

Taylor's Boiler & Cooling Water Test Kits

INTRODUCTION

To prevent corrosion and scale in boiler and cooling water systems, it is essential to **analyze both the natural impurities of the source water and the treated water's characteristics**. The analytes most commonly tested are alkalinity, chloride, hardness, nitrite, pH, silica, and sulfite. Additives such as phosphates, phosphonates, molybdenum, and EDTA and other chelants are also routinely monitored. Tests for these parameters constitute Taylor's **combination kits** for water treatment professionals.

COMBINATION KITS

The K-1645 variations are our **most popular** combination kits:

K-1645

P/M & P/T alkalinity, chloride, sulfite, total hardness, pH, orthophosphate

K-1645-1

P/M & P/T alkalinity, sulfite, total hardness, orthophosphate

K-1645-2

P/M & P/T alkalinity, chloride, total hardness

K-1645-3

P/M & P/T alkalinity, sulfite, total hardness

K-1645-4

P/M & P/T alkalinity, chloride, total hardness, orthophosphate

K-1645-5

P/M & P/T alkalinity, chloride, sulfite, orthophosphate

K-1645-6

P/M & P/T alkalinity, chloride, sulfite, total hardness

For the **small boiler** operator:

K-1640

P/T alkalinity, chloride, sulfite, total hardness

K-1650

P/T alkalinity, chloride, sulfite, orthophosphate



Taylor's orthophosphate test using the 2-Standard comparator (shown above in K-1645) is trusted by water treatment professionals industrywide.

Specialty kits for **closed systems**:

K-1646

Molybdenum, nitrite, pH

K-9104

Sulfite, nitrite, pH, iron; plus conductivity with Myron L meter

Configured for **low-pressure steam boilers** and **open cooling systems**:

K-1691

P/M & P/T alkalinity, chloride, sulfite, total hardness, molybdenum, orthophosphate, pH (approx.)

Designed for **high-pressure steam boilers** and **open cooling systems**:

K-1680

P/T alkalinity, chloride, sulfite, total hardness, nitrite, phosphonate

K-1690

P/T alkalinity, chloride, sulfite, total hardness, molybdenum, nitrite, phosphonate, silica

K-9102

P/M alkalinity, sulfite, total hardness, pH, iron; plus conductivity with Myron L meter

K-9103

P/M alkalinity, sulfite, total hardness, phosphonate, pH; plus conductivity with Myron L meter

K-9105

P/M alkalinity, chloride, copper, total & trace hardness, iron, molybdenum, nitrite, phosphonate, orthophosphate, silica, sulfite; plus pH, conductivity, & TDS with Myron L meter

USER BENEFITS

- These 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.
- 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.

the most trusted name in water testing



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

ALSO AVAILABLE

● More than 500 single-parameter and multi-parameter kits covering a wide range of water-testing requirements, including **neutralizing amines in steam condensate, metals, oxidizing biocides, PBTC and other antiscalants.**

- Specialty kit for field service crews who **clean boilers and cooling systems** (K-9106).
- Testing supplies and kit replacement parts (e.g., burets, flasks, test tubes, and test cells).
- Toll-free technical assistance.

Authorized Distributor www.clarksonlab.com

Representative Test Procedure Reproduced from K-1645 instruction:

BOILER & COOLING SYSTEM WATER TESTS		Misc.	Instr. #5067
COMPONENTS (not Bill of Materials):		1 x 5067	Instruction
Alkalinity-P/M, P/T		*Kit includes one.	
*1 x 9198	Sample Tube, Graduated, 25 mL, plastic w/cap	TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE 800-837-8548.	
1 x R-0637	Methyl Orange Indicator, DB	PROCEDURE:	
*1 x R-0638	Phenolphthalein Indicator, DB	CAREFULLY READ AND FOLLOW PRECAUTIONS ON REAGENT LABELS.	
1 x R-0645	Total Alkalinity Indicator, DB	KEEP REAGENTS AWAY FROM CHILDREN.	
*1 x R-0687	Sulfuric Acid .12N, DB	Alkalinity-P/M (Drop Test)	
Chloride		1. Rinse and fill 25 mL sample tube (#9198) to 25 mL mark with water to be tested.	
*1 x 9198	Sample Tube, Graduated, 25 mL, plastic w/cap	2. Add 3 drops R-0638 Phenolphthalein Indicator. Swirl to mix. Sample will turn pink if P alkalinity is present—proceed to Step 3. If no pink color, go to Step 4.	
1 x R-0630	Chromate Indicator, DB	3. If pink, add R-0687 Sulfuric Acid. 12N dropwise, swirling and counting after each drop, until color changes from pink to colorless. Record drops as P reading. Always hold bottle in vertical position.	
*1 x R-0638	Phenolphthalein Indicator, DB	4. Add 3 drops R-0637 Methyl Orange Indicator. Swirl to mix. Sample should turn yellow.	
*1 x R-0687	Sulfuric Acid .12N, DB	5. Continue adding R-0687 Sulfuric Acid. 12N dropwise, swirling and counting after each drop, until color just changes from yellow to orange (salmon pink). Record total drops (Steps 3 and 5) as M reading. Always hold bottle in vertical position.	
1 x R-0706	Silver Nitrate Reagent, DB	6. Multiply P reading by 10. Record as parts per million (ppm) P alkalinity as calcium carbonate. Multiply M reading by 10. Record as ppm M alkalinity as calcium carbonate.	
Hardness-total		Alkalinity-P/T (Drop Test)	
*1 x 9198	Sample Tube, Graduated, 25 mL, plastic w/cap	1. Rinse and fill 25 mL sample tube (#9198) to 25 mL mark with water to be tested.	
1 x R-0619	Hardness Buffer, DB	2. Add 3 drops R-0638 Phenolphthalein Indicator. Swirl to mix. Sample will turn pink if P alkalinity is present—proceed to Step 3. If no pink color, go to Step 4.	
1 x R-0620	Hardness Indicator Powder	3. If pink, add R-0687 Sulfuric Acid. 12N dropwise, swirling and counting after each drop, until color just changes from pink to colorless. Record drops as P reading. Always hold bottle in vertical position.	
1 x R-0683	Hardness Reagent, DB	4. Add 3 drops R-0645 Total Alkalinity Indicator. Swirl to mix. Sample should turn green.	
Orthophosphate (high)		5. Continue adding R-0687 Sulfuric Acid. 12N dropwise, swirling and counting after each drop, until color changes from green to red. Record total drops (Steps 3 and 5) as ppm T reading. Always hold bottle in vertical position.	
2 x 2269	Caps, Dispenser, 18 mm, plastic	6. Multiply P reading by 10. Record as parts per million (ppm) P alkalinity as calcium carbonate. Multiply T reading by 10. Record as ppm T alkalinity as calcium carbonate.	
1 x 4027	Funnel, 58 mm, plastic		
1 x 6003	Brush, Test Tube		
1 x 6009	Filter Paper, #610, 9.0 cm, 100/box		
1 x 9021	Test Tube, Mixing, Calibrated 5, 10, 14, 15, 17.5 mL, glass w/stopper		
1 x 9025	Comparator, 2 Standard, Orthophosphate (high), 30 & 60 ppm		
2 x R-0601	Molybdate Reagent		
1 x R-0602P	Stannous Chloride Powder		
pH (long range)			
1 x 5425	Comparator, Color Card, pH (long range), 3.0-11.0		
1 x 9017	Test Cell, Calibrated 5 mL, square, plastic w/cap		
1 x R-1003U	Long Range Indicator, DB		
Sulfite, Sodium			
*1 x 9198	Sample Tube, Graduated, 25 mL, plastic w/cap		
*1 x R-0638	Phenolphthalein Indicator, DB		
1 x R-0699	Iodide Iodate Reagent, DB		
1 x R-0725	Acid Starch Indicator Powder		

Chloride (Drop Test)		Sulfite, Sodium (Drop Test)	
1. Rinse and fill 25 mL sample tube (#9198) to 25 mL mark with water to be tested.		1. Rinse and fill 25 mL sample tube (#9198) to 25 mL mark with cooled (room temperature) water to be tested.	
2. Add 2 drops R-0638 Phenolphthalein Indicator. Swirl to mix. If sample turns red, add R-0687 Sulfuric Acid. 12N dropwise, swirling after each drop, until color changes from red to colorless.		2. Add 1 drop R-0638 Phenolphthalein Indicator. Swirl to mix. Sample should turn red.	
3. Add 5 drops R-0630 Chromate Indicator. Swirl to mix. Sample should turn yellow.		3. Add R-0725 Acid Starch Indicator Powder a dipper at a time, swirling after each dipper, until color changes from red to colorless. Add 2 more dippers. Swirl until dissolved.	
4. Add R-0706 Silver Nitrate Reagent dropwise, swirling and counting after each drop, until color changes from yellow to red. Always hold bottle in vertical position.		4. Add R-0699 Iodide Iodate Reagent dropwise, swirling and counting after each drop, until color changes from colorless to faint but permanent blue. 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 red is the endpoint.		5. Multiply drops of R-0699 Iodide Iodate Reagent by 10. Record as parts per million (ppm) sodium sulfite.	
5. Multiply drops of R-0706 Silver Nitrate Reagent by 10. Record as parts per million (ppm) chloride.			
Hardness-total (Drop Test)			
1. Rinse and fill 25 mL sample tube (#9198) to 25 mL mark with water to be tested.			
2. Add 5 drops R-0619 Hardness Buffer. Swirl to mix.			
3. Add 1 dipper R-0620 Hardness Indicator Powder. Swirl until dissolved. If hardness is present, sample will turn red.			
4. Add R-0683 Hardness Reagent dropwise, swirling and counting after each drop, until color changes from red to blue. Always hold bottle in vertical position.			
5. Multiply drops of R-0683 Hardness Reagent by 10. Record as parts per million (ppm) total hardness as calcium carbonate.			
Orthophosphate (high) (Color Comparison)			
1. Filter water to be tested to clarity.			
2. Rinse and fill mixing test tube (#9021) to 5 mL mark with filtered sample.			
3. Cap R-0601 Molybdate Reagent with 18 mm dispenser cap (#2269). Add R-0601 Molybdate Reagent to 15 mL mark. Stopper and mix. Remove stopper.			
4. Add 2 level dippers R-0602P Stannous Chloride Powder. Stopper and mix.			
5. Wipe dry and place in hole of comparator. WAIT 1 MINUTE. Read before 10 minutes.			
6. Match color in mixing test tube with a color standard. Record as parts per million (ppm) orthophosphate.			
pH (long range) (Color Comparison)			
1. Rinse and fill 5 mL test cell (#9017) to 5 mL mark with water to be tested.			
2. Add 5 drops R-1003U Long Range Indicator. Cap and mix.			
3. Place test cell on white area of pH Long Range color card (#5425). Match color in test cell with a color standard. Record as pH units.			

Instr. #5067

1 = Alkalinity 4 = pH
2 = Chloride 5 = Orthophosphate
3 = Hardness 6 = Sulfite

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