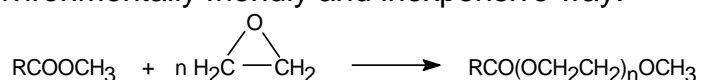




## Offers on Industrial Technologies

### MEO-2: catalyst for direct ethoxylation of fatty acid methyl esters with the “manifold activation system”

The development of a new catalytic process offers the possibility to manufacture non-ionic surfactants from Europe born oleochemical feedstock in the most environmentally friendly and inexpensive way.



Non-ionic surfactants are commonly derived from fatty alcohols. The offered process directly exploits fatty acid methyl esters as raw material for producing non-ionic surfactants. The new technology exploits a specific catalyst for generating non-ionic surfactants in the most cost-effective way. Most interestingly, the breakthrough technology is capable of the commercial production of surfactants when used in existing ethoxylation plants without any additional investments.



The new rapeseed acid methyl ester (palm-, cocos, soya - and any other ester, ...) ethoxylates can find the same applications as the fatty alcohol ethoxylates do. These include consumer goods, such as soaps, washing, cleaning and polishing agents, as well as industrial products for textiles, fibres, lather, pharmaceuticals, cosmetics, and plastics.

## CATALYST MANIFOLD ACTIVATION SYSTEM

The offered calcium based catalyst appears the most effective one in ethoxylation of fatty alcohols and fatty acid methyl esters. However, typically an induction period in direct ethoxylation of esters was observed, which complicated industrial synthesis. The high concentration of ethylene oxide at the initial stage of the reaction and slower reaction rate created significant safety concerns. Therefore, a system of catalyst activation at the initial stage of the reaction has been developed to overcome this problem.

As the result, ethoxylation of fatty acid methyl esters can now be carried out with high rates of EO consumption from the very beginning of the reaction. The obtained effect can be observed in Fig. 1, called as „catalyst manifold activation system” (verte → page 2).



### Technological offer:

**Catalyst and process for direct ethoxylation of esters. Know how for manufacture of the catalyst.**

**Further research or development support in the field of synthesis, evaluation and application.**

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## MEO-2 catalyst

