Analysis of Asphaltenes Subfractionated by N-Methyl-2-pyrrolidone

When petroleum asphaltenes are analyzed using size exclusion chromatography (SEC), it is desirable to use a mobile phase that allows elevated temperatures and suppresses effects that are not related to size. Recent developments in the analysis of tars and pitch have tried to use N-methyl-2-pyrrolidone (NMP) as a mobile phase. However, an NMP-insoluble asphaltene fraction of 9-53 wt % was observed for different petroleum n-heptane asphaltenes. Further analysis of the insoluble fraction surprisingly has shown that this fraction hardly exhibits any ultraviolet-visible light absorption or fluorescence. This result implies that a substantial fraction of asphaltenes will not be represented in a fluorescence spectrum. This finding may have great implications in the capacity of fluorescence spectroscopy to analyze asphaltenes.

General information
Publication status: Published
Organisations: Center for Phase Equilibria and Separation Processes, Department of Chemical and Biochemical Engineering, Center for Energy Resources Engineering
Contributors: Ascanius, B. E., Garcia, D. M., Andersen, S. I.
Pages: 1827-1831
Publication date: 2004
Peer-reviewed: Yes

Publication information
Journal: Energy & Fuels
Volume: 18
Issue number: 6
ISSN (Print): 0887-0624
Ratings:
Web of Science (2004): Indexed yes
Original language: English
DOI: 10.1021/ef049807t
Source: orbit
Source ID: 135506
Research output: Contribution to journal › Journal article – Annual report year: 2004 › Research › peer-review