

Countries without Oil Reservoirs Have Highest Share in Nanotechnology Products in Petroleum Industry



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By the end of 2017, NPD has stored a number of 212 nanotechnology products in the field of petroleum. The products have been produced and presented to the market by 51 companies from 16 countries in the world. Oils and lubricants and coatings have the highest share in nanotechnology products in petroleum industry. Other products are classified in the following industrial subsectors: drilling, well treatment, exploration, and piping.

| Industrial Subsector | Product Types |
|-----------------------------|---|
| Oils | Lubricants, grease, motor oil, gearbox oil, brake oil |
| Coatings | Insulating aerogel coatings, anti-corrosion coatings, steel coating, paint, fireproof coatings |
| Drilling | Cutter, down hole drill, drilling fluids, polycrystalline diamond |
| Well Treatment | Sulfide scavengers, catalysts, oil-liquid separators, anticorrosive solutions, well stimulation chemicals, fixing agents, gelling agents, stabilizers, sand consolidation agents, surfactants |
| Exploration | Gas sensors |
| Pipelines | Pipes, steel |

[USA](#) possesses the first rank by having a share of 42% of individual brands registered on NPD while England ranks second with 33.3%. [Singapore](#), [China](#), [Austria](#), and [Russia](#) possess the next ranks with a great difference with [USA](#) and [UK](#), by having a share of 6.3%, 6.2%, 2.9%, and 2.4%, respectively.

By having a share of 1.4%, [Iran](#) possesses the 9th rank in this ranking and it is the first country in the Middle East. The absence of other Middle Eastern countries with great amounts of oil reservoirs in this ranking is noticeable. Statistics show that countries with large capacity of oil reservoirs have a small share among the top 10 countries in the production of nanotechnology products in petroleum industry. The studies also suggest that countries with large amounts of oil reservoirs do not seek novel technologies to convert oil products to more valuable products with higher value added. However, countries with fewer amounts of oil reservoirs such as [Austria](#), [Singapore](#), [Indonesia](#), and [South Korea](#) have many companies and brands for the development of nanotechnology products in oil and gas industry.

According to NPD, among nanotechnology product in oil industry presented to global markets, mention can be made of lubricants, grease, various types of motor and gearbox oil, thermal insulating aerogels, anticorrosive fluids, membranes, drilling bits, and cutters.

Data on NPD shows that tungsten sulfide nanoparticles have been used in more than half of the products (53.6%) in the field of oil industry. Zinc oxide and silicon dioxide are among other nanomaterials used in nanotechnology products in oil and gas industry. Carbon nanotubes and stainless steel containing nanoparticles are also observed among nanotechnology products in this field. Resistance to abrasion, corrosion, and oxidation as well as appropriate mechanical strength at high pressure and temperature are among desired properties that are created in the products by nanomaterials.

For more information about nanotechnology products in petroleum industry in global markets, visit [NPD's website](#).