

Supplementary

High-Efficiency Catalysis of Peroxymonosulfate by MgO for the Degradation of Organic Pollutants

Qian Peng^{1,2}, Xuekun Tang^{1,2}, Kun Liu^{1,2,*}, Xianping Luo³, Dongsheng He⁴, Ying Dai^{1,2} and Ganghong Huang^{1,2}

¹ School of Minerals Processing and Bioengineering, Central South University, Changsha 410083, China; pengqianhn@163.com (Q.P.); txk0797@126.com (X.T.); yingdaiyeah@163.com (Y.D.); ghhuang@csu.edu.cn (G.H.)

² Hunan Key Laboratory of Mineral Materials and Application, Central South University, Changsha 410083, China

³ School of Resource and Environmental Engineering, Jiangxi University of Science and Technology, Ganzhou, 341000, China; lxp9491@163.com

⁴ Xingfa School of Mining Engineering, Wuhan Institute of Technology, Wuhan 430074, China; hds@wit.edu.cn

* Correspondence: kliu@csu.edu.cn

Received: 15 November 2019; Accepted: 16 December 2019; Published: 18 December 2019

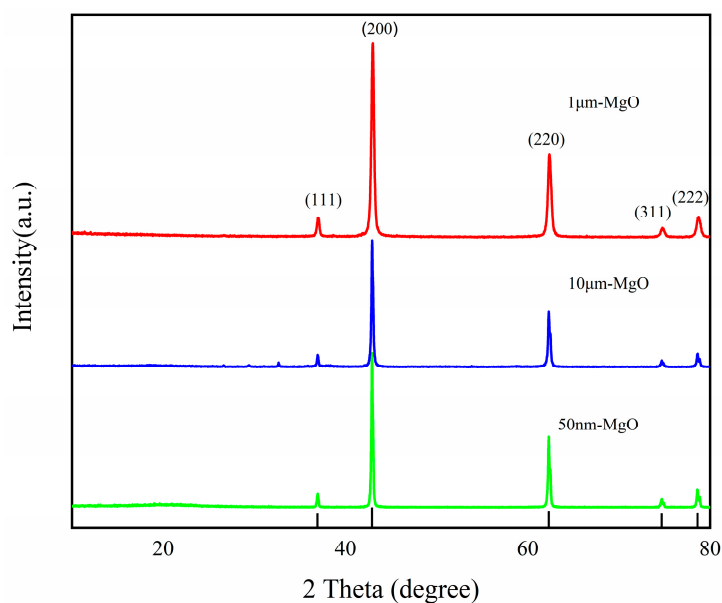


Figure S1. X-ray diffraction patterns of three kinds of MgO.

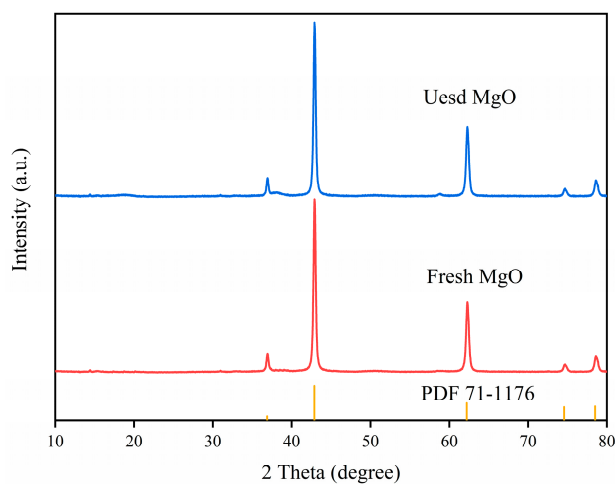


Figure S2. X-ray diffraction patterns of MgO before and after reaction.

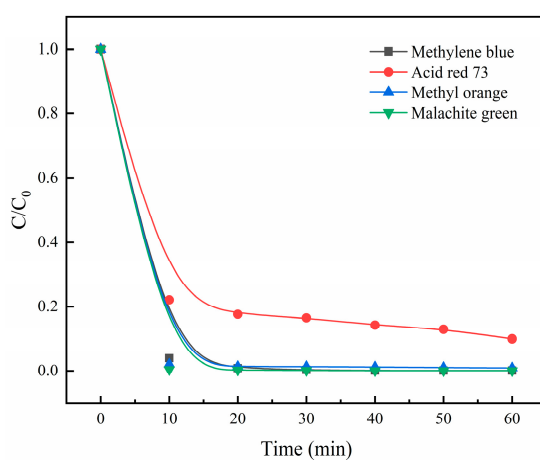


Figure S3. Catalytic degradation of various organic dyes in PMS/MgO system.

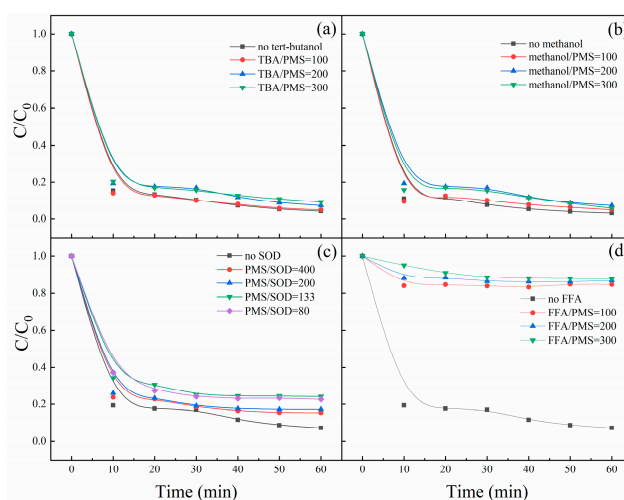


Figure S4. Effects of the radical scavengers on MB degradation (a) tert- butanol, (b) methanol (TBA), (c) SOD and (d) furfuryl alcohol. Control conditions: (MB) = 100 mg/L, (PMS) = 0.8 g/L, (MgO) = 0.4 g/L, pH = 7, T = 25 °C.

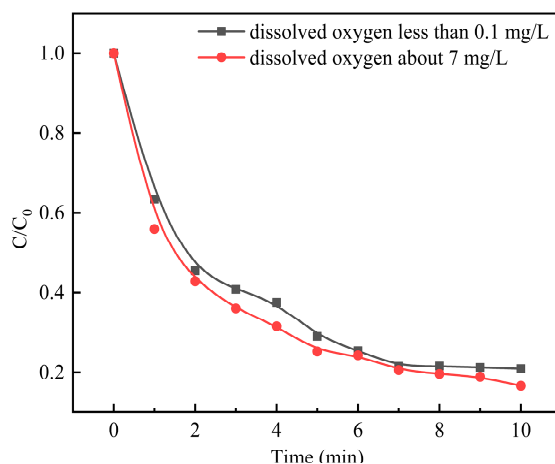


Figure S5. Effect of dissolved oxygen on the degradation of MB by PMS/MgO system. Control condition: (MB) = 100 mg/L, (PMS) = 0.8 g/L, (MgO) = 0.4 g/L, T = 25 °C, pH = 7.

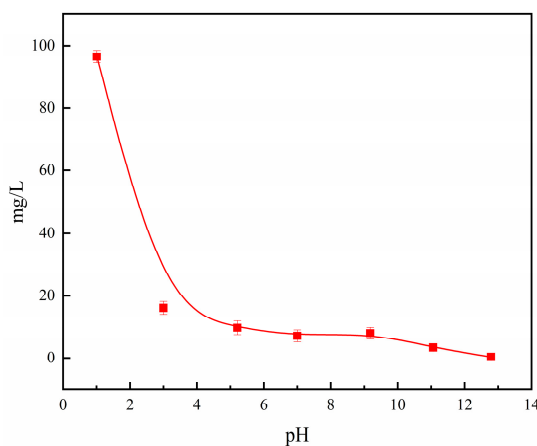


Figure S6. The effect of pH on Mg²⁺ concentration in solution.

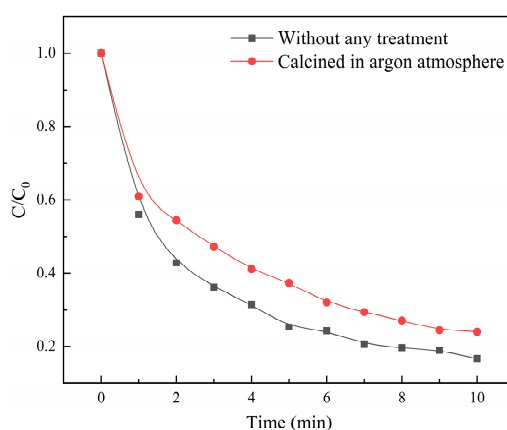


Figure S7. Differences in catalytic effects of MgO with or without calcination in argon. Control conditions: (MB) = 100 mg/L, (PMS) = 0.8 g/L, (MgO) = 0.4 g/L, T = 25 °C, pH = 7.

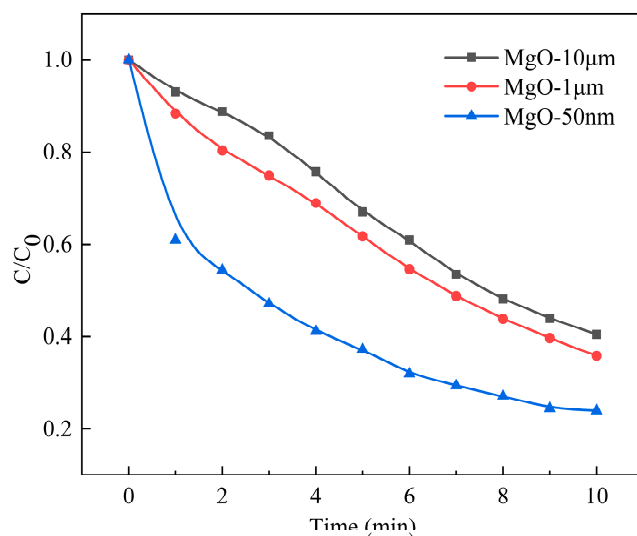


Figure S8. The effect of the calcined MgO with different sizes on MB degradation.



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).