

INSTRUCTIONS FOR **PERCENT-A-CLOR**®

Quantitative test kit for determination of organic chlorine contamination in waste water and oil (*Range 0-10% ±0.5%*).

EACH KIT CONTAINS:

1. A plastic test tube with white dispensing cap containing a colorless ampule (bottom) and a yellow dotted gray ampule (top) - Tube #1.
2. A plastic test tube with a clear cap each containing 7 ml of a buffer solution, and a red-green ampule - Tube #2.
3. A glass vial containing organic extraction solvent.
4. Two polypropylene sampling syringes and a tissue wipe.
5. A plastic filtration funnel.
6. A plastic syringe burette attached to a plastic screw cap.
7. A white, plastic syringe plunger rod.
8. A glass ampule contained in a cardboard sleeve and plastic tube designated as "Disposal Ampule".

READ CAUTION AND INFORMATION SECTIONS ON BACK BEFORE PERFORMING TEST. WEAR RUBBER GLOVES AND SAFETY GLASSES.

DIRECTIONS

1. PREPARATION Remove contents from box. Place the 2 plastic tubes into the holder at the front of the box.

2. SAMPLE EXTRACTION Unscrew the cap from the glass vial of extraction solvent. Work the plunger on one of the sampling syringes a few times to ensure that it slides easily. Place the tip of the syringe into the sample to be tested and slowly pull back on the plunger until it reaches the stop and cannot be pulled further. Remove the syringe from the sample and wipe any excess sample from the outside of the syringe with enclosed tissue. Place the tip of the syringe into the glass vial and dispense the sample by depressing the plunger. Replace the cap of the glass vial and shake thoroughly for 10 seconds. Allow the phases to separate for 30 seconds.

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3. SAMPLE INTRODUCTION Unscrew the white dispensing cap from Tube #1 and the cap from the glass extraction solvent vial. Work the plunger on the second of the two sampling syringes a few times to ensure that it slides easily. Place the tip of the syringe into the top layer of liquid in the glass vial and slowly pull back on the plunger until it reaches the stop and cannot be pulled further. Remove the syringe from the sample and wipe any excess sample from the outside of the syringe with enclosed tissue. Place the tip of the syringe into Tube #1 and dispense the sample by depressing the plunger.

4. REACTION Break the lower (colorless) ampule in the tube by compressing the sides of the tube. Mix thoroughly by shaking the tube vigorously for about 30 seconds. Break the top (gray) ampule in the tube and shake thoroughly for about 20 seconds. Allow the reaction to proceed for an additional 40 seconds (total of one minute), while shaking intermittently several times.

5. EXTRACTION Remove the caps from both tubes and pour the clear buffer solution from Tube #2 (clear cap) into Tube #1. Replace the white cap tightly on Tube #1 and shake vigorously for about 10 seconds. Vent the tube carefully by partially unscrewing the dispensing cap. Close securely and shake well for an additional 10 seconds. Vent again, tighten cap and stand tube upside down on its cap. Allow the phases to separate for a full two minutes.

6. ANALYSIS Place the plastic filtration funnel into Tube #2. Position Tube #1 over the funnel and open nozzle on the dispensing cap. Dispense 5 mls of the clear solution through the filter into Tube #2 (up to the line) by squeezing the sides of Tube #1. Close the nozzle on the dispensing cap on Tube #1 and remove the filter funnel from Tube #2.

7. Place the white plunger rod into the syringe burette and press until it snaps into place. Break off (do not pull off) the tip on the syringe burette, insert the burette into Tube #2 and tighten the cap. Break the colored ampule and shake gently for 10 seconds. **Do NOT zero the plunger prior to analyzing the sample.**

8. Dispense titrant slowly by pushing down on the white plunger rod. Shake the tube continuously while adding titrant to mix the titrant with the solution. Continue adding titrant until the solution turns from yellow to light purple. An intermediate pink color may develop in the solution but should be disregarded. Continue titrating until a true light purple color is obtained. A dark purple color means the titration has been

carried too far (see photo). Read the total chlorine concentration of the original sample directly on the syringe burette at the black tip of the plunger rod. Read the total chlorine concentration immediately as the purple color will fade with time.

9. DISPOSAL Empty the syringe burette into Tube #2 by completely depressing the plunger. Open the "Disposal Ampule" container and drop the ampule into Tube #2. Replace the cap on the test tube. Crush the ampule by squeezing the sides of the tube. Shake for 5 seconds. This reagent immobilizes the mercury so that the kit passes the EPA's TCLP test. See caution section below for additional information on disposal.

SUGGESTIONS FOR USING THE PERCENT-A-CLOR® KIT

- ! The kit is designed for testing all types of waste water and used oils including crankcase, hydraulic, diesel, lubricating, fuel oils and kerosene. . Some oils, such as cutting fluids which contain more than 3 or 4% sulfur may give false positive results. False negatives will not occur. If you have any questions as to the applicability of the kit for your sample, contact Dexsil's technical service department.
- ! The kit should be examined upon opening to see that all of the components are present and that all the ampules (4) are in place and not leaking. The liquid in Tube #2 (clear cap) should be approximately 1/2 inch above the 5 ml line and the tube should not be leaking. The ampules are not intended to be completely full.
- ! Perform the test in a warm, dry area with adequate light. In cold weather, a truck cab is sufficient. If a warm area is not available, Step 4 should be performed while warming Tube #1 in palm of hand.
- ! Always crush the clear ampule in Tube #1 first. If this sequence has not been followed, stop the test immediately and start over using another complete kit. When an incorrect testing sequence is followed, a false negative may result which may allow a contaminated sample to pass without detection.
- ! When transferring the buffer solution from Tube #2 into Tube #1 in Step 5, tip Tube #2 to an angle of less than 45E to prevent the ampule holder from sliding out.

CAUTION

- ! When crushing the glass ampules, press firmly in the center of the glass ampule **ONCE**. Never attempt to re-crush broken glass as it may come through the plastic and cut fingers.
- ! In case of accidental breakage onto skin or clothing, wash with large amounts of water. All the ampules are poisonous and should not be taken internally.
- ! Do not ship kits on passenger aircraft.
- ! The gray ampule in the white-capped test tube contains metallic sodium. Metallic sodium is a flammable solid and is water reactive.
- ! Wear rubber gloves and safety glasses while performing test.
- ! Dispose of kits properly. The mercury in Tube #2 is made insoluble by the disposal ampule and used kits will pass the USEPA TCLP test for land disposal. More stringent state and local regulations may apply. Contact Dexsil if you have any specific questions concerning disposal procedure.
- ! Read the Material Safety Data Sheet before performing the test.
- ! Keep Out of Reach of Children.

MANUFACTURER'S WARRANTY

This kit is warranted to be free of defects in material and workmanship until the expiration date stamped on the box. Manufacturer's sole and exclusive liability under this warranty shall be limited to replacement of any kit that is proven to be defective. Manufacturer shall not be liable for any incidental or consequential damages.

Reliable test results are highly dependent upon the care with which the directions are followed and, consequentially, cannot be guaranteed.

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