

Viscosity Reducers for use in Crude Production



HIGH PERFORMANCE
PRODUCTS FOR THE
OIL & GAS INDUSTRY

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DROP[®] Line

Our DROP[®] line of high-performing specialty products is based on blends of modified polymers that can be used as VRs (viscosity reducers) for all types of crudes.

Description of the Technology

Our DROP[®] line of products is a unique technology developed by **AP OILFIELD CHEMICALS**, especially designed to reduce the viscosity of all types of crudes, improve the flow in the pipelines and to increase the production speed and output, without interfering with the dehydration process.

Products	Recommendation	Appearance	Viscosity Cps @25 °C	Solbility (10%) H2O/IPA
DROP[®] B-200	All types of crude	Yellow Liquid	200-500	Insoluble/soluble
DROP[®] V-50	For crude with high water content	Transparent	200-600	Dispersible/soluble
DROP[®] V-100	For extra dry crude	Light Yellow Liquid	200-500	Insoluble/soluble
DROP[®] V-300	All types of crude	Colorless	200-600	Dispersible/soluble

Top Benefits

- Reduces the viscosity of the Crude
- Increases production (better flow)
- Does not have negative effects on the dehydration process
- Reduction of line pressure
- Eliminates high solvent costs
- Greater safety
- Higher energy efficiency
- Increases the efficiency of pumps
- Increases the production capacity of the well
- Reduces the overall cost of transporting chemicals, storage and handling
- Low cost of the product for each barrel of crude produced
- Low dose (300-1,500 ppm)
- Reduces the total cost of the operation



Innovative and cost-effective products and solutions for the oil and gas industry

Uses and Applications

The DROP® line is a series of modified polymers that can be used either as a single active or together with other viscosity reducers for the production of crude oil. The DROP® line will not affect the demulsification process but, on the contrary, depending on the type of crude, it will help the water to drop easier and faster.

Due to the wide variety of existing crudes in the market, DROP® offers a complete line of products which are designed to meet any need and deliver an optimal result. The proper selection of DROP® products must be carried out by means of standard bottle tests followed by field tests. Tests are also required to determine the optimal dosage of DROP® products, depending on the characteristics of the Crude.

Typical dosages: DROP® product line is soluble in most aromatic solvents such as xylene, HAN, Toluene, Kerosene, etc.

Typical dosages: 300 - 1,500 ppm

Laboratory Tests

Test Data: Well # 10 Water Content – 14. 0% - Methodology – Brookfield method (Viscosity @ 850F)

Product	Viscosity/cps @1,000 ppm	Viscosity/cps @2,000 ppm	Viscosity/cps @1,000 ppm (%)	Viscosity/cps @2,000 ppm (%)
Blank Untreated	3420000	3420000		
Drop V-50	2700	2100	99.2	99.4

Field Tests

DROP® V- 50 : The injection was started on the line at 3:30pm on January 13, 2015 in an estimated proportion of injection of 40.0 GPD (gallons per day). The same amount of the product was supplied daily until the end of the test.

The data obtained from January 13, 2015-to January 19, 2015 is described as follows in the tables: daily use of the chemical, crude viscosity reduction data, pressure data on the lines, discharge in station block 16 and the production volume before and the product injection.

Viscosity and Pressure

Date	Injection Rate/ Daily	Viscosity (cps) Before Treatment	Viscosity (cps) After Treatment	Viscosity %	Well #10 Flow Line (PSI)	Well #10 Flow Line %	Well #11 Flow Line (PSI)	Well #11 Flow Line %
13.01.15	0 Gall Opening	112,867			382 @90 rpm		102	
14.01.15	40 Galls	10,6311	14,282	-87%	322	-15%	64	-37%
16.01.15	40 Galls	107,400	15,450	-86%	340	-11%	68	-33%
17.01.15	40 Galls (Bunker 171 G)	103,556	14,274	-86%	356	-7%	72	-29%
19.01.15	40 Galls	110,434	14,131	-87%	356 @120 rpm	-7%	68	-33%

Pressure and Production at the Station

Date	Injection Rate/ Daily	Block Station 16 (OTS) Pressure	Block Station 16 %	Block Station 16 (24hr) Prod. (bbls)	Block Station 16 (24hr) Prod. (bbls) DIF	Block Station 16 %
13.01.15	275 G Opening	507		2,693		
14.01.15	225 Galls	453	-11%	2,992	299	11%
16.01.15	145 Galls	328	-35%	3,022	329	12%
17.01.15	104 Galls (Bunker 171 G)	203	-60%	3,232	539	20%
19.01.15	195 Galls	312	-38%	3,112	419	16%

Field Tests Results

- Well # 10 With a constant pump speed at 90 rpm the pressure on the well head of 382 psi was reduced to 322 psi.
- Well # 10 After three days of injecting the product the pump speed was increased to 120 rpm and the THP (tubing head pressure) of the well remained in 356 psi.
- Well # 11 THP was reduced from 102 psi to 65 psi after a short time that the product began to be injected.
- Block Station 16: The pressure was reduced from 507 psi a 312 psi.
- Block Station 16: The production of crude increase of 2,693 bbls/day to 3,112 bbls/day (419 bbl/day).
- There was no problem of creating emulsion but facilitated the process of dehydration.