

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-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.

USER BENEFITS

- Titrations do not require the ability to match colors, only the ability to see the **permanent color change** at the endpoint of the reaction.
- Drop-test kits are practical for both **on- and off-site** testing.
- Test kits **come complete** with all necessary reagents and equipment.
- **Waterproof instructions** are printed on plastic-impregnated paper that resists fading and tearing.
- **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

- 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.
- 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 w/ 0.5 mL div), plastic
- 1 x 5090 Instruction
- 1 x 91980 Sample Tube, Graduated (25 mL) w/ cap & orange dot, plastic
- 1 x R-0630-C Chromate Indicator, 2 oz, DB
- 1 x R-06380-C Phenolphthalein Indicator, 2 oz w/ orange cap, DB
- 1 x R-06860-C Sulfuric Acid N, 2 oz w/ orange cap, 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 dispensing reagents from dropper bottles, **always** hold bottle in a vertical position.

Chloride Test

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 sample is first adjusted to the appropriate pH, then 1 mL (or 25 drops) of R-0649 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 Chloride

1. Select sample size.

NOTE: For 1 drop = 10 ppm, use 25 mL sample.
For 1 drop = 25 ppm, use 10 mL sample.
For 1 drop = 1 gpg, use 14.6 mL sample.

2. Rinse and fill sample tube (#91980) to desired mark with water to be tested.

3. Add 2 drops R-06380 Phenolphthalein Indicator. Swirl to mix. If sample is colorless, proceed to Step 4. If sample is pink (Fig. 1), add R-06860 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 will turn yellow (Fig. 2).

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. 3).

NOTE: A white precipitate will form as R-0706 Silver Nitrate Reagent is added to the sample. 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 (Cl).



Fig. 1



Fig. 2



Fig. 3

(OVER)

NOTE: For 1 drop = 50 ppm, use 5 mL (2 x 2.5 mL) sample.
For 1 drop = 100 ppm, use 2.5 mL sample.
For 1 drop = 500 ppm, use 0.5 mL sample.

2. Using 3 mL pipet (#4078), add desired sample size to 25 mL sample tube (#91980). Dilute to 10 mL mark with distilled, deionized, or chloride-free water.

3. Add 2 drops R-06380 Phenolphthalein Indicator. Swirl to mix. If sample is colorless, proceed to Step 4. If sample is pink (Fig. 1), add R-06860 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 will turn yellow (Fig. 2).

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. 3).

NOTE: A white precipitate will form as R-0706 Silver Nitrate Reagent is added to the sample. 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.

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



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Instr. #5090

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