

FIGURE 5

Comparison of the maximum value of  $\Gamma$  between the numerical solution of our convective equation and the analytic solution of the diffusion equation with unit diffusion coefficient.

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FIGURE 7

Variation of the film length  $l_1$  with time, after a T1. We compare the length evolution for the described models, DS, ST, VF and ST+VF. For the DS model we report results for both  $\hat{E} = 0$  and  $\hat{E} = 1$ . For the ST and ST+VF models both  $\hat{E}$  and  $\hat{\mu}$  are one.

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FIGURE 8

ST+VF model results for different  $\hat{\mu}$ , with  $\hat{E} = 1$  and  $D_m = 0$ , for the stretching film  $l_1$  (solid lines) and the shrinking film  $l_2$  (dashed lines). (a) Variation of film lengths. (b) Variation of average surfactant concentration  $\Gamma_i$ . (c) Variation of average surface tension  $\gamma_i$ . In (b) and (c) the insets show the same data for the segments which meet at the vertex,  $\Gamma_{i_0}$  and  $\gamma_{i_0}$ .

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FIGURE 9

ST+VF model results with surfactant transfer across the vertex, with coefficient  $\hat{D}_m = 1/\hat{\mu}$ . Notation and other simulation details as for Figure 8.

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FIGURE 10

ST+VF model results with varying elasticity  $\hat{E}$ . Here  $\hat{\mu} = \hat{D}_m = 1$ . Notation and other simulation details as for Figure 8.

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FIGURE 11

Variation of the time to reach 80% of the final length for the newly-created film  $l_1$ , as a function of  $\hat{E}$  and  $\hat{\mu}$ .

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FIGURE 12

Experimental data for the length of the newly-created film  $l_1$  after a T1 with surfactant solutions of SDS and BLG is compared with a simulation with the VF+ST model which has been optimized by fitting values for the parameters  $\hat{\mu}$  and  $\hat{E}$ .