



Contribution ID: 735

Type: Poster

Magnetic Field Influence on Asphaltene Aggregation Observed by DOSY NMR

Asphaltenes, the heaviest, the most polar and the least reactive molecules in crude oil can aggregate and cause many problems during oil recovery and refining process. Asphaltenes isolated from the Middle East crude oil, atmospheric and vacuum residues were studied in this work.

It will be demonstrated that asphaltene aggregates form different molecular weight species with different composition and number of monomer units. Furthermore, aggregation process has been found to be affected by the magnetic field [1].

A significant increase of diffusion coefficients of aggregates upon the increase of the magnetic field strength will be shown and discussed in terms of higher molecular mobility of present species at higher magnetic fields that could lead to a degradation of aggregates.

References

[1] J. Parlov Vuković, P. Novak, T. Jednačak, M. Kveštak, D. Kovačević, V. Smrečki, I. Mikulandra, S. Glanzer, K. Zangger, J. Dispers. Sci. Technol. 40 (2019) DOI: 10.1080/01932691.2018.1561302

Primary authors: Dr SMRECKI, Vilko (Rudjer Boskovic Institute, NMR Centre); Prof. NOVAK, Predrag (Department of Chemistry, Faculty of Science, University of Zagreb); Dr JEDNACAK, Tomislav (Department of Chemistry, Faculty of Science, University of Zagreb); Prof. KOVACEVIC, Davor (Department of Chemistry, Faculty of Science, University of Zagreb); Ms MIKULANDRA, Ivana (Department of Chemistry, Faculty of Science, University of Zagreb); Ms DJETELIC IBRAHIMPASIC, Mateja (Quality control, Sisak refinery, INA Industrija nafte d.d.); Prof. ZANGGER, Klaus (Institute of Chemistry / Organic and Bioorganic Chemistry, University of Graz); Dr PARLOV VUKOVIC, Jelena (Central testing laboratory, INA Industrija nafte d.d.)

Presenter: Dr SMRECKI, Vilko (Rudjer Boskovic Institute, NMR Centre)

Session Classification: Posters