
Condensation of Olefins on Clays. Gas-Solid Systems. Part II: Spectroscopic Methods

Eduardo Choren, Alexander Moronta, Arnedo Arteaga and Jorge Sánchez

Centro de Superficies y Catálisis, Facultad de Ingeniería, Universidad del Zulia, Apartado 15251, Maracaibo 4003A, Venezuela

Abstract: The adsorption of olefins at 25 ° C in gas- or vapor-solid systems on 4 clays dried at 120 ° C was studied by infrared spectroscopy. Products of condensation have the spectra of paraffinic oligomers. Paraffins are adsorbed onto the same structural surface hydroxyls that adsorb olefins, confirming the physical unspecific character of this adsorption. These hydroxyls do not participate in the condensation reaction. The reappearance of these hydroxyl bands after evacuation suggests that product molecules are not adsorbed onto the surface but remain on it because of its low vapor pressure. The reversible adsorption sites participate in feeding the condensation sites. Double-bond isomerization of olefins was not observed, at room temperature, on clays, alumina and silicas dried at 120 ° C. When the gas-phase is evacuated or swept with inert gas, reaction does not proceed with a new monomer. Paraffins are only physically adsorbed.

Key Words: Adsorption • Infrared Spectra • Interlayer • Montmorillonite • Olefins • Paraffins • Polymerization

Clays and Clay Minerals; April 1997 v. 45; no. 2; p. 221-225; DOI: [10.1346/CCMN.1997.0450210](https://doi.org/10.1346/CCMN.1997.0450210)
© 1997, The Clay Minerals Society
Clay Minerals Society (www.clays.org)
