

Acetales of Glycerine with Surprisingly Small Critical Micellization Concentration (cmc)

E. Paetzold^{a)}, J. Krägel, R. Miller, U. Kragl^{a,b)}

^{a)}Leibniz-Institut für Katalyse an der Universität Rostock e. V.,
Albert-Einstein-Str. 29a, 18059 Rostock,

^{b)} Institut für Chemie, Universität Rostock, Albert-Einstein-Str. 3, 18059 Rostock,

^{c)} Max-Planck-Institut für Kolloid- und Grenzflächenforschung - Abteilung Grenzflächen,
Potsdam- Golm, 14476 Potsdam

The manufacturing diesel fuels is generated by transesterification of vegetable oils with methanol. A large surplus of glycerol is expected each year [1]. The synthesis of acetals by reaction of glycerol with aldehydes [2, 3] could offer a way for selective processes for converting glycerol into surfactants.

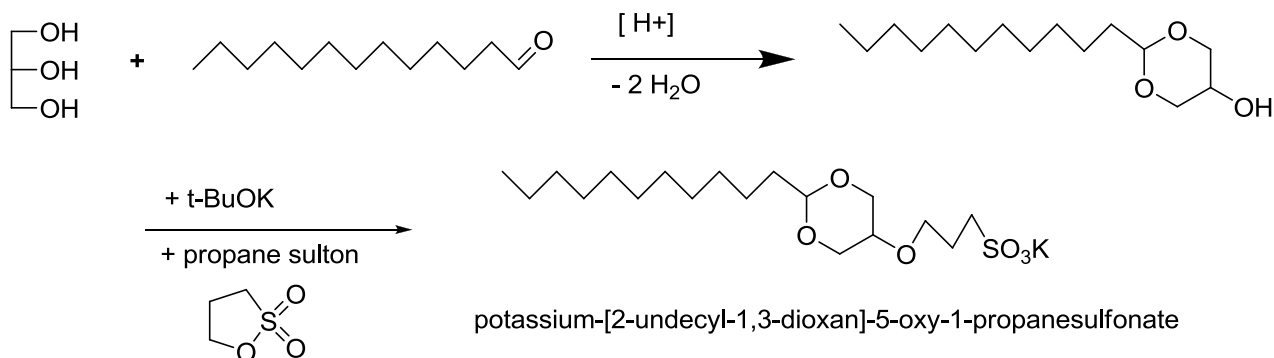
Aim :

There is an urgent need to find new applications of glycerol as low-cost feedstock for functional derivatives, e.g. as detergents or amphiphilic compounds for different industrial applications.

Result:

The contribution demonstrates that due to the presence of hydroxyl groups in acetals which can be synthesized for example with polar head groups e.g. propane or butane sultones for new amphiphilic compounds (Equ. 1) [4]. The not functionalized acetals have nearly the same small critical micellization concentration (cmc) as the derivatives with high polar hydrophilic head groups.

Equ.1:



References:

[1] M. Pagliaro, R. Ciriminna, H. Kimura, M. Rossi, C. D. Pina, *Angew. Chem.*, 2007, 119, 4516

[2] M. Beller, U. Kragl, E. Paetzold, L. Neubert, P. Kollmorgen, 2008, DE 10 2008 009 103

[3] L. Neubert, E. Paetzold, C. Fischer, P. Kempers, U. Schörken, U. Schümann, T. Sadlowski, M. Beller, U. Kragl, *Chem. Ing. Tech.*, 2011, 83, 322