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Experimental study on the effect of inhibitors on wax deposition

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Exposure to paraffin wax is something that is detrimental to the oil industry. It can shake the production lines thus reducing oil production to uneconomic levels. A Wax inhibitor, otherwise known as a pour point depressant / wax crystal modifier, can reduce wax crystal growth and create smaller crystals that allow more free space in the crude oil component to flow freely. Chemical additives are one of the inhibitors used to reduce or prevent the incorporation of wax into crude oil production. These barriers can be divided into four types: pour point depressants (PPD), crystal modifiers, dispersants, and sol sol. PPD inhibits the formation and growth of wax crystals by altering the crystal structure (in contact with the growing edge of the crystal). Although it reduces the suction volume, the extraction pressure, and the oil point, it will not reduce the wax coating rate. The crystal modifier has the same molecular structure. It blends evenly or in combination with crystals with wax crystals by replacing the wax molecules on crystal lattices. It places strong barriers on kerosene crystals that interfere with the proper coherence of new paraffin molecules that do not have that growth. Typical types of Crystal modifiers are polyethylene, Copylmer esters, ethylene / vinyl acetate Copolymers, olefin / esters Copolymers, esters / vinyl acetate Copolymers, polyacrylates, polymethacrylates and -alkyl phenol resins. Dispersants are like survivants in their molecular structure. Disparants break down wax crystals into very small particles and reduce the rate of wax deposition and prevent by reducing the adhesion of wax to the pipe wall. The benefit of adding a wax inhibitor to a sample of crude oil availability can be reduced without stopping production. Ev.en despite being made with many wax inhibitors, there is currently no universal type that can be used for all types of crude oil due to the different properties of crude oil Wax can provide as a solid layer in the pipe wall during production when temperatures drop below Wax Appearance temperature. Wax deposition can lead to restriction of the flow of crude oil, create a pressure barrier and cause it to be an insertion barrier leading to reduced productivity. A series of tests were performed at various flow rates (2.7, and 4.8 liter / min) to study and measure the wax size. The effectiveness of other wax inhibitors has been tested to detect their effects on the appearance of wax waxes and the appearance of air pollution using a Rheometer rig that is adjusted to gradient temperatures (55- 0 ° C) and a shear rate of 120 1 / s before and after injecting 1000 ppm and 2000 ppm of inhibitors into crude oil. Three different barriers that had not been tested before were repaired in the study laboratory. These inhibitors work better compared to their original counterparts. The first inhibitor contained Mix01 code by mixing polyacrylate polymer (C16-C22), and Copolymer + acommenters monry. The reduction in the concentration of crude oil waxy oil was 16.6ºC at 2000 ppm and this reduces the visibility of crude air by up to 61.9% at 4ºC air temperature. The second inhibitor was formulated with Mix02, by mixing polyacrylate polymer (C16-C22), a strong fragrant alkylated phenol, and Copolymer dispersed with solaph naphtha. At

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2000 ppm, a reduction in the flow of crude oil pipelines to 15.9ºC and reduced visibility to 57% at sea temperature of 4 ºC. Finally, the third inhibitor was Mix03, a mixture of polyacrylate polymer (C16-C22), and brine (H_2O + NaCl). At 1000 ppm, the reduction of oil point was 14,4 ºC and reduced visibility by 52.5% at sea okung 4 ºC. This unique combination of blocking properties and a significant reduction in point temperature and the appearance of crude oil provides a novel progress in flow durability technology.

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