



Slovak Society of Chemical Engineering
Institute of Chemical and Environmental Engineering
Slovak University of Technology in Bratislava

PROCEEDINGS

51st International Conference of the Slovak Society of Chemical Engineering SSCHE 2025

Hotel DRUŽBA
Jasná, Demänovská Dolina, Slovakia
May 27 - 30, 2025

Editors: Assoc. Prof. Mário Mihaľ

ISBN: 978-80-8208-158-2, EAN: 9788082081582

Published by the Faculty of Chemical and Food Technology Slovak Technical University in Bratislava in Slovak Chemistry Library for the Institute of Chemical and Environmental Engineering; Radlinského 9, 812 37 Bratislava, 2024

Gerbovits, D., Nagy, R., Puskás, S.: EFFECT ON SURFACTANT SOLUTION STABILITY OF HIGH SALINE BRINE WATER, Editors: Mihaľ, M., In *51st International Conference of the Slovak Society of Chemical Engineering SSCHE 2025*, Jasná, Demänovská Dolina, Slovakia, 2025.

Effect on surfactant solution stability of high saline brine water

Ditta Adrienn Gerbovits¹, Roland Nagy², Sándor Puskás³

¹*Department of MOL Hydrocarbon and Coal Processing, University of Pannonia, Egyetem u. 10,
H-8200., Veszprém, Hungary,*

²*Department of MOL Hydrocarbon and Coal Processing, University of Pannonia, Egyetem u. 10,
H-8200., Veszprém, Hungary,*

³*Group Oilfield Business Development, MOL PLC, Pf. 37, H-6701 Szeged, Hungary,*

e-mail: gerbovits.ditta.adrienn@mk.uni-pannon.hu

Key words: surfactant, polymer, brine water, enhanced oil recovery

The behaviour of surfactant and polymer solutions intended for tertiary oil recovery was investigated in the presence of various formation waters. The aim of the experimental work was to examine the dilution behaviour of solutions containing the surfactant SURF1 and the polymer POL1 in model formation waters with different salinities. These particular surfactant and polymer were selected based on their suitability for high-salinity environments.

Turbidity, transmittance, and stability tests were performed across a range of concentrations. The results indicate that divalent metal ions have a substantial impact on the solubility and stability of both surfactant and surfactant-polymer solutions. Significant changes in transmittance were observed during dilution at concentrations below 0.16 g/L, while precipitation occurred at higher concentrations. These findings provide valuable insights for optimising surfactant-based enhanced oil recovery (EOR) processes, particularly under conditions involving stratified waters with varying salinities.