

Taylor's Peracetic Acid Test Kit

INTRODUCTION

Peracetic acid (PAA) is a strong oxidizer and an excellent anti-microbial. It's effective over a wide temperature range (32°F–104°F/0°C–40°C); it has low potential for forming toxic byproducts, and when added to water it decomposes innocuously.

Although employed by industry for many years—for instance, in **food and beverage production** as a sanitizer and in **pulp and paper manufacturing** as a delignification and bleaching agent—peracetic acid has not been used to control the growth of microorganisms in **cooling towers** until recently. Now, since the U.S. Environmental Protection Agency has awarded registrations to biocides containing PAA that are intended to be kept at low levels, industrial water treaters have a need for a test in the range of 1–10 ppm.

As an alternative to an expensive and fragile test strip reader that requires periodic calibration, industrial customers may want to consider Taylor's simple drop-count titration for monitoring PAA levels. Our peracetic acid test K-1546 will determine the concentration from 0–1000 ppm. The endpoint of the test is signaled by a distinct change in the sample from deep blue to no color at all, easy for anyone to see. Portable and able to withstand the rigors of field use, this kit will perform 110 tests on average.

Note: All oxidizers, including chlorine, are positive interferences for this test. Analysts should also be aware that a pH over 8, total hardness over 1000 ppm, sulfate over 1000 ppm, total alkalinity over 150 ppm, nitrite at any level, nitrate over 200 ppm, silica dioxide over 50 ppm, copper over 10 ppm, ferrous iron (Fe²⁺) at any level, and ferric iron (Fe³⁺) over 5 ppm can interfere with test results.

PERACETIC ACID KIT

K-1546

Drop test (iodometric method); range = 0–1000 ppm PAA (Note: Sample size and PAA concentration dependent upon a calculated factor using the percentages of PAA and hydrogen peroxide as reported on the treatment product label or SDS)



With the K-1546, the concentration of peracetic acid is determined by counting the number of drops of titrant needed to change the color of the sample water from deep blue to colorless and multiplying this by the factors provided in the instruction.

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.
- Test kit **comes complete** with all necessary reagents and equipment.
- This test kit is practical for both **on- and off-site** testing.
- **Waterproof instructions** are printed on plastic-impregnated paper that resists fading and tearing.
- Custom-molded, durable plastic case provides **safe storage** for the test.
- **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

ISO 9001:2008 Certified

ALSO AVAILABLE

- Additional field tests for **oxidizers/sanitizers** (chlorine, chlorine dioxide, bromine, ozone).
- Many other single-parameter and multiparameter kits covering a wide range of analytes of interest to **industrial water treaters**.
- 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).
- Toll-free technical assistance at **800-TEST KIT**.

REPRESENTATIVE TEST PROCEDURE

Reproduced from K-1546 instruction:

DROP TEST
PERACETIC ACID (0-1000 ppm)

COMPONENTS:

2 x 4030	Pipet, Calibrated (0.5 & 1.0 mL) w/ cap, plastic
1 x 4078	Pipet, Graduated (3 mL w/ 0.5 mL div), plastic
1 x 5015	Instruction
1 x 9198	Sample Tube, Graduated (25 mL) w/ cap, plastic
1 x R-0925-C	PAA Reagent #1, 2 oz
1 x R-0926-A	PAA Reagent #2, .75 oz, DB
1 x R-0927-C	PAA Reagent #3, 2 oz
1 x R-0928-C	PAA Reagent #4, 2 oz, DB
1 x R-0929-C	PAA Titrating Solution, 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.

NOTE: This test determines peracetic acid concentrations in systems treated with products that contain only peracetic acid (up to 20%) and hydrogen peroxide (up to 30%) as the active ingredients. The Product Factor (PF), calculated below, represents the peracetic acid in the treatment product and is used to determine the appropriate sample size for the test and to calculate the peracetic acid concentration in the system. The percentages of peracetic acid and hydrogen peroxide needed to calculate the PF may be found on the treatment product label, SDS, or Certificate of Analysis.

Treatment Product Used _____
Percent Peracetic Acid = _____
Percent Hydrogen Peroxide = _____

Instr. #5015

Calculate A:
A = $\frac{\text{Percent Peracetic Acid}}{38} = \frac{\quad}{38} = \quad$

Calculate B:
B = $\frac{\text{Percent Hydrogen Peroxide}}{17} = \frac{\quad}{17} = \quad$

Calculate PF:
PF = $\frac{A}{A+B} = \frac{\quad}{\quad + \quad} = \quad$

Peracetic Acid Test

1. Select sample size from the chart below that corresponds to the peracetic acid treatment range and calculated Product Factor (PF):

Product Factor	Treatment Range			
	0-10 ppm	10-100 ppm	100-300 ppm	300-1000 ppm
up to 0.15	25 mL	2.5 mL	1.0 mL	—
0.15 - 0.3	25 mL	5.0 mL	2.5 mL	1.0 mL
0.3 - 0.5	—	10 mL	2.5 mL	1.0 mL

2. Rinse and fill 25 mL sample tube (#9198) to selected sample size with water to be tested.

NOTE: For 1 mL and 2.5 mL samples, use 3.0 mL pipet (#4078) to collect and add desired sample to a clean, dry 25 mL sample tube.

(OVER)

3. Using a 1.0 mL pipet (#4030), add 0.5 mL R-0925 PAA Reagent #1. Swirl to mix.

4. Add 5 drops R-0926 PAA Reagent #2. Swirl to mix. Sample will turn a straw to yellow color if product is present.

5. Using a separate 1.0 mL pipet, add 0.5 mL R-0927 PAA Reagent #3. Swirl to mix. **WAIT 15 SECONDS.**

6. Add 5 drops R-0928 PAA Reagent #4. Swirl to mix. Sample will turn deep blue.

7. Add R-0929 PAA Titrating Solution dropwise, swirling to mix thoroughly and counting after each drop, until color just changes from blue to colorless.

8. Using the equation below, calculate peracetic acid concentration:

$$\text{PAA} = \text{Drops R-0929} \times \left(\frac{100}{\text{Sample Size}} \times \text{PF} \right)$$

Record as parts per million (ppm) peracetic acid (w/v).

NOTE: To convert peracetic acid (w/v) to (w/w), multiply ppm peracetic acid (w/v) by the specific gravity of the treatment product found on the product's label, SDS, or Certificate of Analysis.

Instr. #5015



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