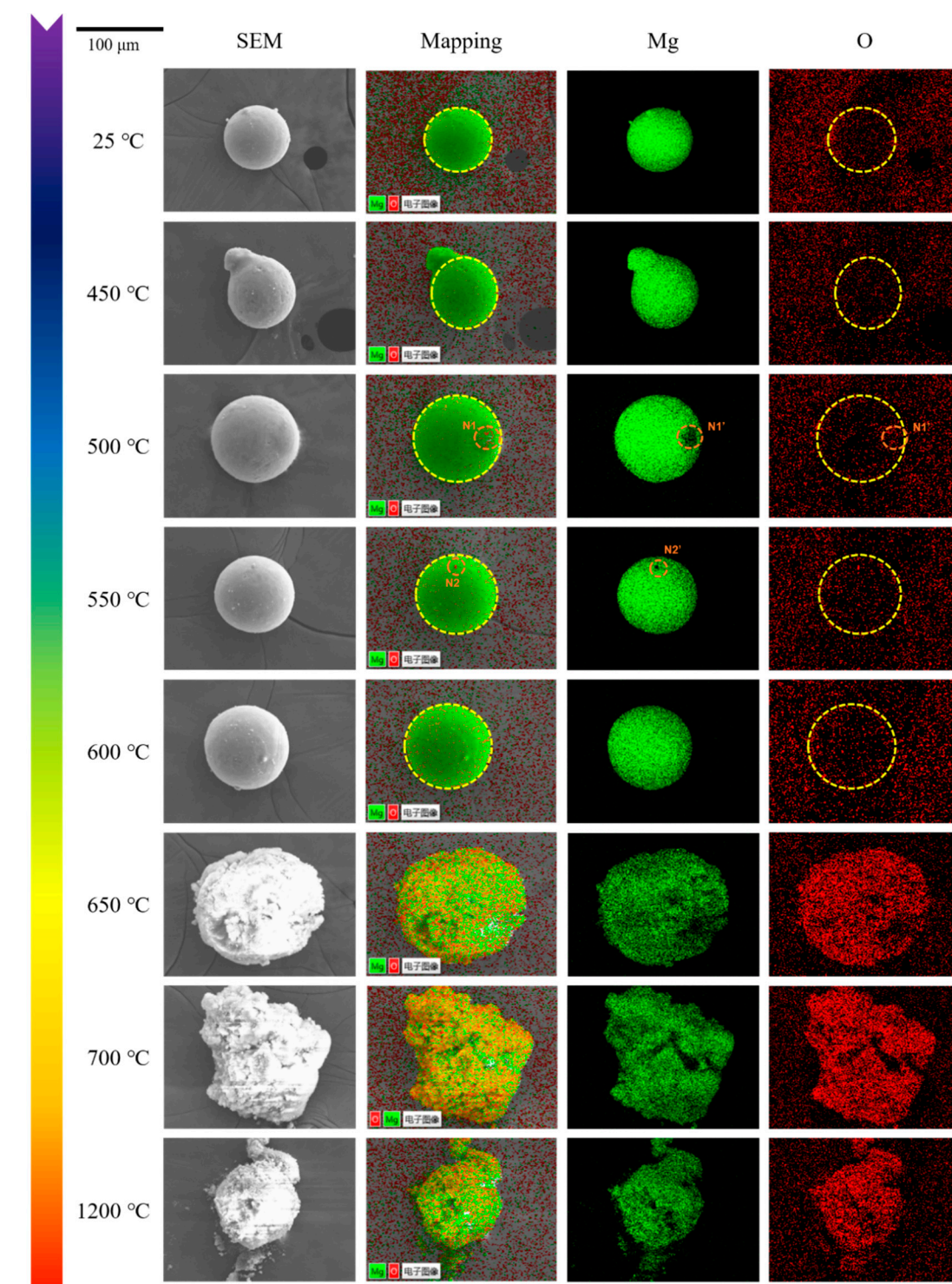


Figure S1. The mapping results of the surface of Mg after the heating at 300 °C, 400 °C, 500 °C, 600 °C, 700 °C and 1200 °C in O₂. The heating rate was 10 K/min. The magnification was 5000 times.

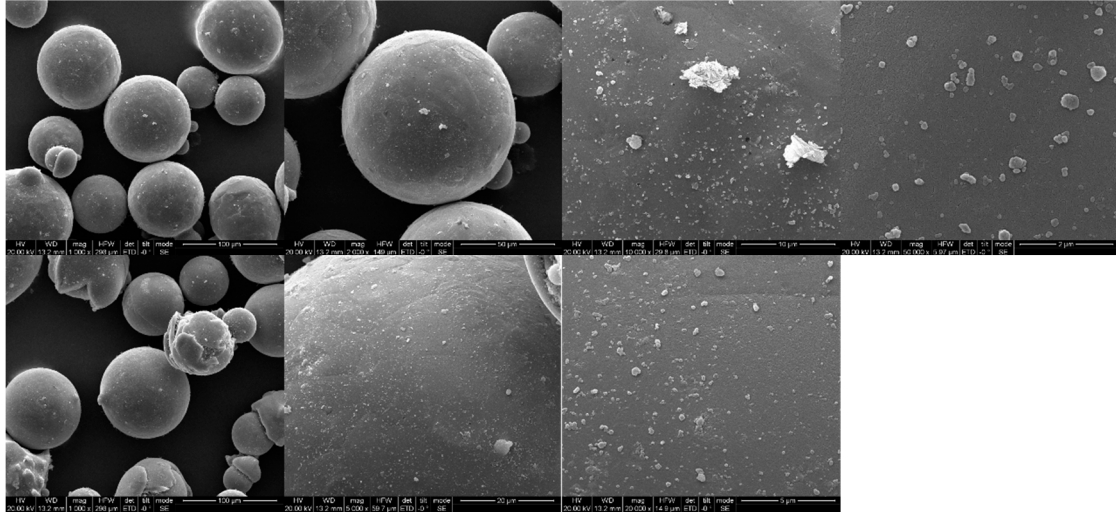


Figure S2. The SEM results of the surface of Mg at 25 °C

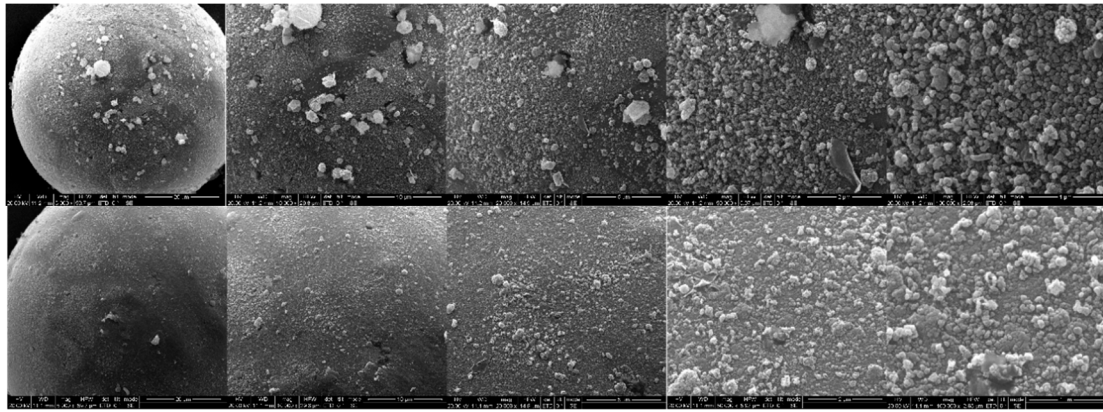


Figure S3. The SEM results of the surface of Mg after the heating at 500 °C in O₂.

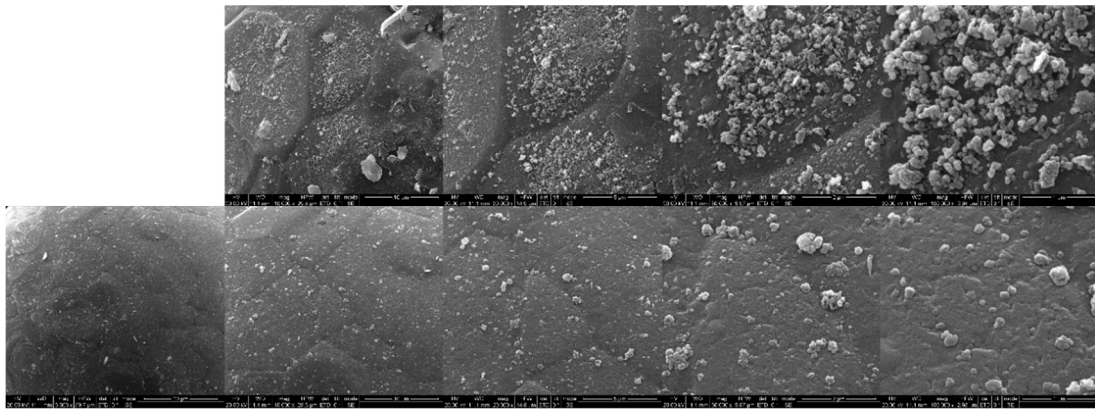


Figure S4. The SEM results of the surface of Mg after the heating at 550 °C in O₂.

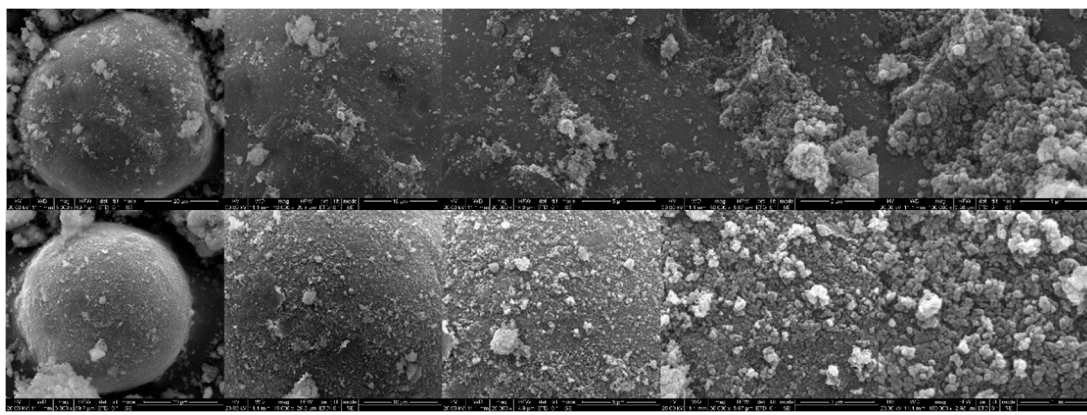


Figure S5. The SEM results of the surface of Mg after the heating at 600 °C in O₂.

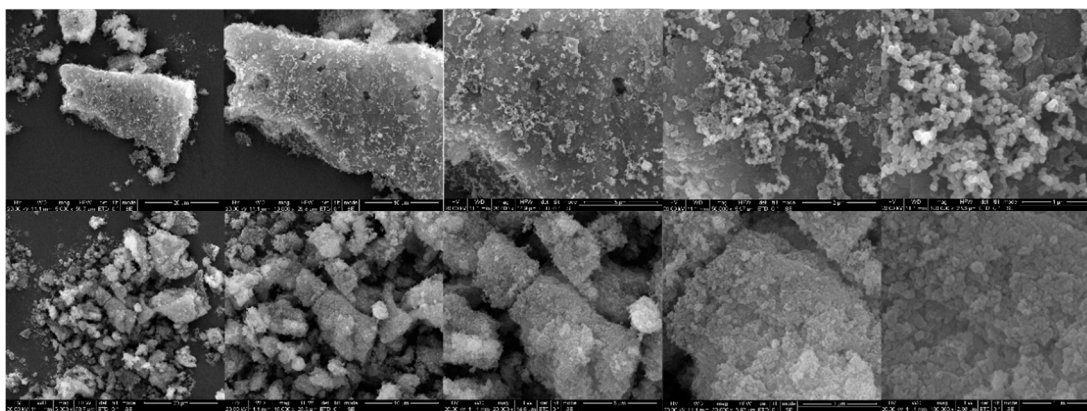


Figure S6. The SEM results of the surface of Mg after the heating at 650 °C in O₂.

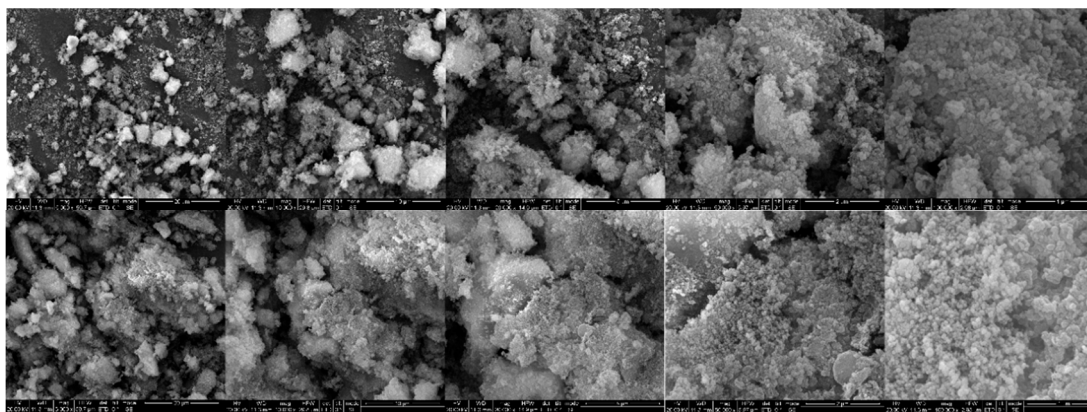


Figure S7. The SEM results of the surface of Mg after the heating at 700 °C in O₂.

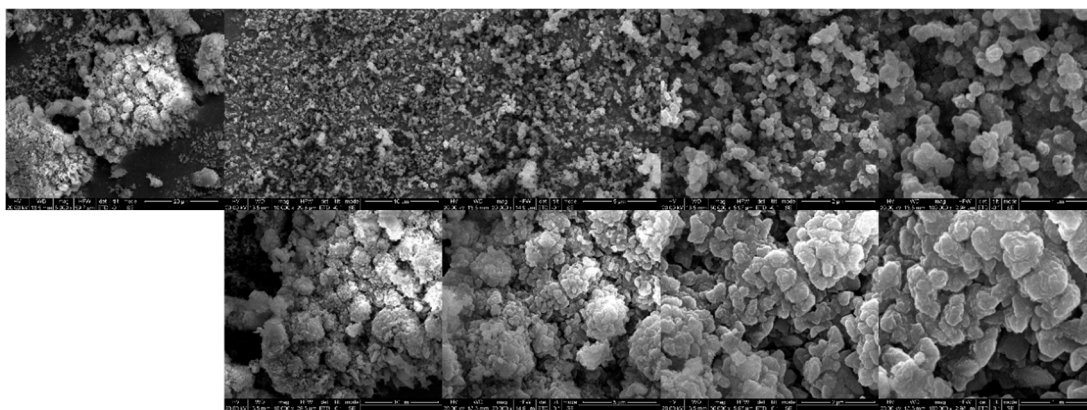


Figure S8. The SEM results of the surface of Mg after the heating at 1200 °C in O₂.

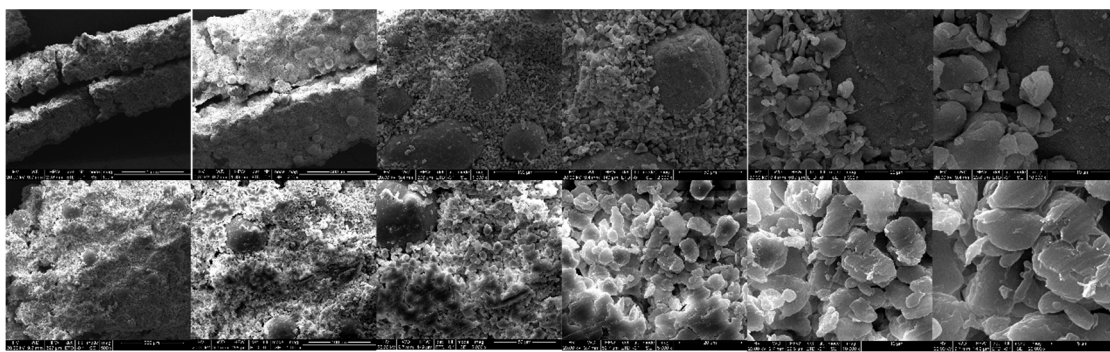


Figure S9. The SEM results of the surface of MTV at 25 °C.

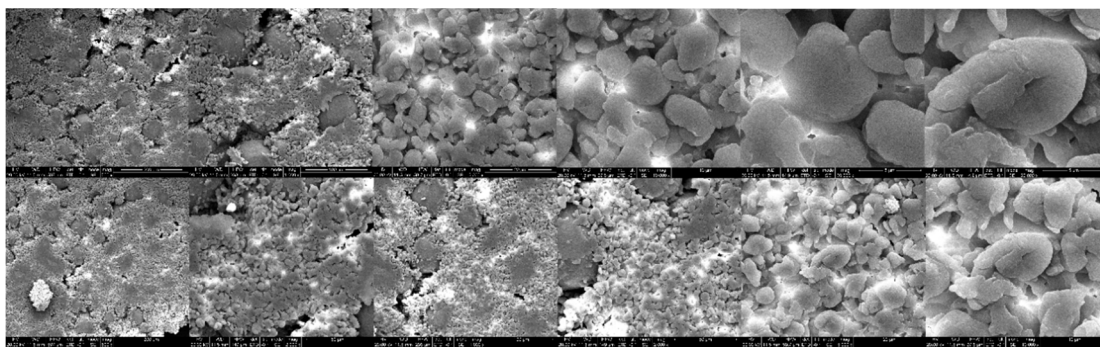


Figure S10. The SEM results of the surface of MTV after the heating at 300 °C in air.

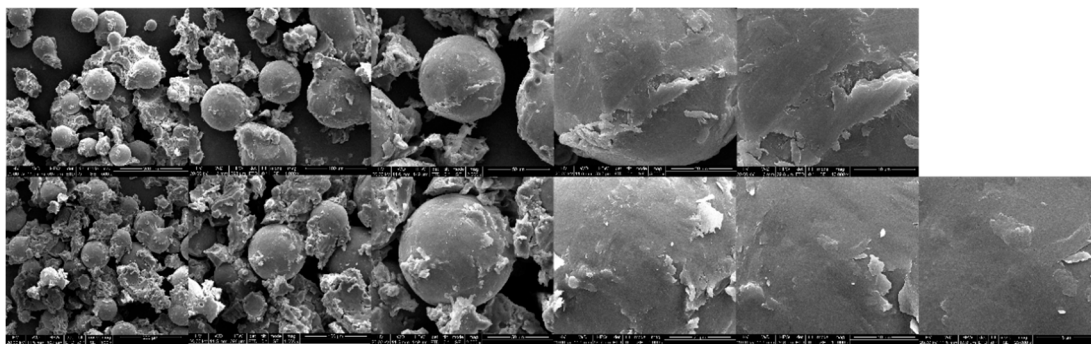


Figure S11. The SEM results of the surface of MTV after the heating at 400 °C in air.

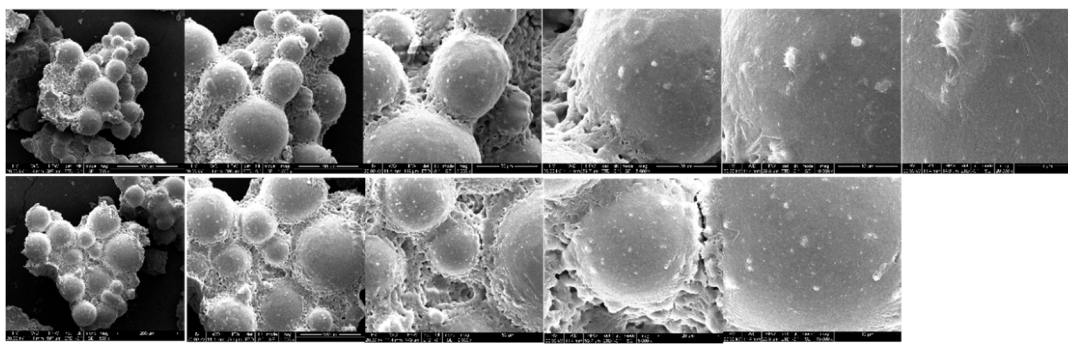


Figure S12. The SEM results of the surface of MTV after the heating at 500 °C in air.

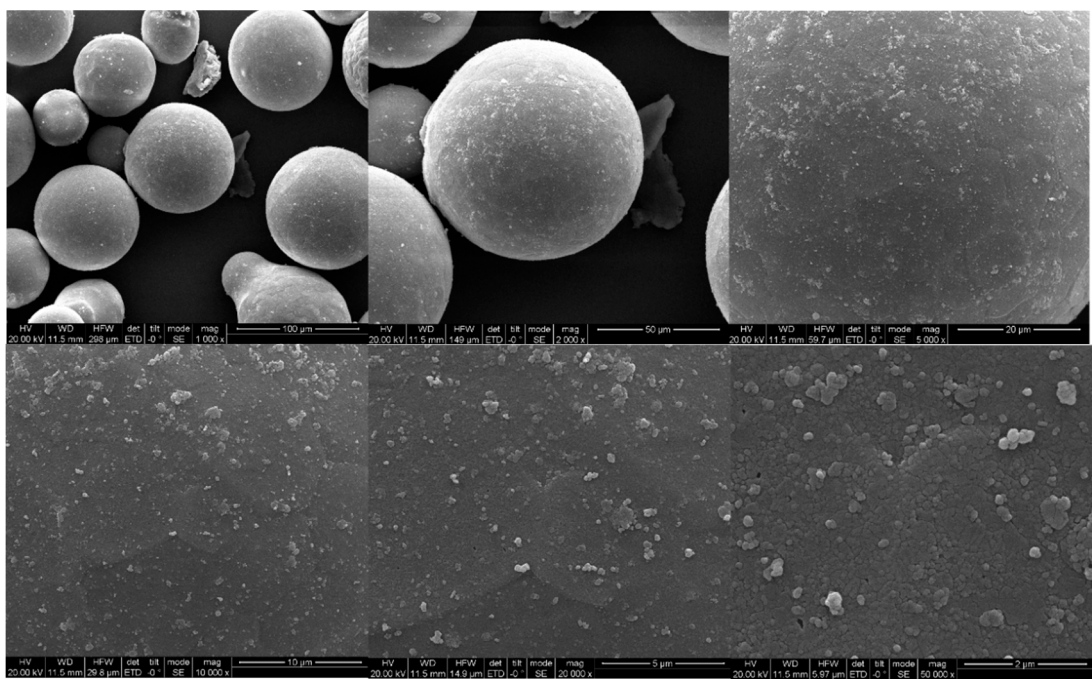


Figure S13. The SEM results of the surface of MTV after the heating at 600 °C in air.

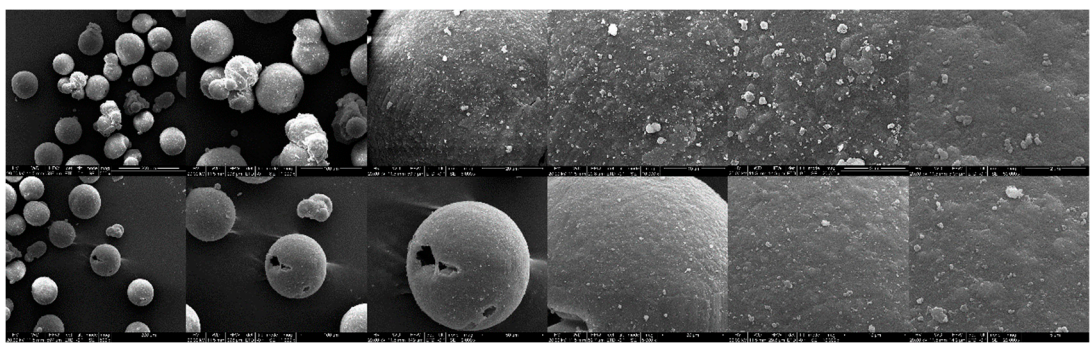


Figure S14. The SEM results of the surface of MTV after the heating at 700 °C in air.

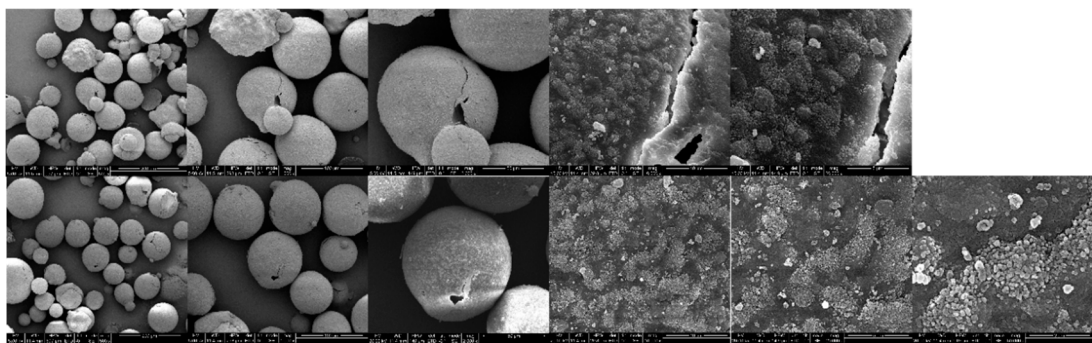


Figure S15. The SEM results of the surface of MTV after the heating at 800 °C in air.

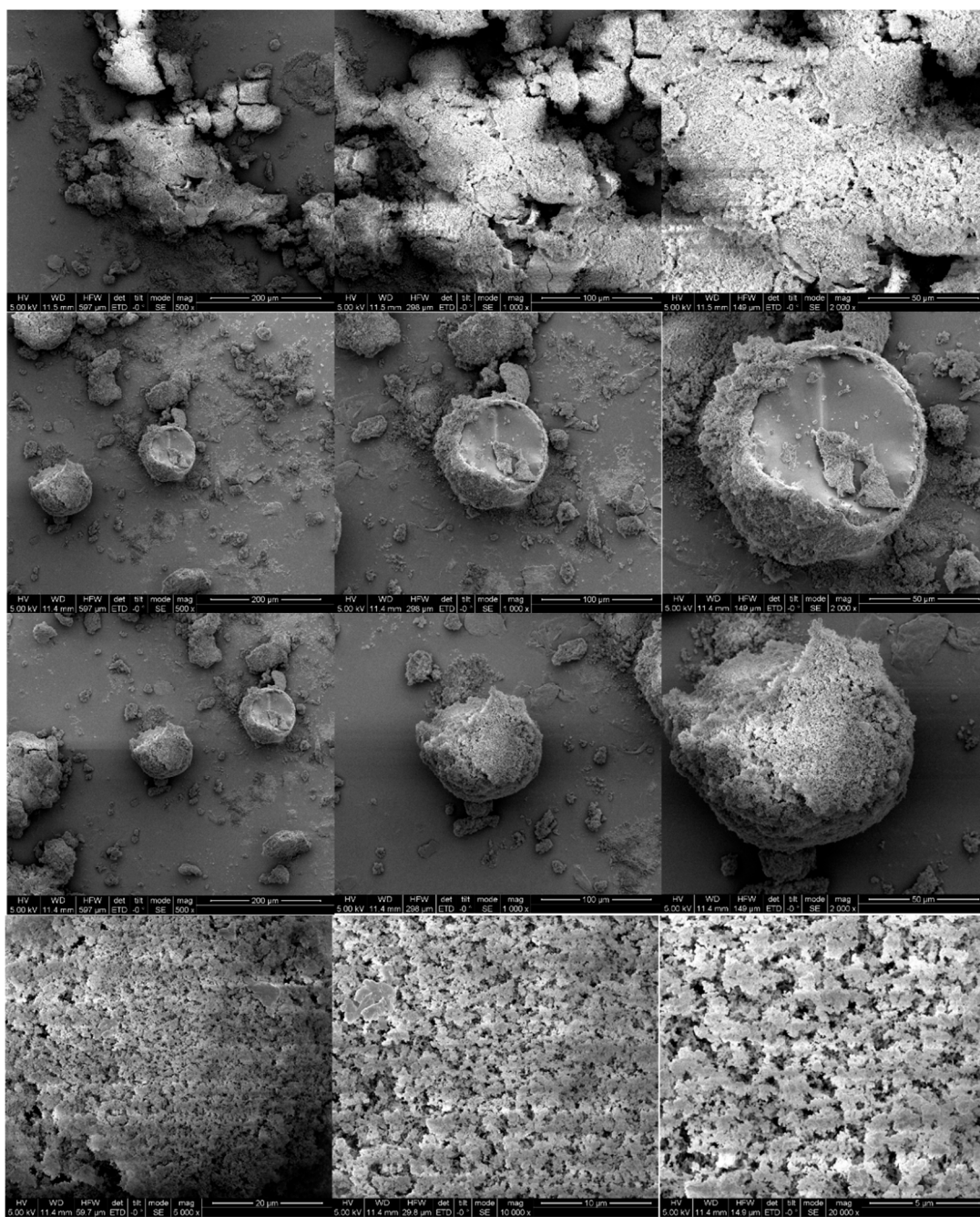


Figure S16. The SEM results of the surface of MTV after the heating at 900 °C in air.

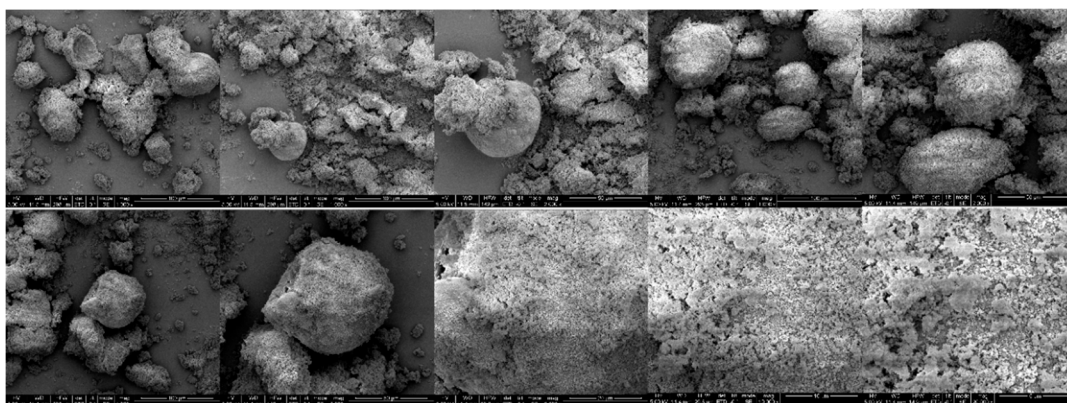


Figure S17. The SEM results of the surface of MTV after the heating at 1000 °C in air.

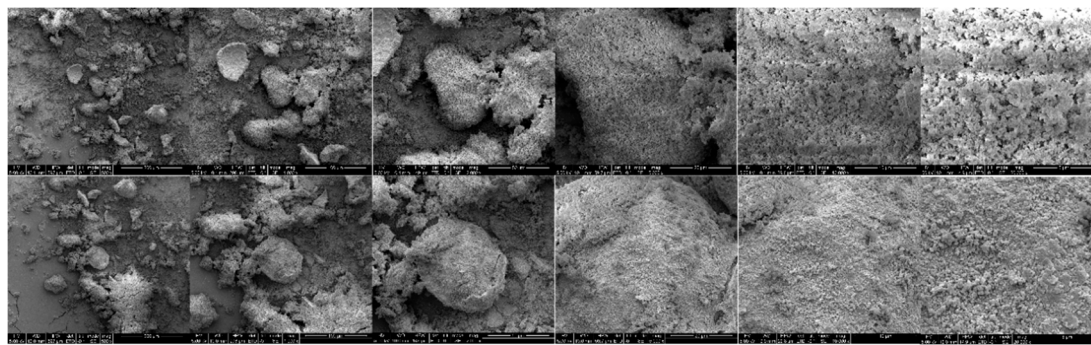


Figure S18. The SEM results of the surface of MTV after the heating at 1100 °C in air.

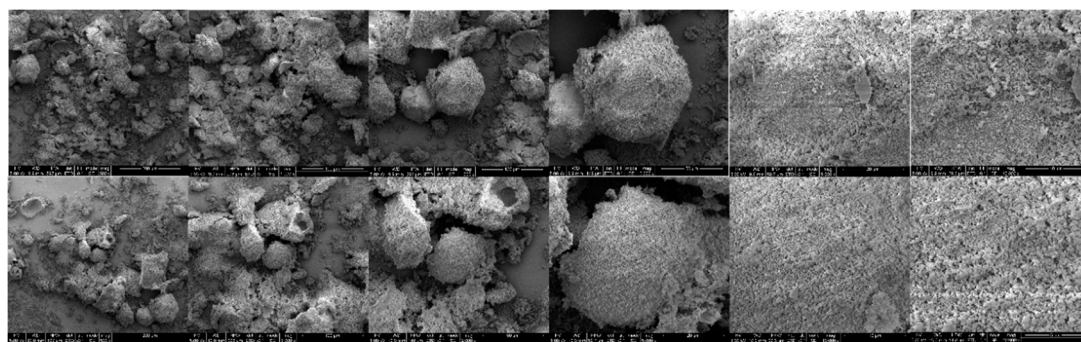


Figure S19. The SEM results of the surface of MTV after the heating at 1200 °C in air.

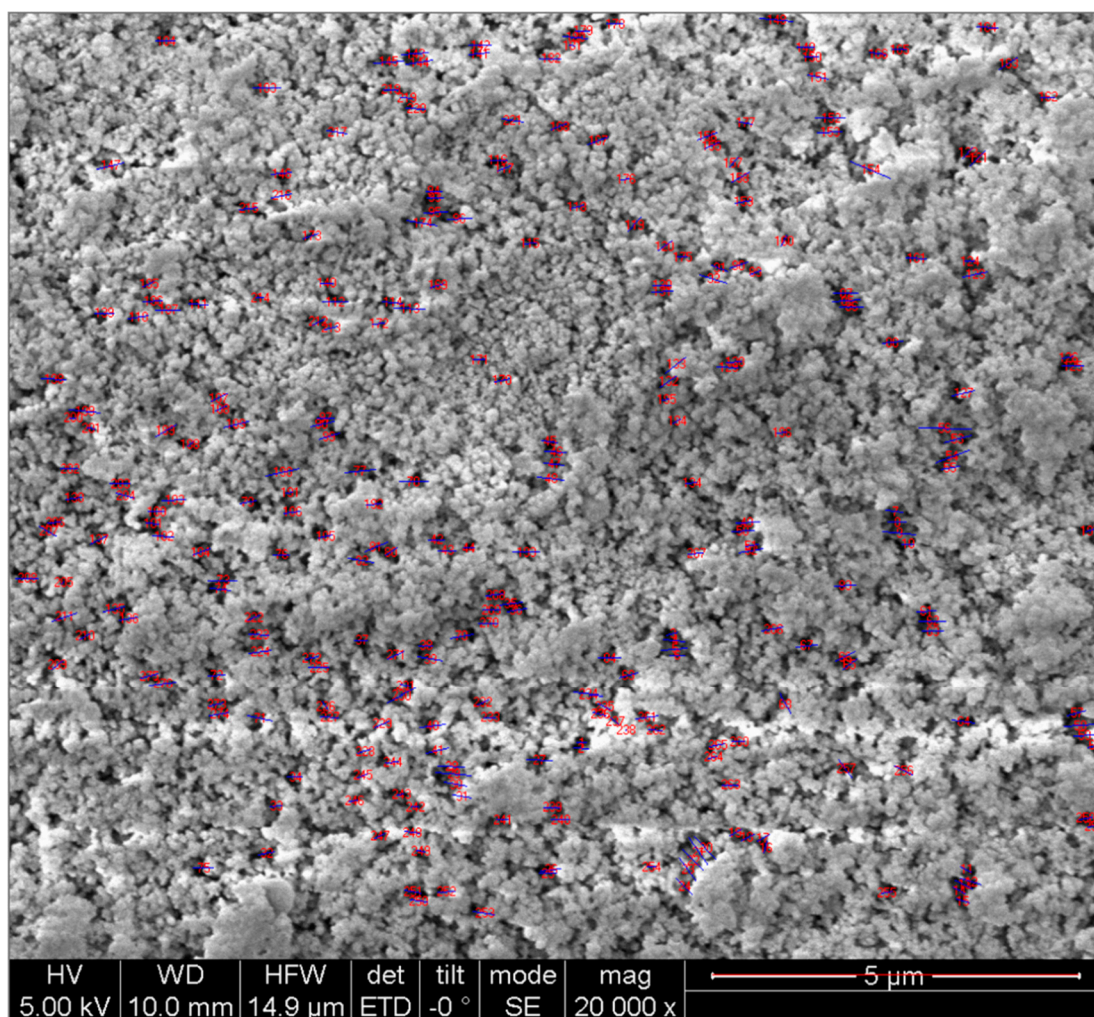


Figure S20. The calculation area of Nanometer 1.2 on the surface of MTV after the heating at 1200 °C in air.

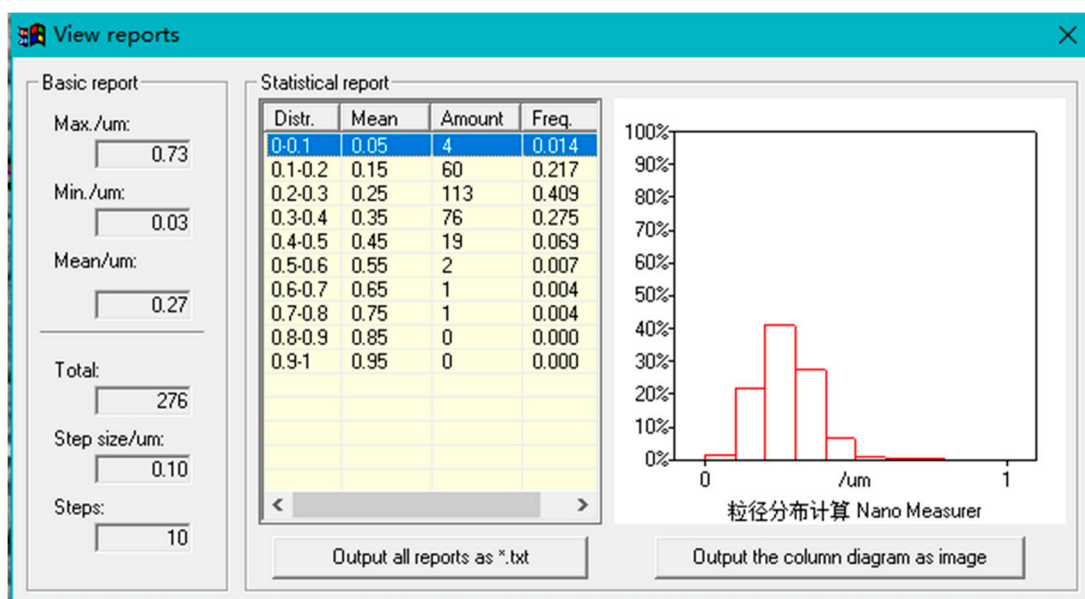


Figure S21. The calculation report of Nanometer 1.2 on the surface of MTV after the heating at 1200 °C in air.

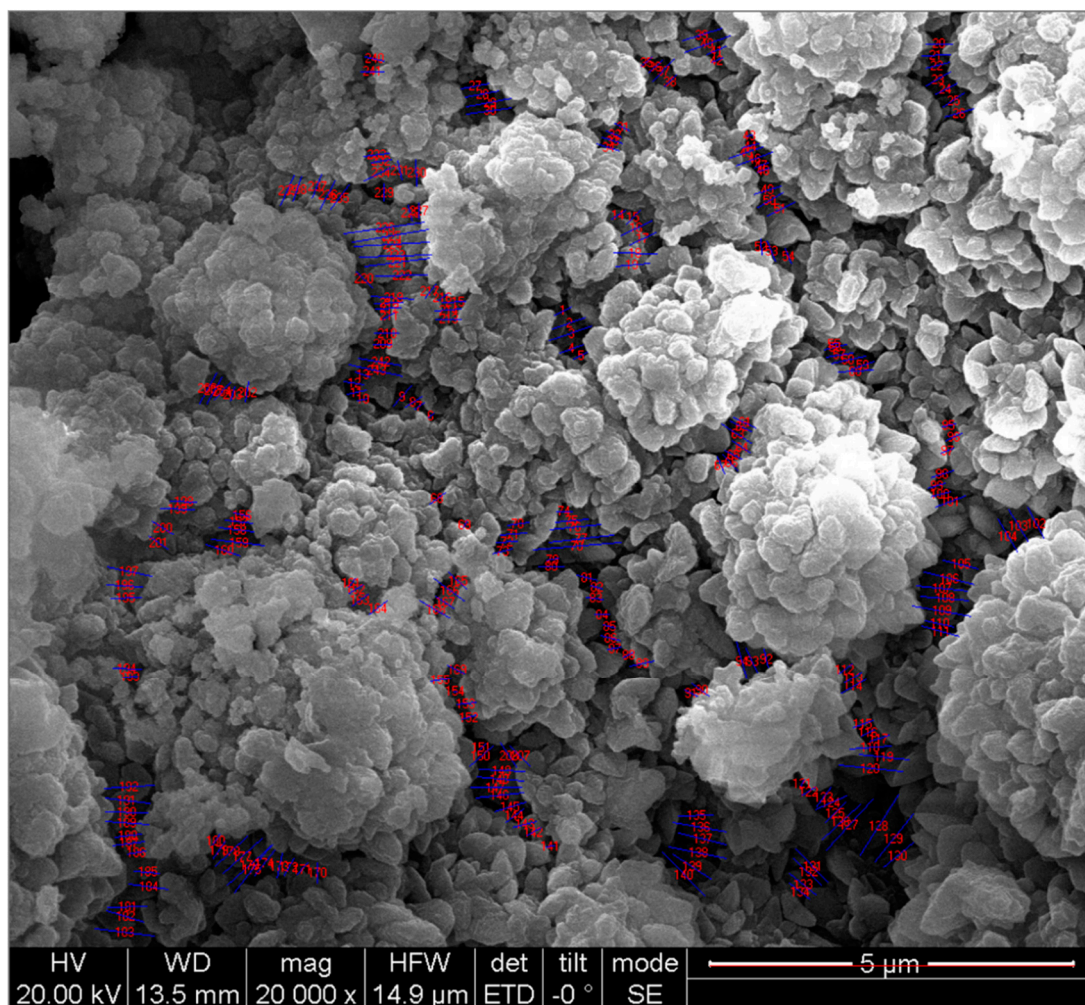


Figure S22. The calculation area of Nanometer 1.2 on the surface of Mg after oxidizing at 1200 °C in O₂.

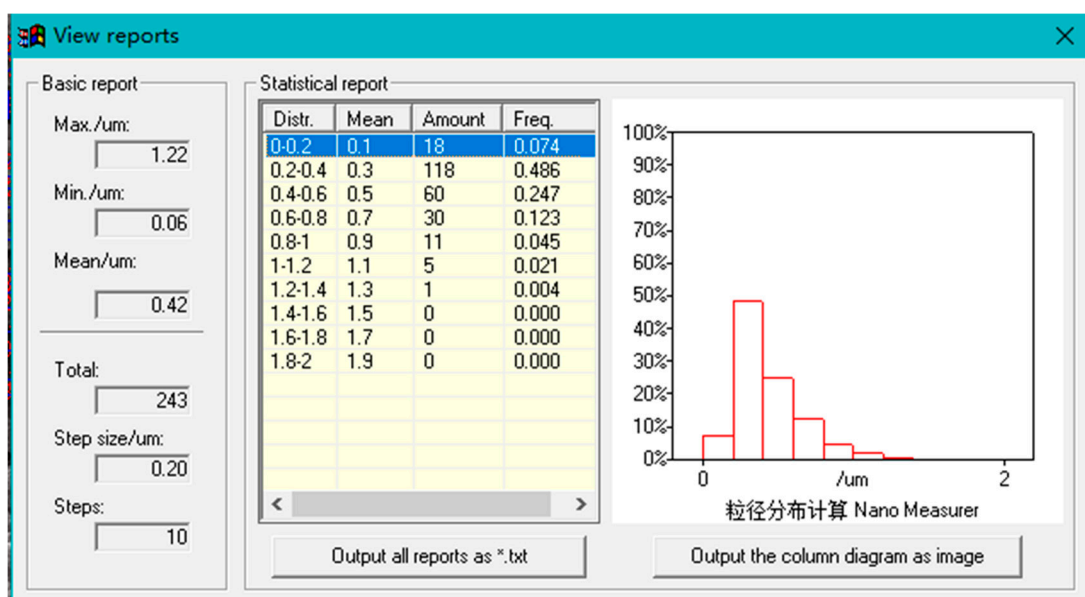


Figure S23. The calculation area of Nanometer 1.2 on the surface of Mg after oxidizing at 1200 °C in O₂.

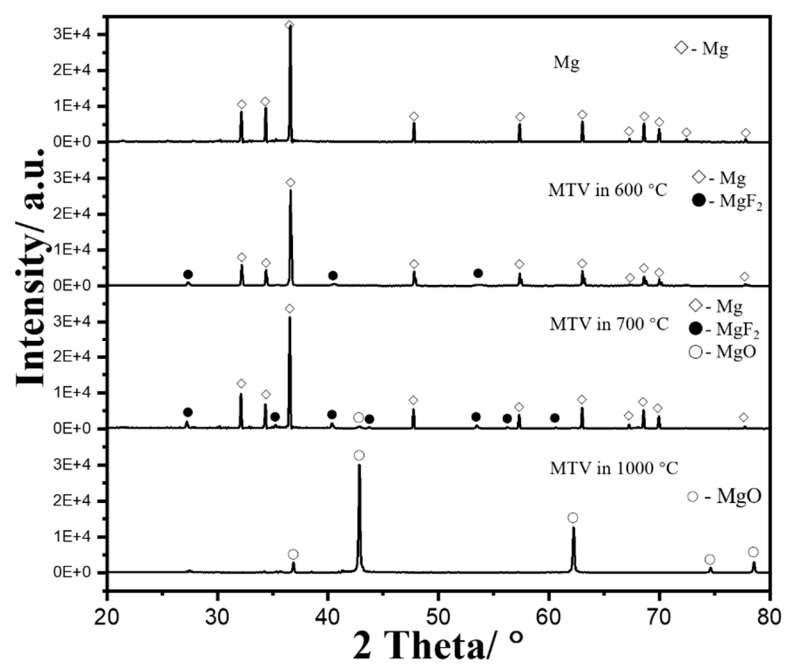


Figure S24. The XRD results of the residues of MTV after calcinated at 600, 700 and 1000 °C [1] in air, respectively.

Reference

[1] Y. Li, J. Wang, H. Liu, Combustion properties of Mg-based ignition charge using Mg-Gd alloy powder as the fuel, Chemical engineering journal (2022) 441.