



P-500

CEMENTING SERVICE BULLETIN

06/12/12

P-500 (PETROCHEM- STABILIZER FOR P-1000)

TECHNICAL DATA

P-500 Stabilizer was originally developed for preventing any premature destabilization of P-1000 Additive at high bottom-hole circulating temperatures.

This Manual Section is intended to provide a review of several potential P-500 applications which are:

- High-temperature stabilizer for P-1000
- Dispersant, both in non P-1000 and P-1000 slurries
- Salt stabilizer for P-1000

PROPERTIES

| <u>PRODUCT</u> | <u>FORM</u> | <u>SP.GR.</u> | <u>PACKAGING</u> |
|----------------|--------------|---------------|------------------|
| P-500 | CLEAR LIQUID | 1.06 | 55 GAL/Drum |

SLURRY DESIGN

P-500 as P-1000 Stabilizer at High Temperature

By increasing the stability of P-1000 at high temperature, thus decreasing the chemical interactions between P-1000 and cement, P-500 largely diminishes the risks of premature gelation for P-1000-cement slurry.

Moreover, P-500 has no specific effect on the thickening time, prevents "false setting" due to gelation, provides a "right-angle set" and improves the cement setting hardness.

Since P-500 does not harm any cement properties, overdosing the P-500 concentration cannot lead to a job failure, while under dosing could lead to drastic problems during the pumping operation. P-500 is optimized in the laboratory through thickening-time testing, so that the cement slurry does not gel up at 100 Bc's but sets and hardens in a minimum period of time.

P-500 as a Dispersant tends to slightly disperse the cement slurry in fresh water. This is particularly true when P-DISL and/or P-1000 are present in the slurry. The concentration of additives (especially P-DISL) must then be optimized to prevent over dispersion.

P-500 as a P-1000 Stabilizer to Salt

As already known, P-1000 has proved to be more efficient for gas-migration prevention at low temperatures (below 200°F [93°C] BHCT), which is frequently the application range of saltwater-base slurries. Moreover, a P-1000 slurry is already stable by itself up to 8% BWOW salt. For these two reasons, P-1000 is expected to be the best candidate in a salt system.

- P-1000 slurry not stabilized with P-500 is stable up to 8% BWOW salt
- P-1000 stabilized with P-500 is stable up to 18% BWOW salt

From this, we can conclude:

- P-500 acts as a very good dispersant and a strong stabilizer in P-1000 salt slurries,
and
- P-500/P-1000 is FAR MORE stable with respect to salt concentration

On the other hand, it should be noted that:

- Overdosing P-500 with regard to P-1000 does not cause drastic problems with respect to the rheology.

The data given is to be used only as a guide. Subsequently, each job is to be designed and tested in the laboratory with the actual water, cement and additives intended for the job, and similar mixing energy is to be duplicated in the field.