

## Sticky emulsion gel formation with polymeric surfactants and low affinity solvent

이희정, 최시영<sup>†</sup>  
한국과학기술원  
(sqchoi@kaist.ac.kr<sup>†</sup>)

Although usually we need very high dispersed phase fraction to form applicable emulsion with solid-like property, adhesive emulsion can appear it with relatively low dispersed phase fraction. However, it is hard to make the attractive force between droplets very strong because it can damage the stability of emulsion. This study is about the formation of stable and strongly adhesive 'emulsion gel'. We used charged or polar molecules as surfactants to form adhesive emulsions with excellent characteristics such as gels in a wide volume fraction range of dispersed phase. Therefore, the following process was carried out: First, the polymers with amino groups as functional group in the PDMS backbone were adopted as surfactants to confirm the formation of an adhesive emulsions. Second, it was confirmed that the formed adhesive emulsions were sufficiently superior to the previously known level of gel. In the process, quantitative adhesion energy between droplets was calculated with varying the volume fraction of dispersed phase, and rheology measurements were carried out through the rheometer. It was found that applied adhesive emulsion has good property to be gel.