Surfactant Effect In Detergent Formulation: A Review

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Abstract. This paper reviews the properties, process and effect of surfactant in detergent formulation. Surfactants are one of many different compounds that make up a detergent. They are added to remove dirt from skin, clothes and household articles particularly in kitchens and bathrooms. They are also used extensively in industry and can be produced from either synthetic or natural raw materials. Their versatility makes them key to both the quality of modern life and many different industries. Surfactants have an ability to mobilize and combine materials such as water, oils, fats and solvents that otherwise would not mix due to their incompatible molecular properties. Besides that, inherent chemical barriers, differences in molecular weight and surface or interfacial tension between two different materials would normally make the substances difficult or impossible to mix. When added to water as part of a detergent or cleaning formulation, surfactants form structures called micelles. These micelles are small spheres made of surfactant molecules where the tails attract and trap oil molecules while the heads of the micelle suspend them in water. Their unique characteristics are critical to a diverse range of commercial and industrial processes that are key to economic development, ranging from metal cleaning and textile processing to crop care and oil production. Using the right surfactant in detergent formulation often makes products or processes more efficient, less energy, water or resource intensive, and hence more sustainable. As a result, surfactants are one of the most widely used groups of chemical substances in daily life