## Physical research methods in petrochemistry

- 1. Modern physical research methods in the analysis of petroleum products
- 2. The role of NMR spectroscopy in the analysis of petroleum products
- 3. The role of physical methods in determining the octane number of gasoline
- 4. GLC analysis of the fraction of direct distillation gasoline
- 5. Mass spectroscopy in oil analysis
- 6. The role of UV spectroscopy in the analysis of petroleum products
- 7. The role of IR spectroscopy in the analysis of petroleum products
- Chromatography-mass spectrometry in determining the composition of individual hydrocarbons
- 9. Spectroscopic techniques in the analysis of petroleum products
- 10. Instrumentation of Infrared (IR) Spectroscopy
- 11. Advantages of IR Spectroscopy
- 12. Advantages and disadvantages of IR Spectroscopy
- 13. The role of physical research methods at determining the octane number of gasolines
- 14. The role of NMR spectroscopy in the analysis of petroleum products
- 15. Advantages and disadvantages of UV Spectroscopy
- 16. Chromatography and its types
- 17. Chromatography classification based on stationary phase interaction with solutes
- 18. Chromatography classification based on physical state of stationary or mobile phase
- 19. Chromatography classification based on the method of moving sorbates along the sorbent layer
- 20. Classification of chromatography based on the chromatographic bed shape
- 21. Chromatographic Techniques for Petroleum and Related Products
- 22. Chromatography-mass spectrometry in the determination of petroleum hydrocarbons
- 23. Chromatographic analysis of the gasoline fraction of thermal and catalytic cracking
- 24. The role of IR and UV methods in the analysis of oil fractions
- 25. Characteristic peaks of the oil components in mass spectra
- 26. UV spectroscopy and its role in the determination of aromatic hydrocarbons
- 27. IR spectroscopic analysis of petroleum products
- 28. The role of NMR spectroscopy in the analysis of petroleum products

- 29. 1H NMR analysis of catalytic reforming thermal cracking gasolines
- 30. UV analysis of monocyclic and polycyclic arenes
- 31. Infrared spectroscopy correlation table
- 32. Typical <sup>1</sup>H NMR spectrum of the oil fraction and absorption region
- 33. IR and UV spectroscopic analysis of petroleum hydrocarbons
- 34. The role of physical research methods at determining of individual hydrocarbons
- 35. NMR spectroscopy in petroleum analysis
- 36. Chromatogram interpretation methods
- 37. Short information on the physical methods used in the analysis of oil
- 38. The importance of NMR, IR and UV methods in petroleum chemistry
- 39. Types of chromatographic analysis and the role in the analysis of petroleum hydrocarbons
- 40. The role of physical research methods in determining of individual hydrocarbons
- 41. UV spectroscopic analysis of petroleum hydrocarbons
- 42. General information about UV and IR
- 43. Physical research methods in petrochemistry
- 44. Determination of the freezing temperature of base oils, aromatic factor, the amount of olefins by using of NMR
- 45. Instrumentation of Ultraviolet (UV) Spectroscopy and importance in petroleum chemistry