

Evaluation of the potential use of nanofiltration in the recovery of lactic acid from whey

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Short title: **Nanofiltration for the recovery of lactic acid from whey**

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SUMMARY

This technical research communication aimed to evaluate the potential of nanofiltration to recover the lactic acid from whey. Two membranes were tested, NF-90 (Dow Filmtech) and MPF-34 (Koch Membrane Systems). Water permeability tests provided the following results: 3.90 and 2.58 L.m⁻².h⁻¹.bar⁻¹ for the NF-90 and the MPF-34 membranes, respectively. Both were tested under identical operational conditions and, based on the lactic acid concentration levels, the NF-90 membrane was found to have a better performance (higher retention and higher flux). Pressure tests showed that the higher the pressure, the higher the lactic acid rejection, which means a higher recovery of the acid. Concentration tests showed that the higher the concentration of the solute, the lower the lactic acid rejection, which is explained by size exclusion and concentration polarization. The results reveal that nanofiltration has a great potential to be used on large scales to recover the lactic acid from whey.