Stability of the Foams Covered with Perfluorosulfonic Acid (PFSA) Ionomer

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We report the stability of the foams covered with various kinds of perfluorosulfonic acid (PFSA) ionomers. We fabricated foams with PFSA ionomers of equivalent weight (EW) 720 ~ 1100 and slightly different side chains depending on the manufacturer, and then observed formability and form stability. In general, formability and form stability got better as EW and PFSA concentration increased, whereas difference in side chains rarely affected. On the basis of interfacial property measurement at the air/water interface, we show that it is attributed to mainly surface pressure and incidentally surface modulus. At last, we enhance both formability and form stability by adding polyol, which promotes adsorption of PFSA to the air/water interface and then results in increase of surface pressure and surface modulus. Ultimately, the foam could be applied to the porous template with anionic property.