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Polymer and foams in hair care products

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Hair are products are expected to wet well human hair, even when the hair is hydrophobic. Thus, wetting properties of human hair are very important, as they influence consumer satisfaction with the products. Wettability of a hair tress is an important characteristic. The wetting behavior of polymer solutions on hair is less studied than surfactant solutions. The wetting of hair tresses by aqueous solutions of commercially available polymers AculynTM 22 (A22) and AculynTM 33 (A33) has been investigated. Both experimental studies and numerical simulations of behavior of polymer solutions and foams on tresses of human hair has been investigated including drainage of foams produced from solutions of those polymers and interaction of foams with hair stresses are presented. Both A22 and A33 solutions demonstrate well pronounced shear thinning behavior. Initial contact angle of the A22 and A33 solutions on undamaged hair tresses is about 100 o. The A22 droplets remained on the hair tress after spreading for at least half an hour. However, a fast penetration of the A33 droplet inside the hair tresses was observed when advancing contact angle in the course of spreading reaches a critical value of about (60 o). Pure solutions of A22 and A33 have higher initial contact angle and longer penetration time on hair tresses compared with the solutions containing i-propanol or sodium dodecyl sulphate. The results demonstrate that wetting kinetics of the polymer solution on hair tresses drastically different depending on the formulation and can vary from a rapid imbibition to a spreading only.

Biography

O Arjmandi-Tash got MSc degree in Chemical Engineering from the University of Tehran. Currently he is a Research Associate at the Department of Chemical Engineering, Loughborough University. He is carrying out a joint research with Proctor & Gamble, USA. He has already published around 10 papers in highly rated scientific journals.

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