

# Polymer Free 20

Range(s): 0-20 ppm polymer as PAA (Polyacrylic Acid)



## Procedure

Note: When testing multiple samples simultaneously, a separate sample cell with an unreacted sample of the water tested must be used to zero the colorimeter. Please note that varying the test procedure from the original can affect the precision of the test.

Note: For accurate results it is recommended to perform an adjust calibration for the respective polymer in use.

1. Using the filtration apparatus, filter at least 25 mL of sample water into 25 mL sample tube (part #9198).
2. Turn on the Colorimeter.
3. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Polymer Free 20 using ◀▶.

4. Select Polymer Free 20 using ▲▼; then press ENTER ○.
5. Rinse and fill 25 mm sample cell to 10 mL mark with filtered sample; then cap.
6. Insert sample cell into sample cell compartment. Align marks per User's Manual.
7. Select ZERO using ◀▶; then press ENTER ○. Zero will be displayed.
8. Remove sample cell from sample cell compartment; then remove cap.
9. Add 1 mL Polymer Free - Reagent A; then swirl to mix.

10. Add 1 mL Polymer Free - Reagent B; then cap and swirl to mix thoroughly.
11. Insert sample cell into sample cell compartment. Align marks.
12. Select TIMER using ◀▶; then press ENTER ○.
13. Select START using ◀▶; then press ENTER ○. (A 5-minute [05:00] countdown will begin.) Immediately select AUTO using ◀▶; then press ENTER ○.
14. When the timer beeps, the instrument will read the sample and the result will be displayed.

## Interferences

Alkalinity, Total ( $\text{CaCO}_3$ )  $\geq 200$  ppm – positive interference  
 Azole (BT)  $\geq 20$  ppm – positive interference  
 Azole (TT)  $\geq 10$  ppm – positive interference  
 Copper  $\geq 10$  ppm – positive interference  
 Fluoride  $\geq 10$  ppm – negative interference  
 Hardness, Calcium ( $\text{CaCO}_3$ ) all levels – negative interference  
 Iron, Ferric  $\geq 5$  ppm – negative interference  
 Iron, Ferrous  $\geq 10$  ppm – negative interference

Molybdate  $\geq 50$  ppm – negative interference  
 Phosphate  $\geq 30$  ppm – negative interference  
 Polyphosphate  $\geq 5$  ppm – positive interference  
 Propylene Glycol  $\geq 1\%$  – negative interference  
 Silica  $> 250$  ppm – negative interference  
 Sulfate  $\geq 500$  ppm – negative interference  
 Zinc  $\geq 10$  ppm – positive interference

The following analytes were tested to the levels listed and found not to cause any interference up to the specified values:

Bromine – 5 ppm  
 Chloride – 1000 ppm  
 Chlorine – 5 ppm  
 Nitrate – 2000 ppm  
 Nitrite – 2000 ppm  
 Sulfite – 100 ppm

**Test Method**

Turbidity (Absorptometric)

Active polymer reacts with a buffered reagent to produce a precipitate, which is directly proportional to the concentration of free polymer in a sample.

Note: Polymer treatments are available as blends of polyacrylic acid and monomers such as maleic acid, polysulfonates, etc. The available polyacrylic acid active solids come in different strengths. Calibration for this method is based on a low molecular weight polyacrylic polymer with an average molecular weight of ~2000. The results are expressed as ppm active solids based on 100% polyacrylic acid active solids. Technical data information provided by the supplier usually indicates the % composition of polymers present in the formulation.

**Estimated Detection Limit**

0.42 ppm polymer as PAA (Polyacrylic Acid)

**Precision**

Using two lots of reagent and a standard solution of 10 ppm polymer as PAA (Polyacrylic Acid), an individual analyst obtained a standard deviation of  $\pm 0.35$  ppm polymer as PAA (Polyacrylic Acid).

**Application**

Industrial Water

**Ordering Info****Reagent Pack**

K-8006 Polymer Free

Formulated for exclusive use with Taylor's T<sup>®</sup>Ti Colorimeter.

**Reagent Pack Components**

R-8006A Polymer Free - Reagent A

R-8006B Polymer Free - Reagent B

R-0833 DI Water

#4078 Pipet (eye dropper), Graduated (3 mL w/ 0.5 div), plastic

#6249 Filter Disc Holder, 25 mm, Millipore<sup>™</sup> (for 6247 & 6260)

#6257 Filter Discs, Syringe, 2.5  $\mu$ m, 25 mm, Whatman<sup>™</sup>, 100/box

#6260 Syringe (no filter disc holder or filter discs), 30 mL, plastic

#9198 Sample Tube, Graduated (25 mL) w/ cap, plastic



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