Supplementary Information

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

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**Section 1: Si-glass chip fabrication process flow diagram**

![Process flow diagram for the fabrication of the disposable Si-glass device. Masks are provided for both front and backside processes.](image)

**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

a) Microfluidic chip design for flooding experiments.

b) Experimental setup of the flooding experiments.

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**

![Diagram showing chip layout and setup](image)

*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.