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Supplementary Information

Effects of Protonation on Foaming Properties of Dodecyldimethylamine Oxide Solutions: A pH-Study

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Keywords: dodecyldimethylamine oxide; pH-dependent surfactant properties; crucial role of hydrogen bonds; foamability; foam stability

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A: All Experimental Runs of the Foam Study

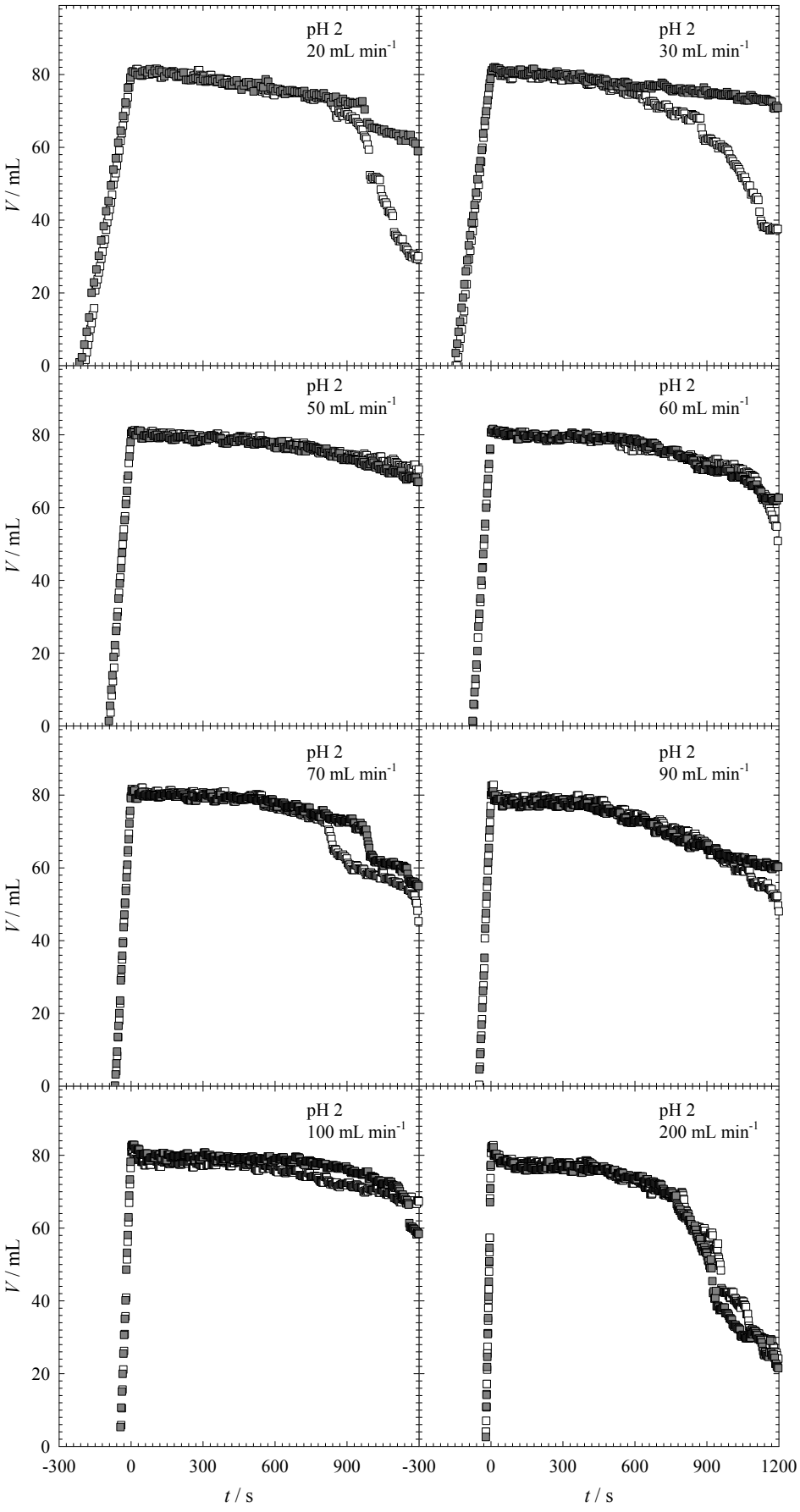

Figure S1: Reproducibility of measuring the foam volume as a function of time for foams generated at different flow rates Q = 20, 30, 50, 60, 70, 90, 100 and 200 mL min^{-1} and pH of 2 (□ – run 1, ■ – run 2).

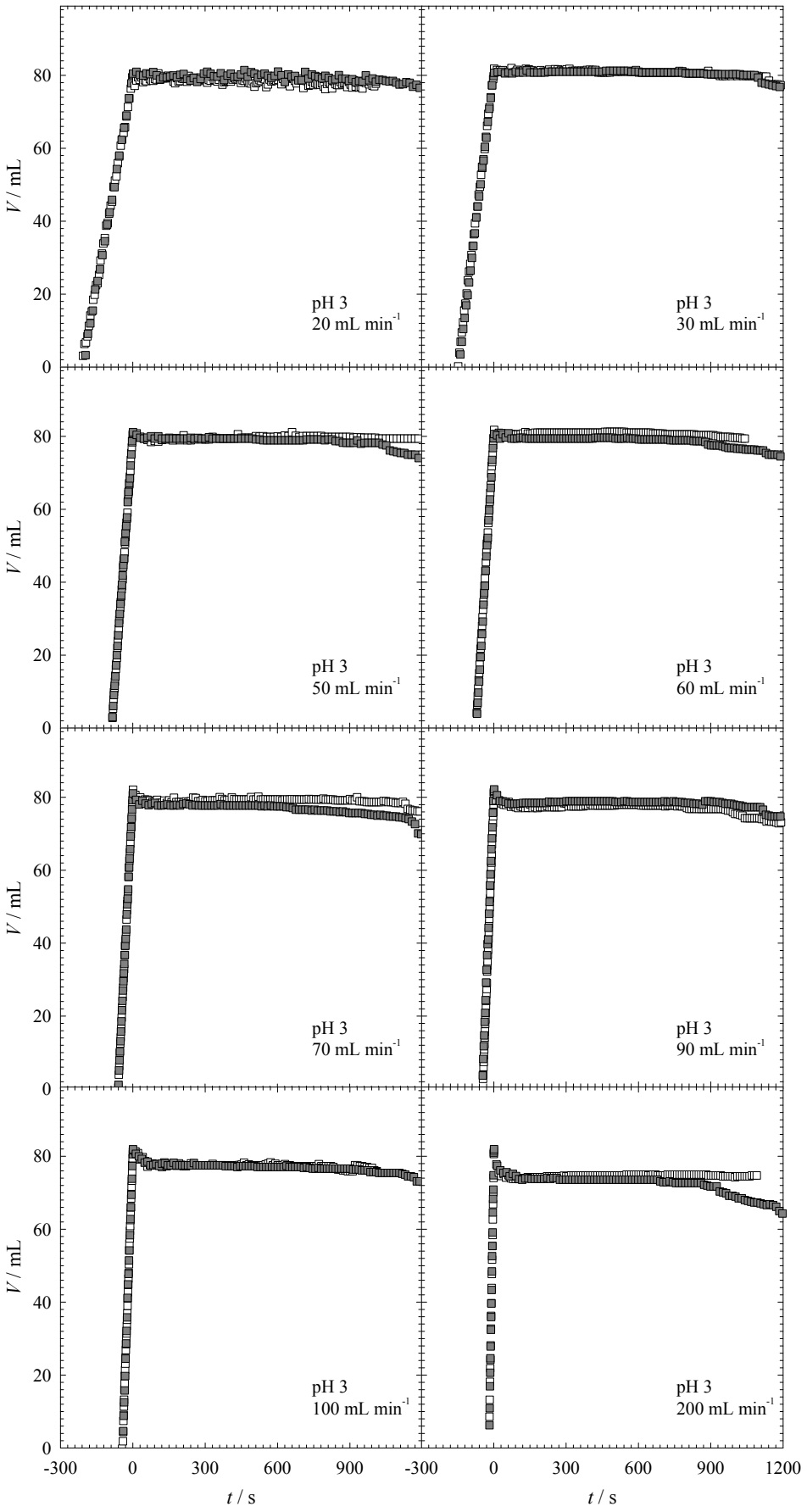

Figure S2: Reproducibility of measuring the foam volume as a function of time for foams generated at different flow rates Q = 20, 30, 50, 60, 70, 90, 100 and 200 mL min^{-1} and pH of 3 (□ – run 1, ■ – run 2).

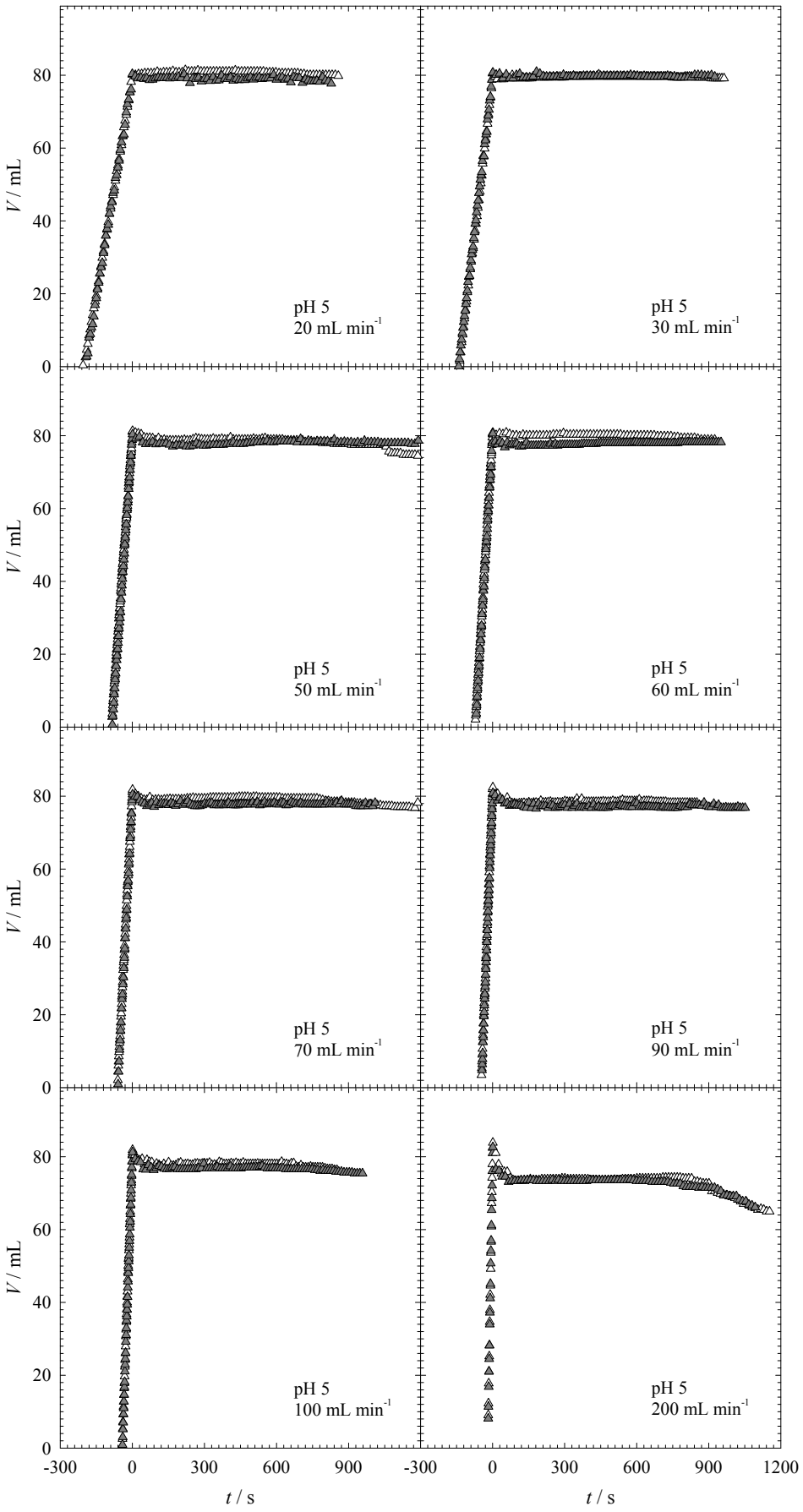

Figure S3: Reproducibility of measuring the foam volume as a function of time for foams generated at different flow rates Q = 20, 30, 50, 60, 70, 90, 100 and 200 mL min^{-1} and pH of 5 (Δ – run 1, ▲ – run 2).

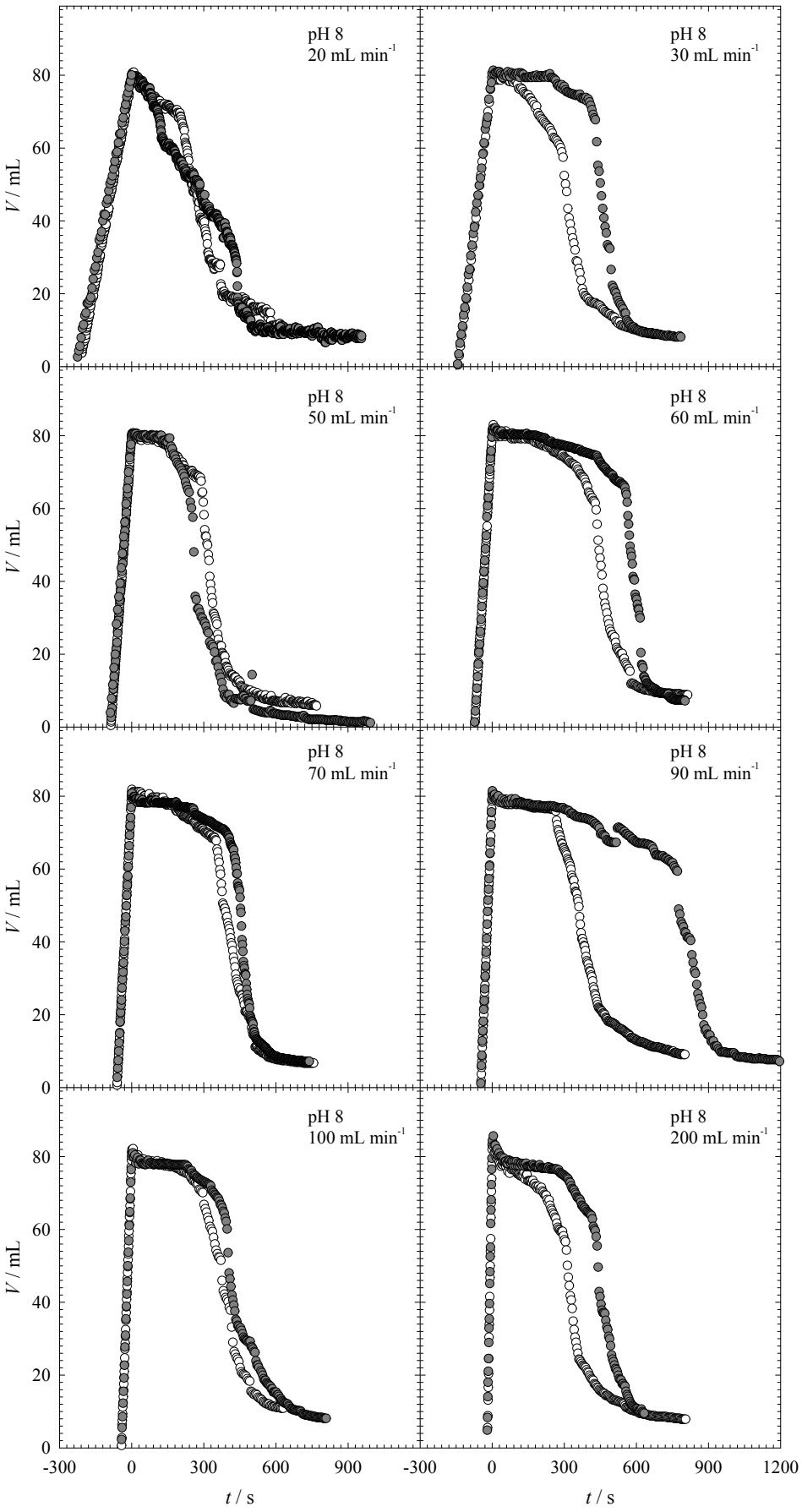

Figure S4: Reproducibility of measuring the foam volume as a function of time for foams generated at different flow rates Q = 20, 30, 50, 60, 70, 90, 100 and 200 mL min^{-1} and pH of 8 (○ – run 1, ● – run 2).

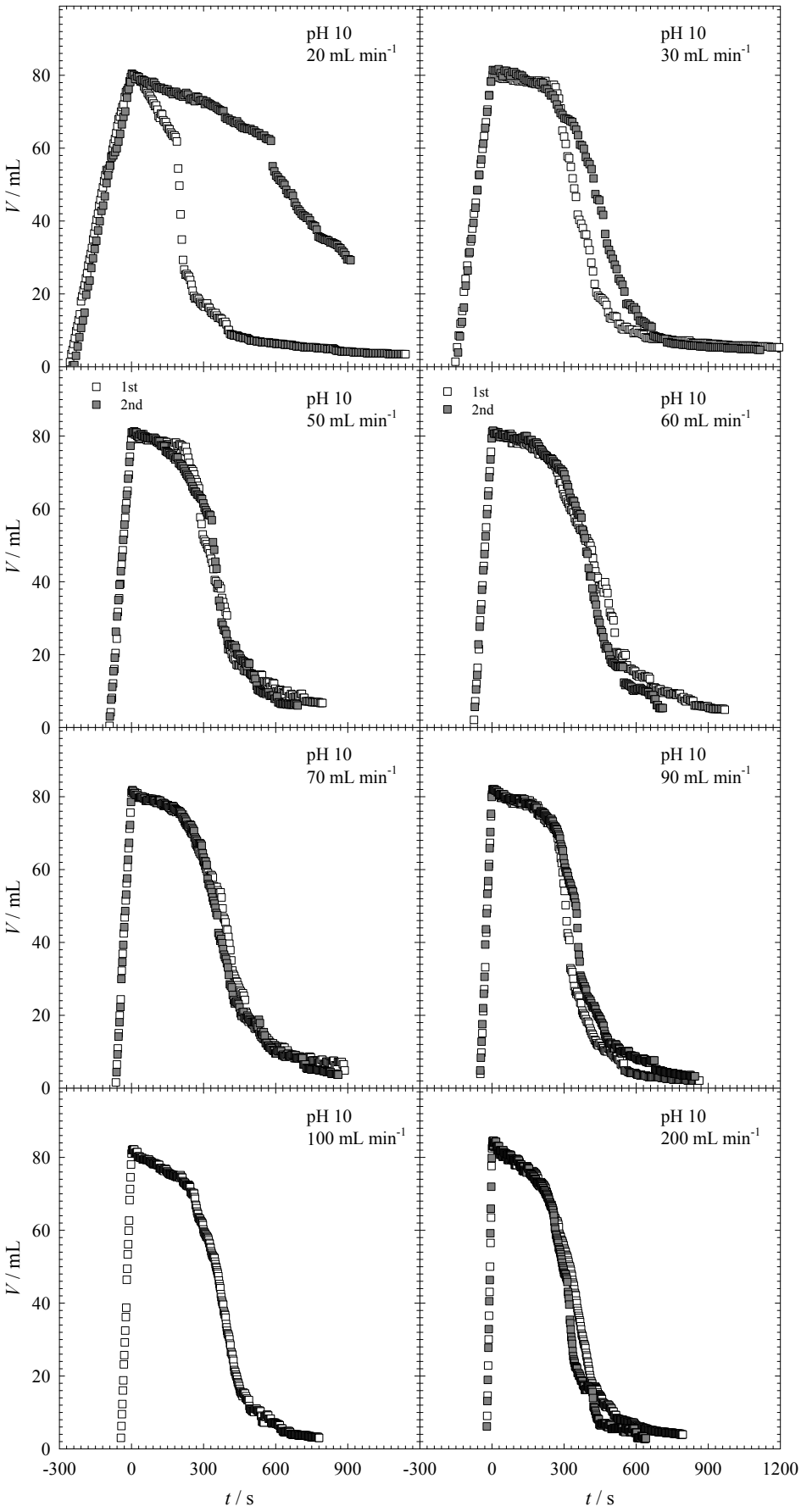

Figure S5: Reproducibility of measuring the foam volume as a function of time for foams generated at different flow rates Q = 20, 30, 50, 60, 70, 90, 100 and 200 mL min^{-1} and pH of 10 (□ – run 1, ■ – run 2).

B: Dependence between Degree of Ionization and pH-value

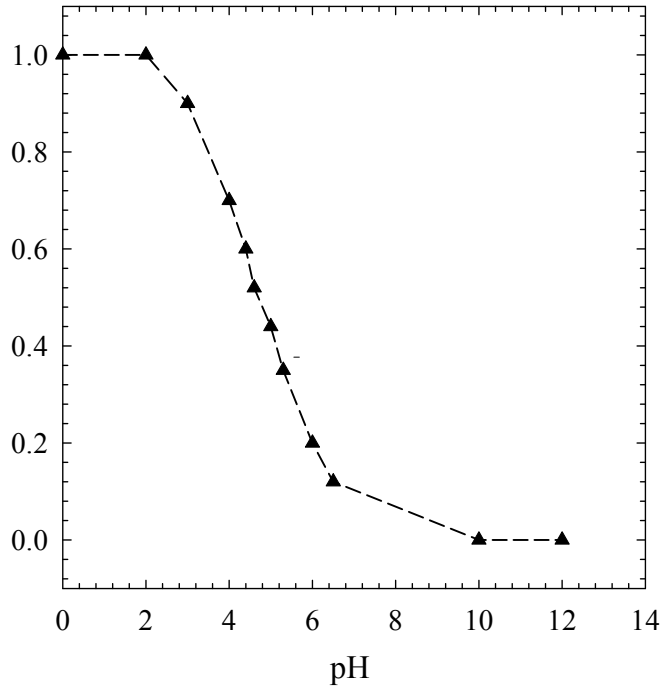

Figure S6: Dependence of the degree of ionization α on the pH-value. Data are extracted from [1].

[1] H. Maeda, S. Muroi, M. Ishii, R. Kakehashi, H. Kaimoto, T. Nakahara, K. Motomura, J. Colloid Interface Sci. 175 (1995) 497.