



P-5000

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P-5000 PETROCHEM CLEAR GEL

TECHNICAL MEMO

GELLING AGENT

P-5000 is a clean, relatively non-damaging gelling agent designed for use in a two percent brine fluid to support high density gravel pack concentrations (15 lbs./Gal.) In wells with BHST from 80 deg.F. - 250 Deg.F.

BUFFER

The hydration rate of P-5000 gel is dependant on the temperature and ph of the mix water. The temperature should be approximately 50 deg. F. And have a ph between 6-8. A buffer using sodium bicarbonate will raise the ph to a maximum of 8.5 regardless of the amount used but a buffer using borax will raise the ph to 9.1 and gel the fluid faster than sodium bicarbonate. However, whichever chemical is used to raise the ph of the fluid, quantities in excess of the recommended amounts will interfere with the breakdown of the gel. If the fluid does not begin to gel within 30 minutes of adding the buffer add additional buffer in small increments of 0.04 Lbs/bbl of sodium bicarbonate or 0.02 Lbs/bbl of borax.

BREAKER

The gelled P-5000 will maintain its viscosity for days unless a viscosity breaker is added to the fluid. The breaker will cause the viscosity to decrease rapidly allowing the well to clean-up easily.

The amount and type of breaker to be used is shown in table B. But if the BHST is not accurately known, assume a lower BHST than estimated. This will insure a faster and more complete break in fluid viscosity.

ANTIFOAM- P-AFAL

If an antifoam is used you must add the required amount to the mix water prior to adding any chemicals, since P-AFAL is designed to prevent foaming rather than to treat the foam once formed.



MATERIAL REQUIREMENTS TO PREPARE 12 BARRELS OF P-5000 GEL FLUID.

<u>TABLE A.</u> <u>MATERIAL</u>	<u>AMOUNTS TO USE</u>	
	<u>BORAX</u>	<u>SODIUM BICARBONATE</u>
Water	12 BBLs.	12 BBLs.
Potassium or Ammonium Chloride	100 LBS.	100 LBS.
P-5000 Gelling agent	44 LBS.	40 LBS.
Borax (BUFFER)	0.2 LBS.	NIL
Sodium Bicarbonate (BUFFER)	NIL	0.5 LBS.
Breaker	AS PER TABLE B.	

NOTE: Ammonium Chloride should be used if the water pack treatment immediately follows a mud acid or clay acid treatment.

TABLE B.
BREAKER TYPE AND CONCENTRATION

<u>TYPE & AMOUNT OF BREAKER TO USE</u>				<u>BREAK TIME</u>
<u>PER 1000 GAL.</u>	<u>GEL.</u>	<u>BHST DEG.F.</u>	<u>TIME >50 CPS.</u>	<u>10% OF VIS.</u>
* AMMN.PER.	10 LBS.	90-110	3 HOURS.	6 HOURS.
* AMMN.PER.	8 LBS.	110-125	2 HOURS.	.5 HOURS.
* AMMN.PER.	2 LBS.	125-135	2 HOURS.	3 HOURS.
* AMMN.PER.	.5 LBS.	135-150	2 HOURS	3 HOURS.
HCL 15 %	2 GA.	150-185	40 MINUTES.	1 HOUR.
HCL 15 %	1 GAL.	190-200	40 MINUTES.	1 HOUR.

*Ammonium Persulfate is to dissolved in water at a concentration of 4 pounds per gallon of water before adding to the carrying fluid.

PREPARATION OF GEL FLUID

- 1) Be sure tanks are clean and free of scale and acid.
- 2) Take on required amount of fresh water and begin mixing.
- 3) Add potassium or ammonium chloride and mix for 5 minutes.
- 4) Add P-5000 gelling agent and mix for 5 minutes.
- 5) Add borax or sodium bicarbonate to raise ph and gel fluid.
- 6) Mix for 30 minutes to establish maximum viscosity.
- 7) Add breaker.

Note: Ammonium Chloride can be added after P-5000 and Borax or Sodium Bicarbonate, but it will require longer mixing times to dissolve.