

# Instruction Sheet

## *Thermo Scientific Orion AQUAfast AC4017 Chloride Ampoules*

This instruction sheet provides step-by-step instructions for using the Thermo Scientific™ Orion™ AQUAfast™ AC4017 Chloride Auto-Test Ampoules with the Orion AQUAfast AQ4000 colorimeter. The Orion AQUAfast Auto-Test ampoules are designed for use with the Orion AQUAfast AQ4000 colorimeter. Auto-Test ampoules contain a pre-measured amount of liquid reagent and easily fill with the correct volume of sample for simplified reagent and sample mixing. Each ampoule contains an Auto-ID barcode that is read by the AQ4000 colorimeter and used to automatically identify the test parameter and initiate the test. For complete setup and operation instructions for the colorimeter, consult the Orion AQUAfast AQ4000 colorimeter user guide.

<b>Product: AC4017</b>
<b>Revision Date: April 6, 2015</b>
256435-001 Revision B

## Product Information

AC4017 Chloride Auto-Test Ampoules

2.5 – 40 mg/L

Program ID# 031

## Test Method Overview

The Chloride Auto-Test test method employs the mercuric thiocyanate chemistry.<sup>1</sup> Chloride reacts with mercuric thiocyanate to liberate thiocyanate ion. Ferric ion reacts with thiocyanate ion to produce an orange-brown thiocyanate complex. This color is proportional to the chloride concentration in the sample. Results are expressed in ppm (mg/Liter) Cl<sup>-</sup>.

1. APHA Standard Methods, 20<sup>th</sup> ed., 4500-Cl<sup>-</sup> E

## Safety Information

Read the Safety Data Sheet (SDS) before performing this test. Wear safety glasses and gloves.

## Test Procedure

**Note:** Zero the Orion AQUAfast AQ4000 colorimeter using a sealed zero vial from the Orion AQUAfast Zero Auto-Test Kit, Cat. No. AQ4ZER, before generating the reagent blank.

**Note:** A fresh reagent blank ampoule must be created and used to set the reagent blank value in the instrument for each series of tests performed.

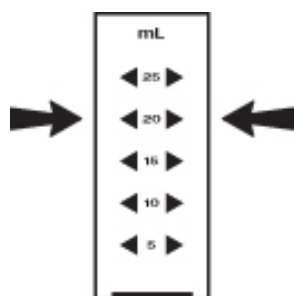
## Reagent Blank Procedure

1. Fill the sample cup to the 20 mL mark with deionized water. *See Figure 1.*
2. Using the syringe, add 1 mL of the Chloride Activator solution to the contents of the sample cup. *See Figure 2.* Stir briefly with the tip of the ampoule to mix the contents.
3. Place the Auto-Test ampoule in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill leaving a small bubble to facilitate mixing. *See Figure 3.*
4. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Wipe all liquid from the exterior of the ampoule.
5. Wait 1 minute for color development.
6. Press the prgm key. Enter the ID code 31 and press the yes key.

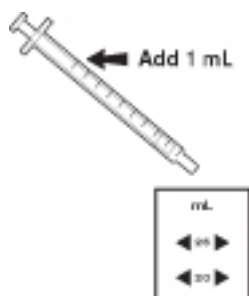
7. Press the setup key and then press the ▲ or ▼ key until “BLANK” is displayed.
8. Press the yes key and “SET BLNK?” will be displayed. Press the yes key and “SAMPLE?” will be displayed.
9. Insert the ampoule into the AQ4000 colorimeter. Align the ▼ on the Auto-Test ampoule with the ◆ on the adapter. Cover the ampoule with the colorimeter’s light cover.
10. Press the yes key and allow instrument to read the reagent blank. The blank value will be displayed and the instrument will proceed to the next function and display “VERIFY”.
11. Press the meas key to proceed to the measure mode.

### Sample Measurement Procedure

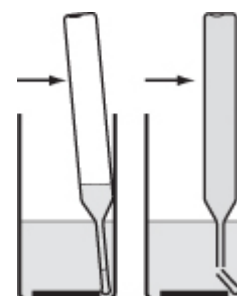
1. Fill the sample cup to the 20 mL mark with the sample. *See Figure 1.*
2. Using the syringe, add 1 mL of the Chloride Activator solution to the contents of the sample cup. *See Figure 2.* Stir briefly with the tip of the ampoule to mix the contents.
3. Place a new Auto-Test ampoule in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill leaving a small bubble to facilitate mixing. *See Figure 3.*
4. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Wipe all liquid from the exterior of the ampoule.
5. Insert the ampoule into the AQ4000 colorimeter. Align the ▼ on the Auto-Test ampoule with the ◆ on the adapter to obtain a continuous beeping and view \*\*\*\*\* across the display. If \*\*\*\*\* and beeping are not observed, rotate the ampoule to the right or left to initiate the measurement.
6. Immediately cover the ampoule with the colorimeter’s light cover.
7. The AQ4000 will begin a 1 minute countdown. After the countdown is completed, the AQ4000 will automatically proceed to the measure mode.
8. Record the concentration reading from the AQ4000 display as mg/L or ppm Cl<sup>-</sup> or log the measurement into the data logger by pressing the log key.



**Figure 1:**



**Figure 2:**



**Figure 3:**

## Ordering Information

Cat. No.	Description
AC4017	Orion AQUAfast Chloride Auto-Test Kit, 30 Ampoules
AC4010	Orion AQUAfast Ammonia as N Ultra Low Range Auto-Test Kit, 30 Ampoules
AC4070	Orion AQUAfast Chlorine (Free & Total) Auto-Test Kit, 30 Ampoules
AC4078	Orion AQUAfast Iron (Total & Soluble) Auto-Test Kit, 30 Ampoules
AC4082	Orion AQUAfast Sulfate Auto-Test Kit, 30 Ampoules
AC4016	Orion AQUAfast Sulfide (Soluble) Auto-Test Kit, 30 Ampoules
AQ4ZER	Orion AQUAfast Zero Vial Auto-Test Kit
AQ4CBL	Orion AQUAfast RS232 Cable for AQ4000 Colorimeter
AQ4000	Orion AQUAfast AQ4000 Colorimeter, Includes 4 AA Batteries, 16 mm Vial, Zero Vial Auto-Test Kit, 16 mm Vial Adapter, 13 mm Vial Adapter, Field Case, User Guide, Tablet Tampering Stir Rod, Vial Cleaning Brush

For a complete listing of all available Thermo Scientific Orion AQUAfast reagents, colorimeters and accessories, please visit [www.thermoscientific.com/water](http://www.thermoscientific.com/water).

## Contact Information

Thank you for your continued support of Thermo Scientific Orion products. Please visit [www.thermoscientific.com/water](http://www.thermoscientific.com/water) to view the Orion meter, electrode, sensor and solution products and download product literature, user guides and software updates. To access additional product support files, please visit the [WLP Online Library](#).

For any questions or if you require assistance, contact our Technical Support Specialists:

Email [wai.techservbev@thermofisher.com](mailto:wai.techservbev@thermofisher.com)

Within the United States, call 1-800-225-1480

Outside the United States, call +1-978-232-6000

For additional product information, contact your local authorized dealer, local Thermo Scientific Orion technical sales representative or contact us using the Water and Lab Products (WLP) contact information below.

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