Taylor's Solution to Potassium Monopersulfate Interference

INTRODUCTION

Protection of the chlorine sanitized pools and spas to reduce the load of organic contaminants, thereby making more of the chlorine available for disinfection. While it is a quick and effective cleansing agent, **this oxidizer has one drawback: It interferes with both DPD (liquid and tablet) and FAS-DPD chlorine tests that employ DPD Reagent #3.** Some pools even have been closed because of high combined chlorine (chloramine) readings when, in fact, the high readings were the result of interference from the monopersulfate shock treatment used. For this reason, regulatory authorities need to be aware of monopersulfate interference when conducting their inspections.

Conversely, **chlorine will interfere with most tests for potassium monopersulfate**, since both are strong oxidizers. Pools utilizing certain alternative sanitizers, such as mineral purification systems, rely on monopersulfate to destroy organic contaminants, but even the low residual of chlorine maintained in these pools makes getting a true monopersulfate reading problematic.

A solution is now at hand. In cooperation with DuPont, Taylor has developed a method to distinguish between the levels of free chlorine, combined chlorine, and the monopersulfate compound in the water. Taylor's drop-test kit K-1518 contains **Deox Reagent** to eliminate monopersulfate interference in the chlorine test. It employs FAS-DPD to determine free and combined chlorine levels. Using this product, pool managers, service technicians, and homeowners can also monitor the level of potassium monopersulfate in the water with confidence.

Alternatively, analysts using a number of combination kits or the WiseLAB[®] for Wet Chemistry may add Deox Reagent to their existing setup to eliminate interference from monopersulfate when testing chlorine. See chart on reverse. **Deox Reagent will work with these Taylor liquid DPD and FAS-DPD tests containing DPD #3**.

DEOX PRODUCTS

K-1518

Drop tests measuring free & combined chlorine & monopersulfate; 1 drop = 0.2 ppm chlorine/1 drop = 0.2 ppm monopersulfate compound as chlorine (Cl_2)



Taylor's K-1518 drop-test kit was developed in concert with DuPont to measure free and combined chlorine accurately in the presence of monopersulfate shocking agents.

K-1520

Deox Reagent supplement for Residential Series kits (K-1004 and K-1005) to eliminate interference from monopersulfate in the chlorine test

K-2041

Deox Reagent supplement for 2000 Series kits to eliminate interference from monopersulfate in the chlorine test; .75 oz. bottles

K-2042

Deox Reagent supplement for 2000 Series kits and WiseLAB (K-0200) to eliminate interference from monopersulfate in the chlorine test; 2 oz. bottles

USER BENEFITS

• Eliminates false chlorine readings due to interference by potassium monopersulfate.

- The level of potassium monopersulfate can **itself** be monitored with accuracy using the K-1518.
- Drop tests utilize a color change to signal the endpoint **no need to use complicated formulas** to determine final values.
- All fully portable for field testing.
- Instructions are printed on waterproof, plasticimpregnated paper that **resists fading and tearing.**



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

ISO 9001:2008 Certified

USER BENEFITS (cont'd)

 The K-1518's custom-molded plastic case provides safe storage.

• 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.

REPRESENTATIVE TEST PROCEDURE

Reproduced from K-1518 instruction:

DROP TEST

FAS-DPD CHLORINE (FREE & COMBINED) (1 drop = 0.2 ppm) MONOPERSULFATE COMPOUND (1 drop = 0.2 ppm as chlorine)

COMPONENTS:

- Pipet, Calibrated 0.5 & 1.0 mL, plastic w/cap Instruction Sample Tube, Graduated, 25 mL, plastic w/cap DPD Reagent #3, DB Deox Reagent DPD Powder FAS-DPD Titrating Reagent (chlorine), DB
- OMPONENT 1 x 4030 1 x 5806 1 x 9198 1 x R-0003 1 x R-0867 1 x R-0871 1 x R-0871
- 1 x B-0871

TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE 1-800-837-8548.

PROCEDURE:

CAREFULLY READ AND FOLLOW PRECAUTIONS ON ALL REAGENT LABELS. KEEP REAGENTS AWAY FROM CHILDREN

NOTE: This procedure will selectively determine free chlorine, combined chlorine, and monopersulfate (not persulfate). To determine monopersulfate it is first necessary to determine both free and combined chlorine, if present.

Chlorine (Free, Combined) Test

- 1. Rinse and fill sample tube to 25 mL mark with water to be tested.
- Add 1 heaping dipper R-0870 and QUICKLY swirl to mix. IMMEDIATELY add 1.0 mL R-0867 and QUICKLY swirl to mix. Sample will turn pink if free chlorine (FC) is present.
- 3. Add R-0871 dropwise, swirling and counting after each drop, until color changes from pink to colorless. Always hold bottle in vertical position. Number of drops is (Reading A). IMMEDIATELY add 10 drops R-0003. Swirl to mix. WAIT 1 MINUTE. Sample will turn pink if combined chlorine (CC) is present.

ALSO AVAILABLE

- Complementary combination test kits with either .75 oz. or 2 oz. bottles of reagents.
- Individual replacement reagents.
- Other testing supplies and replacement parts (e.g., burets, flasks, test tubes, and test cells).
- Toll-free technical assistance at 800-TEST KIT.
- Computerized water analysis at <u>www.taylortechnologies.com</u>.

- Instr. #5806 Add R-0871 dropwise, swirling and counting after each drop, until color changes from pink to colorless. Number of drops is (Reading B).
- Multiply (Reading A) by 0.2. Record as ppm free chlorine (FC). Multiply (Reading B) by 0.2. Record as ppm combined chlorine (CC).

Monopersulfate Compound Test

- 1. Rinse and fill sample tube to 25 mL mark with water to be tested.
- 2. Add 1 heaping dipper R-0870. Swirl until dissolved.
- 3. Add 10 drops R-0003. Swirl to mix. WAIT 1 MINUTE
- Add R-0871 dropwise, swirling and counting after each drop, until color changes from pink to colorless. Always hold bottle in vertical position.
- 5. Multiply drops of R-0871 by 0.2. Record as ppm total oxidizer (TO).
- 6. To calculate ppm monopersulfate compound (MC) as chlorine: MC=TO-(FC+CC). Record as ppm.
- NOTE: A negative value for MC may be obtained when MC is zero (0) or very low (0-0.4 ppm as chlorine). This is caused by variables such as sample measurement, drop variation, etc.
- NOTE: Refer to manufacturer's instructions for proper monopersulfate adjustment.



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SELECTION GUIDE

Kits Use 🕨	K-1520 (.75 oz.)	K-2041 (.75 oz.)	K-2042 (2 oz.)
Trouble-Shooter DPD-High K-1004	•		
i-CARE K-1005	•		
Starter-High K-2000		•	
Starter-Low K-2100		•	
Test 4-High K-2015		•	
Test 4-Low K-2115		•	
Complete-High K-2005 & K-2005-SALT		•	
Complete-Low K-2105		•	
Pool Inspector-High K-2007		•	
Complete FAS-DPD Chlorine K-2006 & K-2006-SALT		•	
Pool Inspector FAS-DPD Chlorine K-2009		•	
FAS-DPD Chlorine .75 oz. K-1515-A		•	
Service Complete-High K-2005C			•
Service Complete-Low K-2105C			•
Service Complete FAS-DPD Chlorine K-2006C			•
FAS-DPD Chlorine 2 oz. K-1515-C			•
WiseLAB K-0200			•