

PREDICTING THE COMPOSITION OF QURNA CRUDE OIL FRACTION BY TERNARY COMPOSITION DIAGRAM

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References:

1. Basmadjian, D., *Mass Transfer and Separation Processes: Principles and Applications*. 2 ed. 2007, Boca Raton CRC Press.
2. Seader, J.D., E.J. Henley, and D.K. Roper, *Separation Process Principles: Chemical and Biochemical Operations*. 3 ed. 2011, Hoboken, NJ: John Wiley & Sons.
3. Seader, J.D. and E.J. Henley, *Separation Process Principles, 2nd Edition*, Scader & Henley, 2006: *Separation Process Principles*. 2 ed. 2006: John Wiley & Sons, Inc.
4. Ramaswamy, S., H. Huang, and B. Ramarao, *Separation and Purification Technologies in Biorefineries*. 2013, NY, USA: John Wiley & Sons, Ltd.
5. Kirk, R.E., D.F. Othmer, and R. Agrawal, *Kirk-Othmer Separation Technology*. 2 ed. 2008, NY, USA: Wiley-Interscience.
6. Varjani, S.J., E. Gnansounou, and A. Pandey, Comprehensive review on toxicity of persistent organic pollutants from petroleum refinery waste and their degradation by microorganisms. *Chemosphere*, 2017. **188**, 280-291.
7. Kolomnikov, I.G., et al., Early stages in the history of gas chromatography. *J Chromatogr A*, 2018. **1537**, 109-117.
8. LÜ, G., et al., The Adsorption of Phenol by Lignite Activated Carbon. *Chinese Journal of Chemical Engineering*, 2011. **19**(3), 380-385.
9. Jin, H., et al., Gas-Liquid Mass Transfer Characteristics in a Gas-Liquid-Solid Bubble Column under Elevated Pressure and Temperature. *Chinese Journal of Chemical Engineering*, 2014. **22**(9), 955-961.
10. Teutenberg, T., Potential of high temperature liquid chromatography for the improvement of separation efficiency—A review. *Analytica Chimica Acta*, 2009. **643**(1), 1-12.
11. Bai, S., et al., Protein adsorption onto diethylaminoethyl dextran modified anion exchanger: Effect of ionic strength and column behavior. *Chinese Journal of Chemical Engineering*, 2018. **26**(2), 259-267.
12. Ren, W., et al., Molecular size characterization of heavy oil fractions in vacuum and solution by molecular dynamic simulation. *Frontiers of Chemical Engineering in China*, 2010. **4**(3), 250-256.
13. Goyak, K.O., et al., Development of a screening tool to prioritize testing for the carcinogenic hazard of residual aromatic extracts and related petroleum streams. *Toxicol Lett*, 2016. **264**, 99-105.
14. Tian, Y., et al., Characteristics of oil shale pyrolysis in a two-stage fluidized bed. *Chinese Journal of Chemical Engineering*, 2018. **26**(2), 407-414.
15. Costa, J.A.S., et al., Efficient adsorption of a mixture of polycyclic aromatic hydrocarbons (PAHs) by Si-MCM-41 mesoporous molecular sieve. *Powder Technology*, 2017. **308**, 434-441.
16. Ugochukwu, U.C. and C.I. Fialips, Crude oil polycyclic aromatic hydrocarbons removal via clay-microbe-oil interactions: Effect of acid activated clay minerals. *Chemosphere*, 2017. **178**, 65-72.
17. Ugochukwu, U.C. and C.I. Fialips, Removal of crude oil polycyclic aromatic hydrocarbons via organoclay-microbe-oil interactions. *Chemosphere*, 2017. **174**, 28-38.
18. Jia, X., et al., Characterization and analysis of petrochemical wastewater through particle size distribution, biodegradability, and chemical composition. *Chinese Journal of Chemical Engineering*, 2019. **27**(2), 444-451.
19. Fornstedt, T., Characterization of adsorption processes in analytical liquid-solid chromatography. *Journal of Chromatography A*, 2010. **1217**(6), 792-812.
20. Gooding, R.M., N.G. Adams, and H.T. Rall, Determination of Aromatics, Naphthenes, and Paraffins By Refractometric Methods. *Industrial & Engineering Chemistry Analytical Edition*, 1946. **18**(1), 2-13.
21. Riazi, M.R. and T.E. Daubert, Prediction of the Composition of Petroleum Fractions. *Industrial & Engineering Chemistry Process Design and Development*, 1980. **19**(2), 289-294.
22. Pande, S.G. and D.R. Hardy, Evaluation of refractivity intercept as a method for determining fuel composition according to hydrocarbon type. *Fuel*, 1992. **71**(2), 231-235.
23. Miller, J.M., *Chromatography: Concepts and Contrasts*. 2009, Hoboken, NJ: John Wiley & Sons, Inc.
24. Speybrouck, D. and E. Lipka, Preparative supercritical fluid chromatography: A powerful tool for chiral separations. *Journal of Chromatography A*, 2016. **1467**, 33-55.