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 ($CaCO_3$) ≥ 200 ppm – positive interference
Azole (BT) ≥ 20 ppm – positive interference
Azole (TT) ≥ 10 ppm – positive interference
Copper ≥ 10 ppm – positive interference
Fluoride ≥ 10 ppm – negative interference
Hardness, Calcium ($CaCO_3$) all levels – negative interference
Iron, Ferric ≥ 5 ppm – negative interference
Iron, Ferrous ≥ 10 ppm – negative interference
Molybdate ≥ 50 ppm – negative interference
Phosphate ≥ 30 ppm – negative interference
Polyphosphate ≥ 5 ppm – positive interference
Propylene Glycol ≥ 1% – negative interference
Silica > 250 ppm – negative interference
Sulfate ≥ 500 ppm – negative interference
Zinc ≥ 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

(over)

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 ± 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 TTi® 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™ (for 6247 & 6260)
#6257	Filter Discs, Syringe, 2.5 μm, 25 mm, Whatman™, 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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Polymer Free 500

Range(s): 20-500 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. Using the 3 mL pipet (part #4078), dispense 2 mL of filtered sample into the dilution vial and dilute to 50 mL with DI Water (R-0833); then cap and swirl to mix thoroughly.
3. Turn on the Colorimeter.
4. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Polymer Free 500 using ◀▶.
5. Select Polymer Free 500 using ▲▼; then press ENTER ⊙.
6. Rinse and fill 25 mm sample cell to 10 mL mark with diluted sample; then cap.
7. Insert sample cell into sample cell compartment. Align marks per User's Manual.
8. Select ZERO using ◀▶; then press ENTER ⊙. Zero will be displayed.
9. Remove sample cell from sample cell compartment; then remove cap.
10. Add 1 mL Polymer Free - Reagent A; then swirl to mix.
11. Add 1 mL Polymer Free - Reagent B; then cap and swirl to mix thoroughly.
12. Insert sample cell into sample cell compartment. Align marks.
13. Select TIMER using ◀▶; then press ENTER ⊙.
14. Select START using ◀▶; then press ENTER ⊙. (A 5-minute [05:00] countdown will begin.) Immediately select AUTO using ◀▶; then press ENTER ⊙.
15. When the timer beeps, the instrument will read the sample and the result will be displayed.

Interferences

The following analytes interfere at the specified levels in the diluted sample:

Alkalinity, Total ($CaCO_3$) ≥ 200 ppm – positive interference
Azole (BT) ≥ 20 ppm – positive interference
Azole (TT) ≥ 10 ppm – positive interference
Copper ≥ 10 ppm – positive interference
Fluoride ≥ 10 ppm – negative interference
Hardness, Calcium ($CaCO_3$) all levels – negative interference
Iron, Ferric ≥ 5 ppm – negative interference
Iron, Ferrous ≥ 10 ppm – negative interference
Molybdate ≥ 50 ppm – negative interference
Phosphate ≥ 30 ppm – negative interference
Polyphosphate ≥ 5 ppm – positive interference
Propylene Glycol ≥ 1% – negative interference
Silica > 250 ppm – negative interference
Sulfate ≥ 500 ppm – negative interference
Zinc ≥ 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

(over)

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

18 ppm polymer as PAA (Polyacrylic Acid)

Precision

Using two lots of reagent and a standard solution of 300 ppm polymer as PAA (Polyacrylic Acid), an individual analyst obtained a standard deviation of ± 19 ppm polymer as PAA (Polyacrylic Acid).

Application

Industrial Water

Ordering Info

Reagent Pack

K-8006 Polymer Free

Formulated for exclusive use with Taylor's TTi® 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™ (for 6247 & 6260)
#6257	Filter Discs, Syringe, 2.5 μm, 25 mm, Whatman™, 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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Instructions

Instruction Number: 5861

Component	Description
>	SYRINGE FILTRATION SYSTEM

COMPONENTS:

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  1 x 5861   Instruction
 *1 x 6247   Syringe, 60 mL, plastic
  1 x 6249   Holder, Filter Discs, 25 mm, Millipore
 *1 x 6260   Syringe, 30 mL, plastic
  Also required but not included: filter discs
 *Kit may only contain one of these.
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TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE 800-TEST KIT (800-837-8548).

PROCEDURE:

CAREFULLY READ AND FOLLOW PRECAUTIONS ON REAGENT LABELS. KEEP REAGENTS AWAY FROM CHILDREN.

NOTE: Taylor offers one pore size in a paper filter disc: 2.5 um filter disc (#6257); and two pore sizes in MCE membrane filter discs: 5 um filter disc (#6248) and .45 um filter disc (#6261). The syringe filtration system removes colloidal color and turbidity, which would interfere when using the Midget(TM) comparator system. The system is offered separately and in other Taylor test kits.

1. Open filter holder (#6249) and place 1 filter disc (#6248, #6257, or #6261) into filter holder. Screw filter holder together and set aside.

2. Completely depress syringe plunger (#6247 or #6260). Draw up water to be filtered by pulling plunger to the highest mL mark.

3. Screw filter holder onto syringe being careful not to push on plunger.

4. Slowly depress plunger to filter water into clean collection vessel. Use filtered water as sample in test.

5. Unscrew filter holder from syringe. Open filter holder and discard filter disc. Draw up deionized, distilled, or tap water into syringe. Screw filter holder together and replace on syringe. Depress plunger to clean and rinse. Repeat as necessary.

8/08

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