

EMERGING NANO-STRUCTURED MATERIALS FOR UPSTREAM PETROLEUM APPLICATIONS

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Abstract

Nanoscience has matured significantly during last decade as it transitioned from bench top science to a applied technology. Presently, nanotechnology are used in a number of industries, including electronic, materials and manufacturing, biomedical, aerospace, construction and more recently the energy industries. Nanotechnology in the petroleum industry are not completely new and it has been successfully used in several small-scale downstream sections of the industry. The upstream section has been slow to embrace the new technology, especially the construction area. The study provides an overview of the most interesting nanotechnology applications and critically highlights the potential benefits that could come from structural Nanomaterial to the upstream petroleum industry. As illustrated, many structural limitations, can be improved by nano-structured materials and offer real improvements in dealing with upstream issues of petroleum industry.

Keywords: Nanotechnology, structural nanomaterials, petroleum, upstream

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