


VARICHEM INTERNATIONAL INC.


IS DETERMINED TO BRING
ANSWERS TO SOLVE PROBLEMS
FOR HEAVY OIL PRODUCTION.

WE HAVE SEVERAL NEW
TECHNOLOGIES FOR HEAVY OIL
PRODUCTION



VARICHEM INTERNATIONAL INC.
HAS WORKED TO OFFER ONE
OPTION TO BE USED WITH PUMP
JACKS OR ESP PUMPS INJECTING
DOWN THE BACK SIDE.

FI-1710 CT: THIS PRODUCT CAN BE USED IN
A CONTINUOUS INJECTION AND ALSO IN
BATCH TREATMENTS.



FI-1710 HAS A LOW CHARGE NANO PARTICLE IN A SURFACTANT THAT SEEK OUT METAL AND SOLID SURFACES, ATTACHING ITSELF TO THEM AND CREATING A THIN MEMBRANE OF PROTECTIVE LAYER ON PIPE.

THIS INTENSIFIES BETTER FLOW ACROSS STRUCTURES BY DECREASING FRICTION.

IT ALSO LOWERS VISCOSITY IN HEAVY OILS BY CREATING AN EMULSION OF THE WATER AND OIL AND SEPARATING WATER FROM THE OIL WHEN FLOW OR AGITATION STOPS.

OPTION 1: **FI-1710CT**

FI-1710CT is a surfactant based product with a new proprietary additive.

It can be injected into the annulus with hot water from 130 to 170F and dramatically change the viscosity of the oil. The temperatures needed should be predetermined in lab test.

Injection rates may vary based on the viscosity of the oil. Water is a necessary component.

Application rates vary from 500 to 2,500 ppm based on API

**THE FOLLOWING SLIDE IS A THE
REDUCTION OF VISCOSITY USING F-
1701CT**

**THE NON TREATED SAMPLE TOOK OVER
17 HOURS. THE TREATED SAMPLE TOOK 11
SECONDS TO FLOW A GREATER VOLUME.**

**TIME SHORTENED VIDEO OF
ECOPETROL'S OIL BEFORE AND AFTER
TREATMENT.**



Ecopetrol / 100 g

Black

Heated 170 F

Viscosity by centistokes

- ▶ Untreated and still hot we moved 5 milliliters of oil in 60 minutes
- ▶ This equates to $> 100,000$ centistokes
- ▶ Treated and hot we moved the entire solution in 11 seconds
- ▶ This equates to < 38 centistokes
- ▶ Centipose (cP) = (CST)centistokes x oil density

FI-1710CT HAS A TEMPERATURE LIMIT OF APPROXIMATELY 190 F.

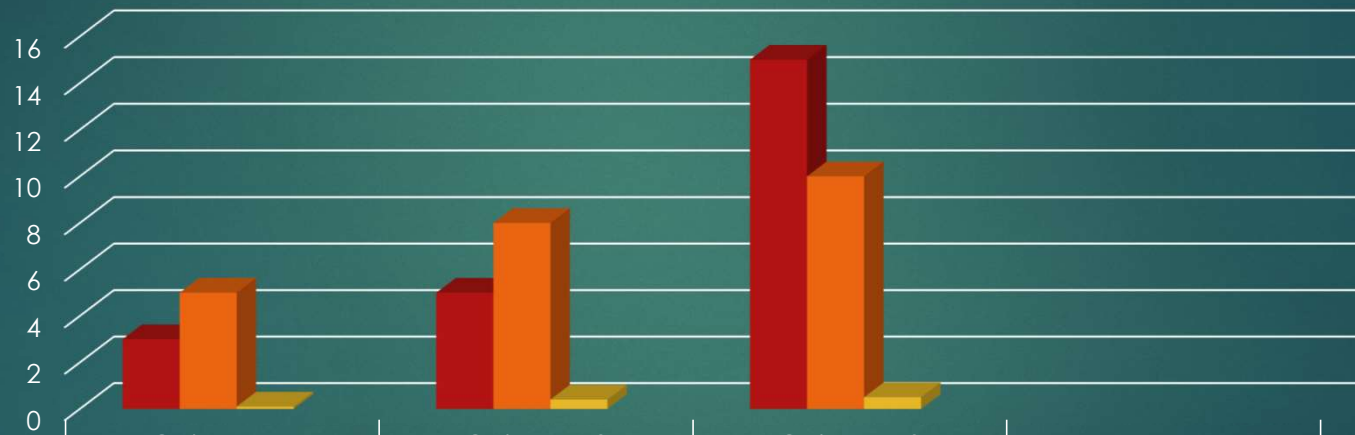
AVERAGE INCREASE IS 30% TO 200 % WHEN ADDED IN 9 TO 20 API OIL, IN FIELDS WITH NO HEAT ADDED TO THE BACK SIDE OF PUMP SYSTEMS PRODUCTION SYSTEMS. IT IS BEST IF THE WATER CUT IS 20% OR GREATER

VARICHEM INTERNATIONAL'S FLOW IMPROVEMENT PRODUCTS ARE VERY USEFUL IN ALL FORMATION TYPES.

Pump jack well South Texas 20 API



Chart Title



1 BOPD
2.BWPD
3. MCF

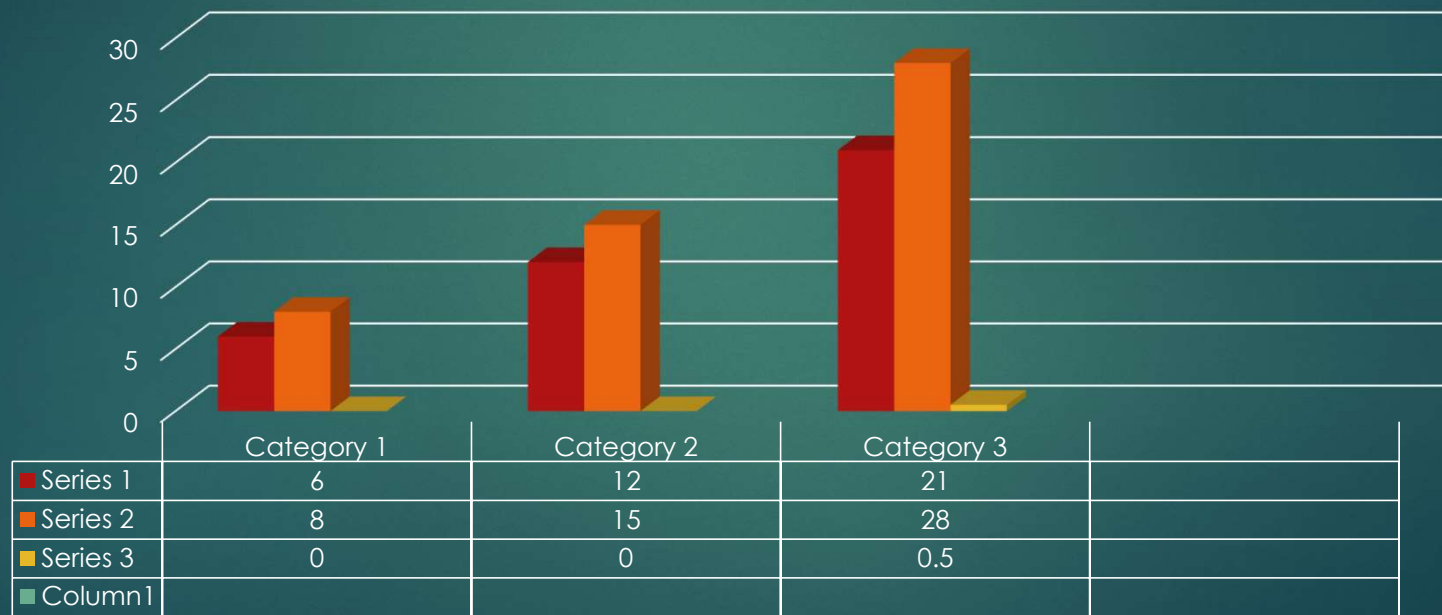
	Category 1	Category 2	Category 3	
Series 1	3	5	15	
Series 2	5	8	10	
Series 3	0.1	0.4	0.5	
Series 4				

Pump jack well South Texas

15 API



Chart Title



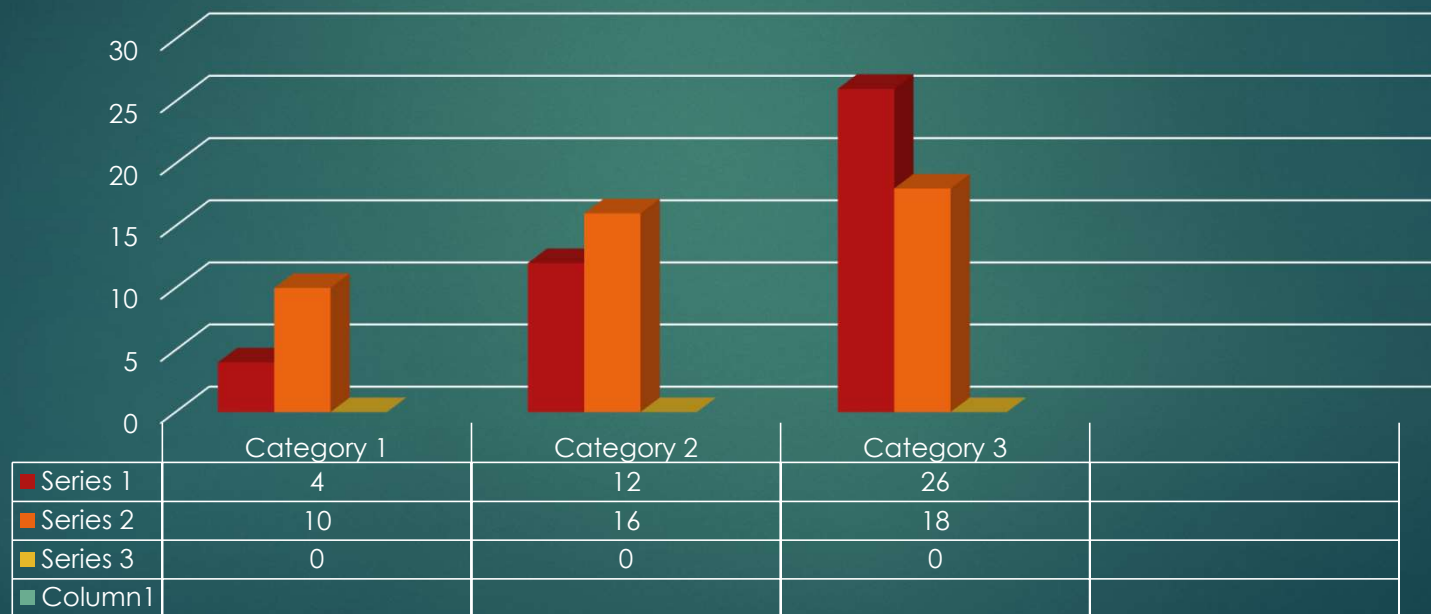
1 BOPD
2.BWPD
3. MCF

Pump jack well South America

11 API

Each test is 7 days after the previous

Chart Title



1 BOPD
2.BWPD
3. MCF

EOR Option 1

- ▶ HOD-300 for API<15
- ▶ First we must establish the depth and formations of the well, downhole temperature, pump type, and oil gravity.
- ▶ Application: add 25 to 50 gallons per each foot of perforation and dilute with water 50% before pumping. Pump down the back side or set a packer and pull the pump and pump down the tubing.
- ▶ Let the well soak for 12 to 15 days
- ▶ Increase production will be due to the enzyme and surfactant additive package that enters the oil and changes its viscosity.
- ▶ This product is also available in a high temp product HOD-300 HT for formations greater than 180 F

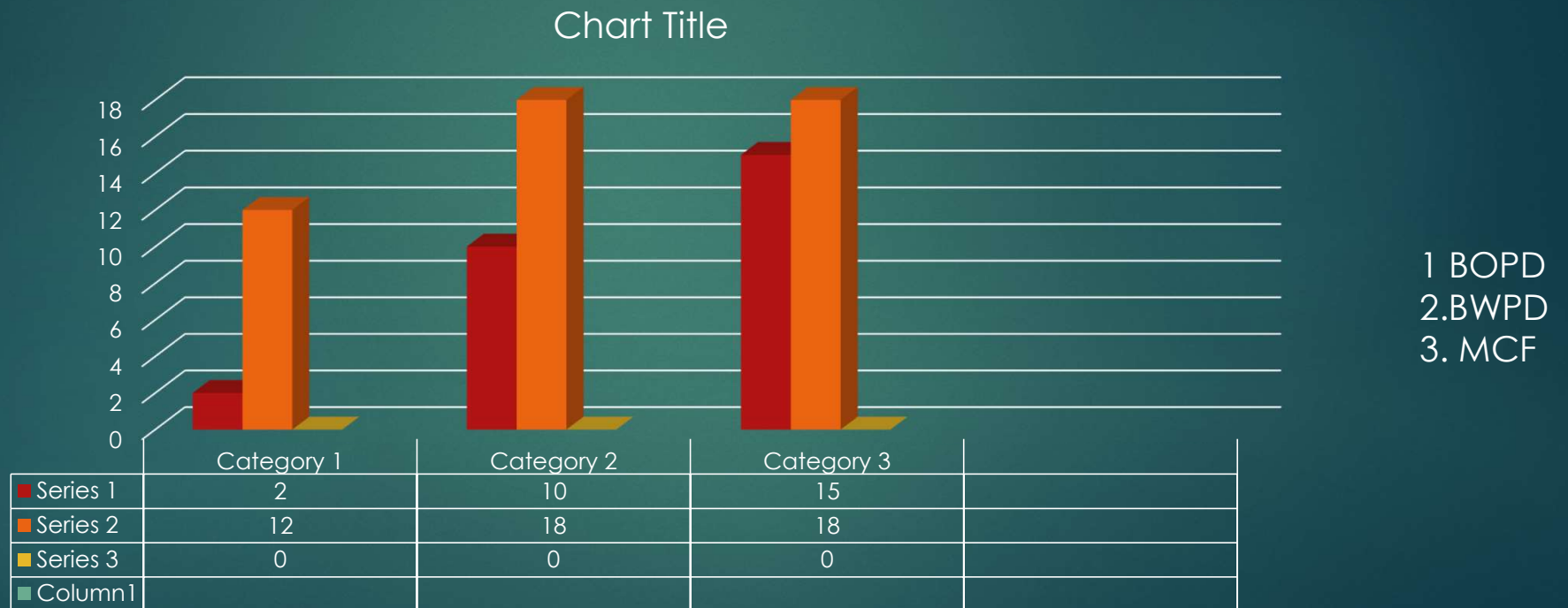
EOR Option 2

- ▶ HOD-310 for API from 15-20
- ▶ First we must establish the depth, formations of the well, downhole temperature, pump type, and oil gravity.
- ▶ Application rule of thumb: add 25 to 50 gallons per each foot of perforation and dilute with water 50% before pumping. Pump down the back side or set a packer and pull the pump and pump down the tubing. Displace with 1.5% of tubing
- ▶ Let the well soak for 12 to 15 days
- ▶ Increase production will be due to the enzyme, Nano and surfactant additive package that enters the oil and changes its viscosity.
- ▶ This product is also available in a high temp product HOD-310 HT for formations greater than 180 F

Pump jack well Asia- HO-D-300

11 API

Each test is 7 days after the previous

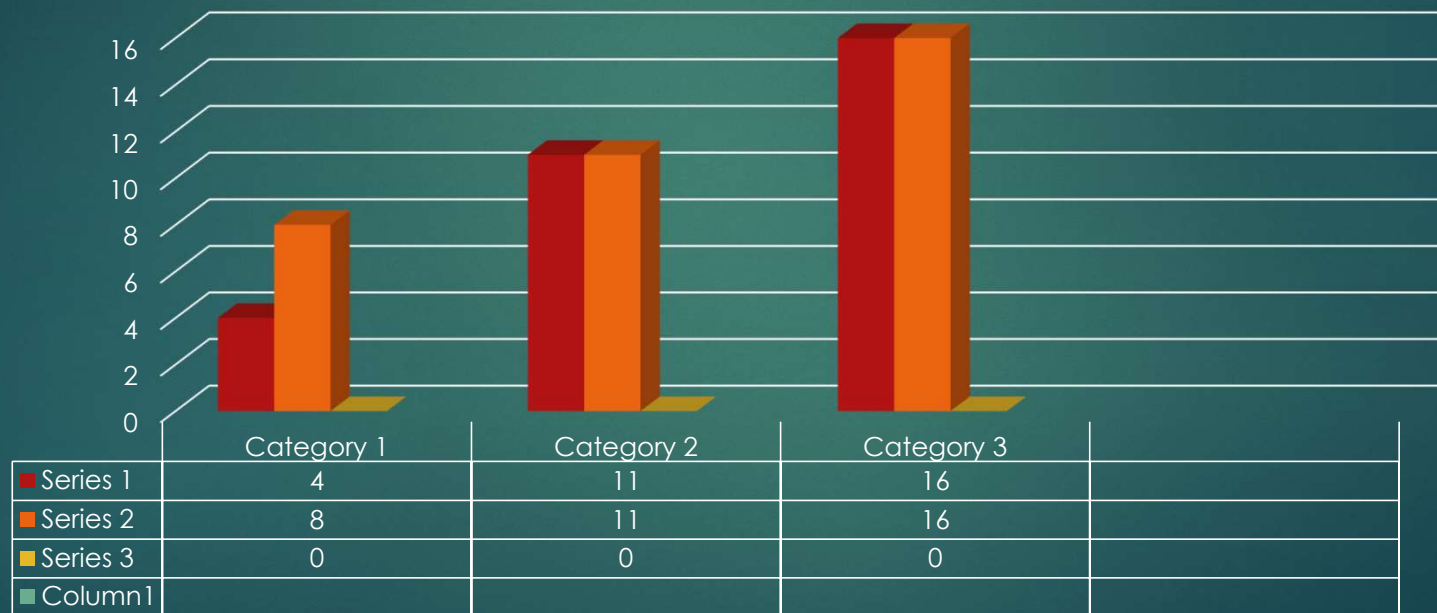


Pump jack well Asia- HO-D-300

12 API

Each test is 7 days after the previous

Chart Title



1 BOPD
2.BWPD
3. MCF

EOR Option 3 is for steam injection

HOSF-500WB

This is water base product with special surfactant to reduce surface tension and cause the steam to disperse into the entire formation area better and it carries an enzyme to help penetration in the oil as well as a high temperature nanoparticle that help break oil into smaller droplets. This product is meant to improve flow and increase production.

4rd Option is for steam injection HOSF-500OB

This is solvent base product with special foaming agents to cause the steam to penetrate the heavy oils and reduce surface tension. It also carries a high temperature nanoparticle that help break oil into smaller droplets.


This product is meant to improve flow and increase production. It can be injected into the steam line at well head.

POLYMER DAMAGE FORMATIONS!

Varichem International Inc. also developed a product to break up polymer damage in formations. This damage can be caused by water flood applications of polymer and also frac damage caused by polymer. HO-D400 PB (polymer breaker) is a special nano surfactant with added nano particles that can be pumped into the well head of the affected well at 2 gallons per foot of perforation and displaced at 1.5 times the tubing area volume.

Or it can be injected into the injection wells of the water flood at 1 GPT. To ensure quicker results pump 3 GPT for 1 week before reducing to 1GPT

This product is effective in all API levels



Varichem International Inc. of the U.S.A. works to develop products to solve problems. This information is directed at heavy oil production solutions. We are resolved to find solutions for our industry.