



Test of Pexgol pipes vs HDPE pipes for brine transportation

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YBL
Bolivia | 2017
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Operating conditions:

Concentration:
1.25 gr / ml of salts dissolved in brine

Bomb:
Gurman Rupp Series T4A

Tension:
380 V three-phase 50 HZ 1470 RPM

Average operating hours:
12 hours

Objective

Establish the best behavior of Pexgol pipes to the formation of scale that produce the transport of brine. This will be done by obtaining less scale deposited on the internal surface of the Pexgol pipe compared to an HDPE pipeline operating both under the same conditions.

Measuring variables

The above will be determined by evaluating the results of the following measurement variables:

- Thickness of the deposited incrustation, this will be measured with a flexometer.. The unit of measurement will be in millimeters.
- Amount of washing cycles required during the test period, the number of times it was necessary to wash the HDPE line and the Pexgol line during the 30 days of the test will be established.

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Results

First 7 days of trial:

	HDPE	Pexgol
Incrustation	With 3/4 of incrustation of the internal diameter of the pipe in all its length, as much in the suction as in the discharge.	No incrustation along the pipe, both in the suction and in the discharge. There are only rings of inlays in the joints.
Washing	Yes	No
Wash-out time	3 hours	Not apply
Amount of incrustation in suction	43 kg	2,4 kg
Cavitation	Yes	No
Flow rate at the end of the test	21 m ³ /h	35 m ³ /h
Volume	5768 m ³	7140 m ³

Note: At the request of the YLB supervisors after 7 days, the pipes were repositioned.

Results after 14 days of testing:

	HDPE	Pexgol
Incrustation	With 3/4 of incrustation of the internal diameter of the pipe in all its length, as much in the suction as in the discharge.	No incrustation along the pipe, both in the suction and in the discharge. There are only rings of inlays in the joints.
Washing	Yes	No
Wash-out time	3 hours	Not apply
Cavitation	Yes	No



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Pexgol Pipe



HDPE Pipe





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Results in images

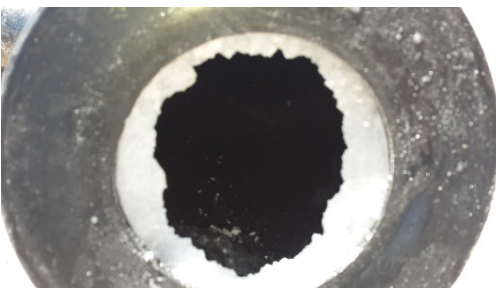
Discharge to the pools: Pexgol vs HDPE



Suction from the pumps: Pexgol vs HDPE



Discharge elbows: Pexgol vs HDPE



Discharge to the pools: Pexgol vs HDPE



Test of Pexgol pipes vs HDPE pipes for brine transportation

Results in video

Discharge after 7 days: Pexgol vs HDPE

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Cleaning process of a Pexgol pipe

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Cleaning process of a HDPE pipe

[CLICK HERE TO WATCH](#)

Cavitation of a HDPE pipe

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Economic Savings

CAPEX Costs

CAPEX Costs	HDPE Pipe		Pexgol Pipe	
Pipe cost	2,000	USD	3,000	USD
Washing system cost	3,850	USD	0	USD
Total	5,850	USD	3,000	USD
CAPEX Savings			49%	

Monthly OPEX Costs

Monthly Maintenance Costs	1,800	USD	20	USD
Frequency of maintenance	15	monthly	1	monthly
Maintenance staff	4	people	4	people
Maintenance time	3	h	0.5	h
HH Maintenance	180	h	2	h
Price HH	10	USD	10	USD
Monthly Water Consumption Cost	18	USD	1	USD
Water Cost per 1m ³	1.5	USD	1.5	USD
Water consumption	0.8	m ³	0.4	m ³
Monthly washing time (1 hour per wash)	15.0	h	1	h
Total	1,818	USD	21	USD
Monthly OPEX Savings			99%	

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Economical Benefits

	HDPE Pipe		Pexgol Pipe	
Price Monthly Brine Volume	23,072	USD	28,560	USD
Brine Price per m ³	1.0	USD	1.0	USD
Transported Volume after 1 week	5,768.0	m ³	7,140.0	m ³
Transported Volume after 1 month	23,072.0	m ³	28,560.0	m ³
Pexgol Benefits			USD	5,488