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**Dimethyl phthalate contaminated soil remediation by dielectric barrier
discharge: performance and residual toxicity**

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Abstract: Phthalates, as additives in the plastic production process, were able to enter the soil, causing huge risks to soil environment and human health. The potential of phthalates elimination in soil using dielectric barrier discharge (DBD) plasma was evaluated, with dimethyl phthalate (DMP) as a model pollutant. The experimental results demonstrated that DMP in soil could be decomposed by the DBD plasma oxidation. DMP concentration was reduced from 200 mg kg⁻¹ to 87 mg kg⁻¹ after 60 min's DBD plasma oxidation, and its decomposition process fitted well with the first-order kinetics. Soil moisture was an important parameter affecting DMP decomposition in soil. Lower initial concentration was beneficial for DMP degradation. Analysis on types and action ranges of reactive oxygen species

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