Nanotechnology has been applied as one of the most important technologies for progress in the oil and gas industry (upstream, midstream, and downstream). Reducing the sulfur content in gasoline, enhancing the octane number, and covering the transportation system are among the goals that have been successfully achieved using nanotechnology. Also, in the downstream and midstream stages that include refining crude oil, processing and purifying raw natural gas, and transportation and storage of crude or refined petroleum products, nanomaterials have been used to improve the quality of the oil and make it environmentally friendly.