

## Multifunctional lactyl lactates for household applications

### Development status

#### Phase 3

**Technology validation and implementing it in real environment.** Testing the technology outside of the laboratory and its adjustment to external conditions.

### IP protection status

Czech patent granted, doc. No. 306988  
Czech patent granted, doc. No. 308785  
CZ patent application submitted, doc. No. 2021-480  
PCT patent application submitted, doc. No. PCT/CZ2019/000060

### Partnering strategy

*licensing*



### Institution



UNIVERSITY  
OF PARDUBICE

University of Pardubice

### Challenge

The main aim of the lactyl lactates technology is to replace raw materials from fossil and nonrenewable sources with those that comply with Green Deal 2050, while maintaining or improving all important performance parameters. The prepared compounds can be applied as new types of surfactants, emulsifiers and solvents with higher added value (high degree of biodegradability, antimicrobial effect, preservation, etc.) in household, cosmetic, veterinary and pharmaceutical product formulations. Currently, there are several new surfactants on the market, that respect the trends (sophorolipid, rhamnolipid, etc.). However, none of the companies is focused on lactyl lactates or offer additional added value as our technology.

### Description

The technology describes a preparation method of lactyl lactates from lactides and other optional raw materials (usually amines or alcohols). Metal- and solvent-free procedures are utilized, That is why synthesized compounds are not contaminated with undesirable abiogenic contaminants and achieve higher level of biodegradability and better toxicological profile. The advantages of the reaction are versatility for different substrates, simple manufacturing, excellent atomic balance and waste minimization. The process is long-term sustainable and applicable also for high-volume production. Prepared lactyl lactates operate as secondary surfactants, because of the presence of polar groups in their structure. That is why they can be utilized in cosmetic or household products. They have also antimicrobial and other characteristics, so the multiple functional parameters of the formulation can be influenced by the choice of lactyl lactate.

### Commercial opportunity

The technology can be offered to producers of household, cosmetic, pharmaceutical and veterinary products