Control of Radial Miscible Viscous Fingering Using a Finite Blob—An Experimental Study. SADA NAND, VANDITA SHARMA, MANORANJAN MISHRA, Indian Institute of Technology Ropar — We experimentally demonstrate the control of miscible viscous fingering instability in a novel way. We consider the less viscous fluid initially in a circular blob of finite radius \( r_0 \) displacing the surrounding more viscous fluid in the radial Hele-Shaw cell. Experiments only with a point source \( (r_0 = 0) \) are available in the literature. Getting initial finite circular blob is a huge experimental challenge. For each \( r_0 \), a flow rate is wisely calculated so as to have a stable displacement up to radius \( r_0 \). Also, a diligently designed T-junction is utilized in the Hele-Shaw experimental set-up to ease the fluid injection. The experiments depict the initial radius of the circular blob \( (r_0) \) as a controlling parameter. A delay in instability is observed for experiments with non-zero \( r_0 \) in comparison to those performed with a point source. Further, a reduced instability is evident with an increase in \( r_0 \), which is in agreement with the numerical simulations performed.