

Electronic Supplementary Information: Mixing Movie

Microbioreactor arrays with integrated mixers and fluid injectors for high-throughput experimentation with pH and dissolved oxygen control

Harry L. T. Lee, Paolo Boccazzi, Rajeev J. Ram, and
Anthony J. Sinskey

The growth well was filled with approximately 85μL of 0.3mM bromothymol blue in water, a pH indicator that is blue under basic conditions and yellow under acidic conditions. The upper right fluid injector contained acid and the lower right fluid injector contained base. Movie frames were captured after every peristalsis cycle (3.125 frames/sec) and the peristaltic mixing pattern propagated to the left. Actuation pressure was 3psi with a 25Hz update rate. After mixing was completed an acid or base injection was delivered to switch the color of the pH indicator dye. The figure below shows snapshots of the mixing along with time stamps, which indicate mixing in approximately 10 seconds.

