

Nanoparticle Coated Proppants to Increase Oil Permeability

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Water droplet on GNP proppant film

Technology Summary

The inventors have created a method that can introduce hydrophobic properties to proppants. The proposed technology is a coating can be added as the last stage of the resin coating process for proppants used for hydraulic fracturing, frac-pack and other production enhancement techniques. This process embeds graphite nanoplatelets (GNPs) onto the surface of the resin-coated proppants.

Application & Market Utility

Proppants need to provide highly permeable flow paths inside the fracture. The GNP coating enhances the wettability of these proppants improving flow transport through the particulate. Laboratory results indicate a substantial increase in both the effective and relative permeability for oil. It reduces the capillary forces that trap water-based fracturing fluids. The ability of the new proppants to not only improve but speed up the frack fluid flowback process can significantly improve oil production.

Next Steps

Seeking licensing and/or collaboration opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- graphite nanoplatelets (GNPs)
- resin-coated proppants
- hydraulic fracturing
- oil production
- wettability

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