



P-MTR & P-MTRL

PAGE 1 OF 6

CEMENTING SERVICE BULLETIN

05/27/08

P-MTR (PETROCHEM MED. TEMP. RETARDER)

TECHNICAL DATA

1. SUMMARY

P-MTR is a powdered cement retarder to provide cement systems with optimum thickening times from 125° to 250°F (52° to 121°C) BHCT. This BHCT limit can be extended to 310°F (154°C) when used in conjunction with our "retarder aid" P-RA.

P-MTR effectively retards most API cements and is compatible with all cement additives. It reduces the cement slurry viscosity and does not impair the fluid-loss control properties of fluid-loss additives. Unlike Retarder P-LTR, gelation is seldom encountered in slurries containing P-MTR. P-MTR is less sensitive to variations in temperature, concentration and cement quality.

P-MTR can be used in cement slurries prepared with fresh water or salt water. Saltwater concentrations may range from 3% (seawater) to 37% (salt-saturated water).

PROPERTIES

PRODUCT	FORM	SP.GR.	PACKAGING
P-MTR	Brown Powder	1.26	50 Lb/sack.
P-MTRL	Brown Liquid	1.19	55 Gl/Dr.
P-RA	White Crystals	1.73	50 Lb/sack.

Safety information is listed in the Petrochem MSDS sheets.



P-MTR & P-MTRL Con't.

PAGE 2 OF 6

2. SLURRY DESIGN

The optimum BHCT range for P-MTR is between 125 and 250°F (52 and 121° C). Retarder response is consistent over this temperature range, and is almost independent of variations in cement quality. When used in conjunction with retarder aids P-RA temperature range is extended to 310°F (154°C) but with reduced P-MTR efficiency.

Like most other lignosulfonate retarders, P-MTR is an effective dispersant. In most cases, it is a stronger dispersant than P-LTR, and as such, slurries mixed with P-MTR will require less additional dispersant to permit proper mixing and/or turbulent-flow placement. In all cases, P-MTR response is essentially independent of cement brand, whereas P-LTR response is subject to wide variation depending on cement brand.

NOTE:

Although P-MTR is effective to 250°F (121°C) without retarder aids, gelation may occur above 220°F (104°C) with some cements. Also, because P-MTR is a powerful retarder at lower temperatures, compressive strength testing is necessary to verify that the cement will set at the cement column top.

1. Concentration

The concentration (BWOC) of P-MTR required to give four-hour thickening time ranges from 0.25 to 0.60% for a BHCT from 125° to 200°F (52° to 93° C). At 185°F (85°C) BHCT, a four-hour thickening time is readily achieved in most cements using 0.4% P-MTR (BWOC) for a freshwater slurry and 0.6% P-MTR (BWOC) for a seawater slurry. Because P-MTR is temperature-stable, it can be used at high temperatures; but above 185°F (85°C) the retarder concentration must be increased from 0.4 to 2% as the BHCT approaches 250°F (121°C).



P-MTR & P-MTRL Con't.

PAGE 3 OF 6

1. Extended Temperature Range;

The P-MTR temperature range can be extended to 310°F (154°C) using P-RA retarder aid. Adequate thickening times are easily obtained at this temperature using approximately 1% P-MTR in conjunction with 2 to 4% P-RA.

2. Compatibility

P-MTR is compatible with most API cements and Petrochem cement additives. It can be mixed with either fresh, sea or salt-saturated water.

In general, seawater and salt-saturated slurries require a higher P-MTR concentration than those mixed with fresh water. Therefore, it is necessary to run compressive strength tests to determine if the slurry will set at the cement top.

3. JOB DESIGN DATA

The thickening-time and compressive-strength data in this document are intended to be used as a general guide. Pretesting under specific conditions with the cement designated for the job is required to predict the properties of the cement slurry.

4. P-MTRL (LIQUID VERSION)

5. SUMMARY

Liquid Retarder P-MTRL is the liquid version of Retarder P-MTR. It can be used to provide cement systems with optimum thickening times from 125 to 250°F (52 to 121°C) BHCT. This BHCT limit can be extended to 310°F (154°C) when used in conjunction with a "retarder aid".



P-MTR & P-MTRL Con't.

PAGE 4 OF 6

P-MTRL effectively retards most API cements, and is compatible with all cement additives. It reduces the cement slurry viscosity and does not impair the fluid-loss control properties of fluid-loss additives. Unlike Retarder P-LTRL, gelation is seldom encountered in slurries containing P-MTRL; and P-MTRL is less sensitive to variations in temperature, concentration and cement quality.

P-MTRL can be used in cement slurries prepared with fresh water or salt water. Saltwater concentrations may range from 3% (seawater) to 37% (salt-saturated water).

6. SLURRY DESIGN

At 0.1 gal/sk, P-MTRL will provide approximately the same activity as 0.4% P-MTR dry blended. It is easily dispersible in the mix water to provide uniform distribution throughout the cement slurry.

The optimum BHCT range for P-MTRL is between 125 and 250°F (52 and 121° C). Retarder response is consistent over this temperature range and is almost independent of variations in cement quality. When used in conjunction with retarder aids P-RA, the temperature range is extended to 310°F (154° C) but with reduced P-MTRL efficiency.

Like most other lignosulfonate retarders, P-MTRL is an effective dispersant. In most cases, it is a stronger dispersant than P-LTRL and as such, slurries mixed with P-MTRL will require less additional dispersant to permit proper mixing and/or turbulent-flow placement. Unlike other liquid lignosulfonate retarders, P-MTRL remains very fluid and exhibits no deposits or crystallization at temperatures as low as 32°F (0°C).



P-MTR & P-MTRL Con't.

PAGE 5 OF 6

NOTE:

Although P-MTRL is effective to 250°F (121°C) without retarder aids, gelation may occur above 220°F (104°C) with some cements. Also, because P-MTRL is a powerful retarder at lower temperatures, compressive strength testing is required to verify that the cement will set at the cement column top.

1. Concentration

The recommended concentration for P-MTRL is between 0.05 to 0.25 gal/sk of cement.

2. Extended Temperature Range

The P-MTRL temperature range can be extended to 310°F (154°C) using P-RA as a retarder aid. Retarder aids P-RA have to be dry blended with the cement because of their limited solubility in P-MTRL.

3. Compatibility

P-MTRL is compatible with most API cements and Petrochem cement additives. It is compatible with fresh, sea or salt-saturated mix water. The use of salt-saturated water increases the efficiency of P-MTRL above 215°F (102°C), but decreases it at lower temperatures. P-MTRL is incompatible with P-TTCL. When blended together, they form a precipitate.



P-MTR & P-MTRL Con't.

PAGE 6 OF 6

1. FIELD MIXING PROCEDURE

In some operations, it may be desirable to blend P-MTRL with other liquid additives so that they can be metered with one pump. When mixed with P- MTRL, some liquid additives form very thick mixes. In these cases, the additives should be diluted by mixing into water.

2. JOB DESIGN DATA

The data presented here on thickening times and compressive strengths are intended to be used as a general guide. Pretesting under specific conditions with the cement designated for the field application is required to determine the properties of the cement slurry.