

Production of Pour Point Depressant for Paraffinic Crude Oils

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Abstract : The crude oil contains paraffines, aromatics, and asphaltenes in addition to some organic impurities, with increasing demands to reduce the cost of crude oil production, the uses of a pour point depressant is mandatory to maintain good flow rate. The wax materials cause many problems during production, storage, and transport, especially at low temperature, as these waxes tend, at low temperatures, to precipitate on the wall lines, thus leads to the high viscosity of crude oil and impede the flow rate, which represents an additional burden for crude oil pumping system from the place of production to the refinery. There are many ways to solve this problem, including, but not limited to, heat the crude and the use of organic solvents. But one of the most important disadvantages of these methods is the high economic cost. The aim of this innovation is to manufacture some polymeric materials (polymers based on aniline) that are processed locally that can be used as a pour point depressant of crude oil. For the first time, polymer based on aniline is modified and used with a number of organic solvents and tested with solvent (Styrene). It was found that the polymer based on aniline, when modified, had full solubility in styrene, unlike other organic solvent that was used in the past, such as chloroform and toluene. We also used a new solvent (PONA) that is obtained from the process of hydrotreating and separation of straight run naphtha to dissolve polymer based on aniline as a pour point depressant of crude oil. This innovative include studies conducted on highly paraffinic crude oil (C.O.1 and C.O.2). On using concentration (2500 ppm) of polymer based on aniline, the pour point of crude oil has decreased from +33 to - 9°C in case of crude oil (C.O.1) and from + 42 to - 6°C in case crude oil (C.O.2) at the same concentration.

Keywords : PPD, aniline, paraffinic crude oils, polymers

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