

Waterless Fracking: An Alternative to Conventional Fracking

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Abstract : To stimulate the well and to enhance the production from the shaly formations, fracturing is essential. Presently the chiefly employed technology is Hydraulic Fracturing. However Hydraulic Fracturing accompanies itself with problems like disposing large volumes of fracturing wastewater, removal of water from the pores, formation damage due to injection of large amount of chemicals into underground formations and many more. Therefore embarking on the path of innovation new techniques have been developed which uses different gases such as Nitrogen, Carbon dioxide, Frac Oil, LPG, etc. are used as a base fluid for fracturing formation. However LPG proves to be the most favorable of them which eliminates the use of water and chemicals. When using it as a fracturing fluid, within the surface equipment, it is stored, gelled, and proppant blended at a constant pressure. It is then pressurized with high pressure pumps to the required surface injection pressure. With lowering the total cost and increasing the productivity, LPG is also very noteworthy for fracturing shale, where if the hydraulic fracturing is done the water 'swells' the formation and creates surface tension, both of which inhibit the flow of oil and gas. Also fracturing with LPG increases the effective fracture length and since propane, butane and pentane is used which are already present in the natural gas therefore there is no problem of back flow because these gases get mixed with the natural gas. LPG Fracturing technology can be a promising substitute of the Hydraulic Fracturing, which could substantially reduce the capital cost of fracturing shale and will also restrict the problems with the disposal of water and on the same hand increasing the fracture length and the productivity from the shale.

Keywords : Fracking, Shale, Surface Tension, Viscosity

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