



## Reclamation of water from dairy wastewater using polymeric nanofiltration membranes

Anna Kowalik-Klimczak\*, Ewa Stanisławek

*Institute for Sustainable Technologies, National Research Institute in Radom, Pulaski Street 6/10, 26-600, Radom, Poland,  
email: anna.kowalik-klimczak@itee.radom.pl*

Received 10 April 2018; Accepted 13 August 2018

---

### ABSTRACT

Water recovery from the dairy wastewater involves several integrated steps while the key process is nanofiltration (NF) that might reduce the water consumption in the dairy industry. However, NF membrane should be selected adequately enabling efficient filtration performance. This paper presents how the efficiency of the water recovery from dairy wastewater is affected by the type of NF membrane. In the study, two types of thin film composite membranes were investigated, such as DL and TS80. It was shown that TS80 membrane characterized with the properties similar to that of reverse osmosis (RO) membrane, which resulted in higher quality of the water produced. This membrane significantly contributed to recovery of water of high purity from dairy wastewater. Nevertheless, the diverse composition of dairy wastewater resulted in a rapid deterioration of filtration properties of polymeric NF membranes. Thus, it is necessary to select appropriate pretreatment steps prior to NF of dairy wastewater.

*Keywords:* Nanofiltration; Polymeric membrane; Dairy wastewater; Water regeneration

---

\* Corresponding author.

*Presented at the XII Scientific Conference 'Membranes and Membrane Processes in Environmental Protection' – MEMPEP 2018  
13–16 June 2018, Zakopane, Poland*

1944-3994/1944-3986 © 2018 Desalination Publications. All rights reserved.