

Taylor's Chloride Test Kits

INTRODUCTION

Chloride is one of the major inorganic anions in water and wastewater. High concentrations of chloride may contribute to corrosion of metal pipes and related structures. A key determination for **industrial water treaters**, chloride is mainly tested to control blowdown in boilers and bleed-off in cooling systems. Chloride tests are also employed to characterize boiler feedwater and to detect leaks in some types of condensers.

Chlorides are determined titrimetrically using either the **argentometric** or **mercuric nitrate** method. In the argentometric method, potassium chromate indicates the endpoint by forming red silver chromate with excess silver ions. In the mercuric nitrate method, diphenylcarbazone indicates the endpoint by formation of a purple complex with excess mercuric ions.

Note: Bromide and iodide titrate as equivalent chloride concentrations. Sulfite interferes but can be removed with hydrogen peroxide. High orthophosphate and iron may interfere.

CHLORIDE KITS

K-1506

Drop test (using the argentometric method) **for neutral pH waters**; 1 drop = 10, 25, 50, 100, or 500 ppm Cl^-

K-1543

Drop test (using the argentometric method) **for high pH waters**; 1 drop = 2 ppm Cl^-

K-1549

Drop test (using the argentometric method) **for high pH waters**; 1 drop = 10, 25, 50, 100, or 500 ppm Cl^-

K-1549S

Drop test (using the argentometric method) **for high pH waters**; 1 drop = 10 ppm Cl^-

K-1598

Drop test (using the mercuric nitrate method); 1 drop = 2 or 10 ppm Cl^-

K-1767

Drop test (using the argentometric method); 1 drop = 20, 40, 100, 200, or 800 ppm Cl^-



The K-1549 drop-test kit will perform 180 tests at 200 ppm.

K-0433

Buret titration reagent pack (using the argentometric method); 1 mL = 1 mg Cl^-

K-0434

Buret titration reagent pack (using the argentometric method); 1 mL = 0.5 mg Cl^-

K-0435

Buret titration reagent pack (using the argentometric method); 1 mL = 1 mg NaCl

USER BENEFITS

- Titrations do not require the ability to match colors, only the ability to see the **permanent color change** at the end-point of the reaction.
- Drop-test kits are practical for both **on- and off-site** testing.
- Buret titrations provide **laboratory accuracy** at an economical price.
- Test kits **come complete** with all necessary reagents and equipment; reagent packs contain an instruction and reagents **only**.
- **Waterproof instructions** are printed on plastic-impregnated paper that resists fading and tearing.



the most trusted name in water testing

Taylor Technologies, Inc.
410-472-4340
800-TEST KIT (837-8548)
www.taylor technologies.com

ISO 9001:2008 Certified

USER BENEFITS (cont'd)

- **Picture guides** to color transitions in the test reassure new users.
- Custom-molded, durable plastic cases provide **safe storage** for all tests.
- **Proven chemistries** are based on *Standard Methods for the Examination of Water and Wastewater*, APHA, Washington, DC, and/or *American Society for Testing and Materials*, ASTM, Philadelphia, PA. Some methods use proprietary chemistry developed by Taylor Technologies.

ALSO AVAILABLE

- Test kit for **salinity** (K-1577). A simple drop test using the argentometric method, with an equivalency of 1 drop = 1 or 2 ppt salinity.
- SampleSizer® (#6190) for 10/25 mL test volumes and SpeedStir® (#9265) magnetic stirrer save time for frequent testers.
- A wide array of single- and multiparameter kits featuring color-matching and/or drop-count tests.
- Taylor's TTi® Colorimeter (M-3000); test 30+ parameters commonly encountered in commercial and industrial settings and transfer results to a PC database.
- Myron L Company portable instruments and calibration solutions (sold separately in reagent packs).
- Testing supplies and kit replacement parts (e.g., burets, flasks, test tubes, and test cells).
- **Video demonstrations** for new users posted on our website.
- Toll-free technical assistance at **800-TEST KIT**.

REPRESENTATIVE TEST PROCEDURE

Reproduced from K-1549 instruction:

DROP TEST

CHLORIDE (1 drop = 10, 25, 50, 100, or 500 ppm)

Instr. #5090

COMPONENTS:

- 1 x 4078 Pipet, Graduated, 3 mL (0.5 mL div.), plastic
- 1 x 5090 Instruction
- 1 x 9198O Sample Tube, Graduated, 25 mL, plastic w/cap and orange dot
- 1 x R-0630-C Chromate Indicator, 2 oz, DB
- 1 x R-0638O-C Phenolphthalein Indicator (orange cap), 2 oz, DB
- 1 x R-0686O-C Sulfuric Acid N (orange cap), 2 oz, DB
- 1 x R-0706-C Silver Nitrate Reagent, 2 oz, DB

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: When sulfite content of sample water to be tested exceeds 10 ppm, the sulfite should be oxidized to prevent interference in test. A 25 mL water sample is first adjusted to the appropriate pH, then 1 mL (or 24 drops) of R-0649 3% Hydrogen Peroxide Solution (sold separately) is added and thoroughly mixed. Continue with the rest of the procedure.

For 1 drop = 10 or 25 ppm or 1 gpg

1. Select sample size.

Desired Equivalence	Sample Size
1 drop = 10 ppm Cl ⁻	25 mL
1 drop = 1 gpg Cl ⁻	14.6 mL
1 drop = 25 ppm Cl ⁻	10 mL

2. Rinse and fill 25 mL sample tube (#9198O) to desired mark with water to be tested (Fig. 1).

3. Add 2 drops R-0638O Phenolphthalein Indicator. Swirl to mix. If sample is colorless—proceed to Step 4. If pink (Fig. 2), add R-0686O Sulfuric Acid N dropwise, swirling after each drop, until color changes from pink to colorless.

4. Add 5 drops R-0630 Chromate Indicator. Swirl to mix. Sample should turn yellow (Fig. 3).

5. Add R-0706 Silver Nitrate Reagent dropwise, swirling and counting after each drop, until color changes from yellow to a milky salmon (brick) red (Fig. 4). Always hold bottle in vertical position.

NOTE: Do not add enough R-0706 Silver Nitrate Reagent to give a brown color. First change from yellow to a milky salmon (brick) red is the endpoint.

6. Multiply drops of R-0706 Silver Nitrate Reagent by desired equivalence factor. Record as parts per million (ppm) or grains per gallon (gpg) chloride.

NOTE: For results as sodium chloride, multiply chloride concentration (Step 6) by 1.65.

For 1 drop = 50, 100, or 500 ppm

1. Select sample size

Desired Equivalence	Sample Size
1 drop = 50 ppm Cl ⁻	5 mL (2 x 2.5 mL)
1 drop = 100 ppm Cl ⁻	2.5 mL
1 drop = 500 ppm Cl ⁻	0.5 mL

(OVER)

dropwise, swirling after each drop, until color changes from pink to colorless.

4. Add 5 drops R-0630 Chromate Indicator. Swirl to mix. Sample should turn yellow (Fig. 3).

5. Add R-0706 Silver Nitrate Reagent dropwise, swirling and counting after each drop, until color changes from yellow to a milky salmon (brick) red (Fig. 4). Always hold bottle in vertical position.

NOTE: Do not add enough R-0706 Silver Nitrate Reagent to give a brown color. First change from yellow to a milky salmon (brick) red is the endpoint.

6. Multiply drops of R-0706 Silver Nitrate Reagent by desired equivalence factor. Record as parts per million (ppm) chloride.

NOTE: For results as sodium chloride, multiply chloride concentration (Step 6) by 1.65.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Instr. #5090

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