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Drop Impingement Induced Dispersal of Microorganisms and Contaminants Within Porous Media YOUNG SOO JOUNG, ZHIFEI GE, CULLEN BUIE, Massachusetts Institute of Technology — We investigate migration of chemicals and microbes with aerosol generated by drop impingement on porous media. In our previous work we found that aerosol generation from droplets hitting porous media within a specific range of the Weber number (We) and a modified Pelect number (Pe). We and Pe reflect the impact condition of droplets and the wetting properties of porous media, respectively. The relationship between We and Pe can be expressed by a third dimensionless group, the Washburn Reynolds number (Re_W =We/Pe). In a specific range of Re_W, hundreds of aerosol particles can be generated within milliseconds of drop impingement. In this work we investigate if microbes such as *Corynebacterium glutamicum*, a soil bacterium, and chemicals such as Rhodamine B can be dispersed by aerosols generated from droplet impact. Experimentally, *C. glutamicum* and Rhodamine B are permeated into porous media. Then drop impingements are conducted on the porous media with different We and Pe in an airflow tunnel. We quantitatively investigate the volume and speed of aerosol migration as a function of Re_W of the drop impingement and Re of the airflow. Results of this study will shed light upon the dispersal of elemental compounds and microbes within soils due to aerosol generated by rainfall.

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