Electronic Supplementary Material (ESI) for Lab on a Chip.
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Supplementary Information

Disposable Silicon-Glass Microfluidic Devices: Precise, Robust and Cheap

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Section 1: Si-glass chip fabrication process flow diagram

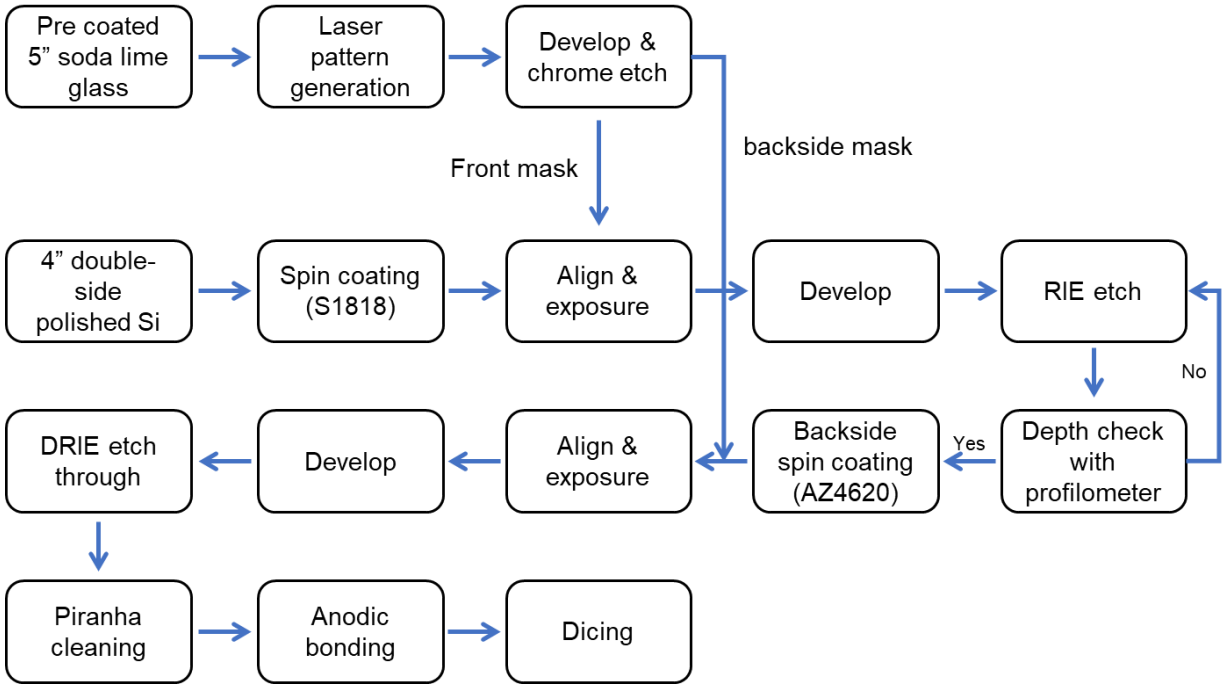

Fig. S1 Process flow diagram for the fabrication of the disposable Si-glass device. Masks are provided for both front and backside processes.

Section 2: Set up of the flooding experiments and experiment procedures

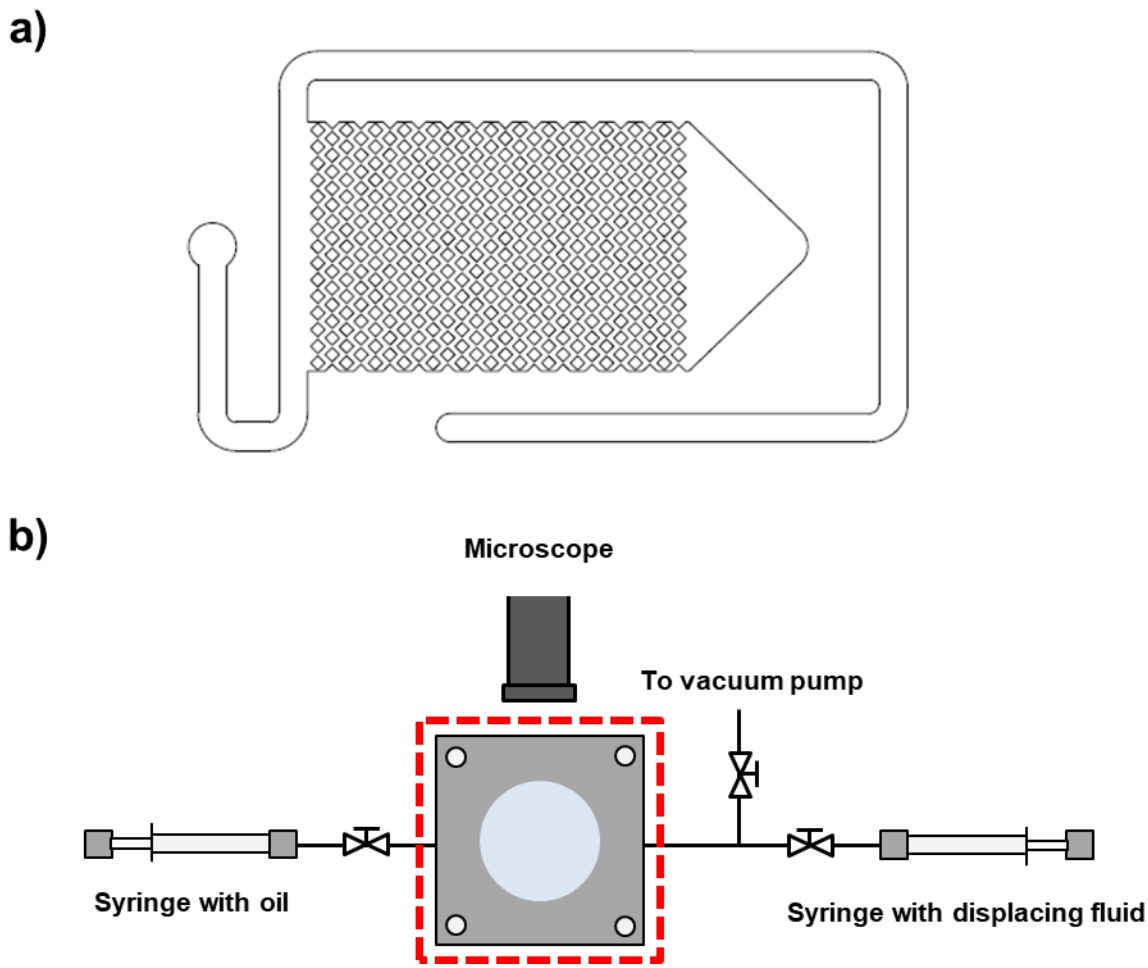

Fig. S2 a) Microfluidic chip design for flooding experiments. b) Experimental setup of the flooding experiments.

Section 3: Chip layout and setup of the DES swelling experiments

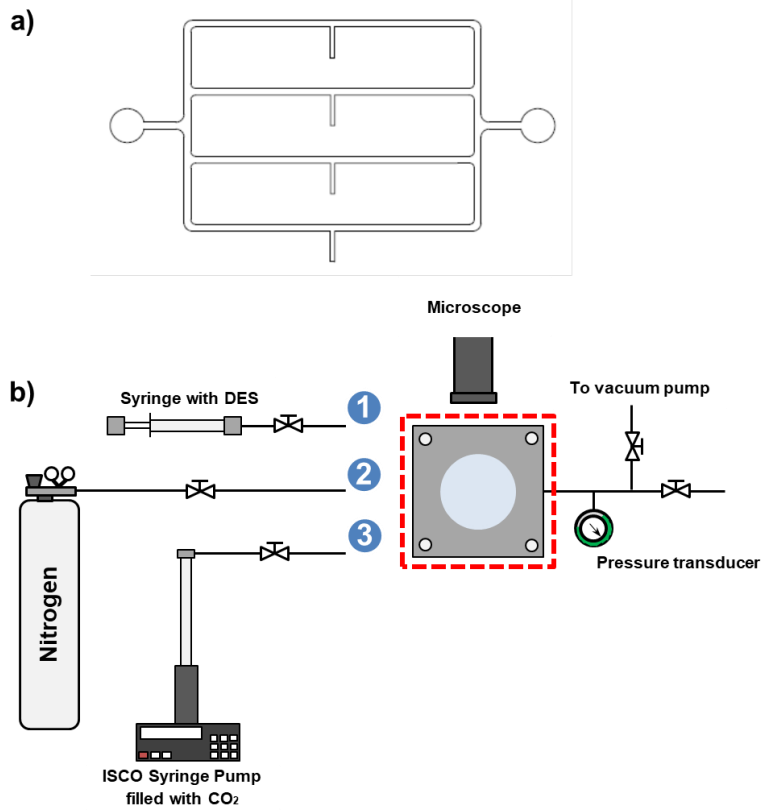

Fig. S3 a) Microfluidic chip design for DES–CO_2 system. b) Schematic of the experimental setup and procedures of the DES–CO_2 tests.

Figure S3a shows the layout of the microfluidic chip used in the DES–CO_2 system. Figure S3b demonstrates the experimental setup as well as the experimental procedures of the experiments. In step 1, the system was connected with a syringe (SGE, 1ml) filled with DES (to valve). The system was then vacuumed for 3 hours to remove the air before DES was injected into the chip. In step 2, the injector was switched to a nitrogen tank for purging the chip in order to remove the DES in the main channel as well as partially from the dead-end channels. Lastly, the injector was connected to the Isco pump (Teledyne ISCO, 260D) that was filled with CO_2. The entire system was vacuumed for an hour to remove all air and water from the trapped DES before CO_2 was introduced into the system.