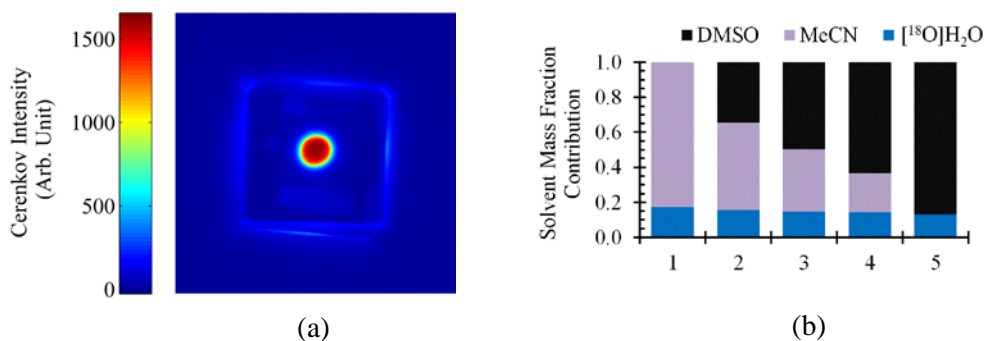
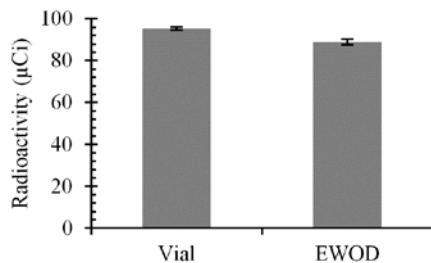


Supplementary Information



Supplementary Fig. 1 (a) Sample Cerenkov image of a $\sim 5 \mu\text{L}$ mixed solvent droplet sandwiched between two Teflon-coated glass plates. (b) Solvent mass fraction contributions for each of the five mixtures measured.



Supplementary Fig. 2 $10 \mu\text{L}$ of an ^{18}F solution was pipetted into 5 source vials and 5 EWOD chips. Plotted is the average decay corrected radioactivity from the vials and EWOD chips. Error bars represent standard error of the mean. On average, the vial gives an activity measurement 6.8% greater than the EWOD chip.