HEAVY CRUDE OIL UPGRADE

HEAVY CRUDE OILS

Heavy crude oils are very thick and viscous often found relatively close to the surface. Any lighter more volatile components that might have been formed have vaporized and found their way to the surface and disappeared. They are made up of large molecules such as hexadecane (16 carbon & 34 hydrogen atoms, or C16H34) and octadecane (18 carbon & 38 hydrogen atoms or C18H38).

These large molecules are split or 'cracked' into smaller molecules. Hexadecane – in effect fuel oil - can be cracked down to octane and hexane, components of gasoline, and a little of ethylene. They have to be subjected to heating cycles to crack them down and require about 14% to 18% more energy than for light crude oil and specially configured refinery processes.

IF HEAVY CRUDE OIL is treated chemically and physically to make it less viscous prior to be pumped into the pipeline, the pressure and risk of clogging is lowered and maintenance costs reduced while the flow of oil in the pipeline is faster allowing increase of production and decreasing the need of energy at the refinery. All those advantages can result in substantial savings.

PARAFFIN AND ASPHALTENES – HEAVY CRUDE OIL MAJOR PROBLEMS

With time and during the lifespan of a crude oil well particularly with heavy oil problems paraffin and or asphaltene deposit in the well bore with a steady decrease of oil production to the point that the well results uneconomical.

The same problems from paraffin and or asphaltene deposits happen in the pipeline increasing pressure and damaging pumps and even blocking pipelines with costly consequences in lost production, maintenance and equipment replacement.

Heavy oil containing paraffin and or asphaltene creates sludge that gradually accumulates in storage tanks which reduces storage volume with costly consequences in lost production and expensive cleaning.

PROTEC TECHNOLOGIES SERVICES SYSTEM UPGRADES HEAVY CRUDE OIL

PROTEC TECHNOLOGIES & SERVICES SYSTEM UPGRADES HEAVY CRUDE OIL, REDUCE VISCOSITY AND MAINTENANCE COSTS AND MAY ALLOW EXTRACTING HIGHER LIGHT AND INTERMEDIATE FRACTIONS DURING THE REFINING PROCESS

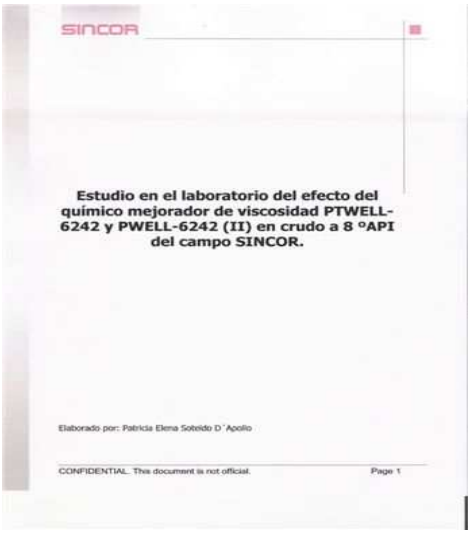
ProTec Technologies & Services blends ProTec International PTWELL6242 Viscosity reducer, corrosion and solid precipitation inhibitor, surfactants and if needed water to heavy crude oil using a unique advanced mixing system to substantially lower viscosity, reduce pressure and risk of clogging in pumping units and pipelines, increasing flow and production and decreasing the need of energy at the refinery.
The upgraded heavy crude oil may allow extracting higher light and intermediate fractions during the refining process.

PETROCEDEÑO - PTWELL6242 SUCCESSFUL TESTING BY SINCOR

In its successful testing of PTWELL6240 and 6242 Viscosity Reducer and Solid Precipitation Inhibitor supported by a study from the Universidad Simon Bolivar SINCOR has shown viscosity reduction of the heavy crude oil and pressure reduction in its pipelines.

UNIVERSIDAD SIMON BOLIVAR
EFECTO DEL QUÍMICO MEJORADOR DE VISCOSIDAD SOBRE LA MEZCLA TRIFÁSICA CRUDO-AGUA-GAS DEL CAMPO SINCOR

ESTUDIO DEL EFECTO DEL QUIMICO MEJORADOR DE VISCOSIDAD PTWELL6242


SINCOR

Estudio en el laboratorio del efecto del químico mejorador de viscosidad PTWELL-6242 y PWELL-6242 (II) en crudo a 8 ºAPI del campo SINCOR.

Elaborado por: Patricia Elena Sobeido D´Apollo

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ANEXO 2

Inmediatamente después de agregar el químico

Minutos después de agregar el químico

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PT-WELL 6240 / 6242 –VISCOSITY REDUCER



PT-WELL IS EXTREMELY EFFICIENT IN REDUCING PRESSURE IN PIPELINE TRANSPORTATION OF CRUDE OIL AND IN PUMPING STATIONS

UPGRADING USING CHEMICALS

Surfactants, dispersants, solid precipitation inhibitors

The search for solutions to improve the flow of heavy oil is a pressing problem. With the addition of additives colloidal properties of crude oil regulated by different methods of action in the transition phases of oil can be modified.

Surfactants and dispersants are widely used for a large number of applications in all phases of the oil processing industry, drilling, injection, production of oil wells, processing plants, and shipments of oil emulsions.

It is generally believed that a technologically effective and efficient method to reduce viscosity and control wax that deposit in pumps and pipeline is to heat the crude oil and treat it with surfactants and depressants reactive chemicals chosen according to the characteristics of the crude oil.

Also the additives can significantly improve the efficiency of the distillation. The improved efficiency is caused by a stabilization of liquid film so providing an increased interfacial area for mass transfer.

UPGRADING - CHEMICALS AND HIGH VELOCITY MIXER


PTS High Velocity Mixing units are specially designed to safely blend, indoor or outdoor, between two and five separate components and allow to quickly and economically mixing PTWELL6242, surface tants, and eventually condensate and / or water to upgrade heavy crude oil. This increases the intimate contact between the chemicals and the heavy crude oil accelerating the break down of long chains of hydrocarbons such as wax and asphaltenes, During this process a certain number of positive changes occur that influences / changes the characteristics of the heavy crude oil.