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Solutal Marangoni Flows in Premixed Alcohol-water Solution<sup>1</sup> HYOUNGSOO KIM, KAIST, HAN SEO KO, Sungkyunkwan University — To date, the origin of solutal Marangoni flows in a premixed alcohol-water solution has not been investigated although the solutal Marangoni effects are widely used for various applications including material migration, mixing, coating and cleaning. It is reported that there is a flow transition during the evaporation of the premixed alcohol-water solution. Not from the pre-mixed alcohol-water mixture, we also show that the multiple irregular vortices in an evaporating water drop were created where the cloud of alcohol molecules in the air covered the droplet, which induces a local surface tension variation. Interestingly, the flow pattern is also very similar to the case of the premixed water-alcohol solution droplet. By comparing these two different cases, we tried to explain how the solutal Marangoni flow occurs in the alcohol-water mixture solution.

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