

INSTRUCTIONS FOR
CLOR-N-SOIL®

PCB Screening Kit

Test kit for determining PCB contamination in soil

EACH KIT CONTAINS:

1. Tube #1 - An empty plastic test tube with a white cap.
2. Tube #2 - A plastic test tube with a black dispensing cap containing a gray, yellow-dotted ampule (top) and a blue-dotted ampule (bottom).
3. Tube #3 - A brown-capped plastic test tube containing 7 ml of buffer solution, a brown-dotted ampule (bottom) and a red-green ampule (top).
4. A portable scale for weighing the soil sample.
5. An aluminum soil scoop.
6. A glass vial containing extraction solvent.
7. A 10cc polypropylene syringe.
8. A foil bag containing a drying column.
9. A plastic pipette.
10. 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. SAMPLE PREPARATION Remove the white cap from the empty test tube (Tube #1) and attach the alligator clip from the scale to the rim of the test tube. Use the aluminum scoop to add enough soil sample to the plastic test tube until the scale reads 16 grams, resulting in a total of 10 grams of soil in the tube. Disconnect the scale from the test tube.

2. SAMPLE EXTRACTION Remove the cap from the glass vial containing the extraction solvent and pour the entire contents into Tube #1 containing the measured soil sample. Replace the white cap tightly on Tube #1. Mix thoroughly, breaking any soil lumps by squeezing the sides of the tube and continue to shake vigorously for one minute. Tap the bottom of the tube on any hard surface to compact the soil sample (this may not be necessary with all soil types). Allow the tube to settle for two minutes.

3. While the soil is settling, remove the drying column from the foil bag by poking the tip of the column through the bag (do not open the bag ahead of time). Remove the plunger from the syringe barrel, remove the red cap plug from the drying column and attach the large end of the blue drying column snugly to the syringe tip making sure the drying column fits tightly. Remove the black dispensing cap from Tube #2 and insert the blue drying column partially into the tube so the syringe body remains upright and vertical.

4. Using the plastic pipette, transfer as much of the extraction solvent as possible from above the soil layer in Tube #1 to the syringe barrel (a minimum of 7cc required). Do not remove any of the soil in the transfer, as it may clog the column assembly. If two layers are observed in the liquid phase, do not transfer any of the bottom (water) layer as it will interfere with the test results. Replace the plunger into the syringe barrel. Push the solvent through the blue drying column by applying enough pressure to produce a steady drip filtering through the column. Fill Tube #2 up to the 5 ml line with the filtered solvent. (It should take approximately one minute to filter the 5 ml of solvent). Pull back slowly on the syringe plunger to stop the flow of solvent through the column. Remove the syringe-column assembly from Tube #2 and replace the black dispensing cap. Replace the white cap on Tube #1 containing the soil sample.

5. REACTION Break the bottom (blue-dot) ampule in Tube #2 by compressing the sides of the tube. Shake for 10 seconds. Break the top (gray) ampule and shake vigorously for 10 seconds. Allow the reaction to proceed for an additional 50 seconds (total of one minute), while shaking intermittently several times.

6. EXTRACTION Remove the black dispensing cap from Tube #2 and the brown cap from Tube #3. Pour the clear buffer solution from Tube #3 (brown cap) into Tube #2. Replace the black cap tightly on Tube #2 and shake vigorously for about 10 seconds. Vent the tube carefully by partially unscrewing the black dispensing cap. Close securely and shake well for an additional 10 seconds. Vent again, tighten cap and stand tube upside down on its cap. The extract mixture should no longer appear gray. Allow the phases to separate for a full two minutes.

7. ANALYSIS Position Tube #2 over the top of Tube#3 and open nozzle on the black dispensing cap. Be sure to point the nozzle away from the operator while opening it and check that the nozzle is open completely before dispersing the clear solution. Dispense 5 ml of the clear solution into Tube #3 (up to the 5 ml line) by squeezing the sides of Tube #2. Close the nozzle on the dispensing cap on Tube #2. Replace the brown cap on Tube #3. Break the bottom (brown-dot) ampule and shake for 10 seconds. Break the top (red-green) ampule and shake for 10 seconds.

8. RESULTS Observe the resultant color immediately and compare to the color chart for chlorine determination. If the solution appears purple, the soil sample contains less 50 ppm PCB. If it solution appears yellow or colorless,

it MAY contain more than 50 ppm PCB and should be tested further by a PCB specific laboratory method. Disregard any color that may develop in a thin layer of oil that might form on top of the solution.

9. DISPOSAL Open the “Disposal Ampule” container and drop the ampule into Tube #3. 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 CLOR-N-SOIL[®] PCB TEST KIT

- ! The kit should be examined upon opening to see that all of the components are present and that all the ampules (5) are in place and not leaking. The liquid in Tube #3 (brown cap) should be approximately ½ 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 5 should be performed while warming Tube #2 in palm of hand.
- ! Never touch the ampules, the holder inside the tube, or the pipette tip, as it may contaminate the test.
- ! When weighing out the soil sample, suspend the scale freely by holding onto the metal ring at the top of the scale. The scale reads ounces on one side and grams on the other. Make sure you are reading on the GRAM side.
- ! Make sure that all soil lumps are completely crushed to ensure full extraction of PCB.
- ! When pushing the extract through the drying column, do not force it through too quickly as some contaminants may pass through.
- ! When inserting the pipette into the plastic test tube, insert it all the way to the 5 ml line. This prevents extract from getting on the tube walls and ampule holder, resulting in too much extract in the tube.
- ! Always crush the colorless ampule in each tube 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.
- ! In Step 6, tip Tube #3 to an angle of only 45° 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 or spillage onto skin or clothing, wash immediately with large amounts of water. All the ampules are poisonous and should not be taken internally.
- ! Do not carry kits on passenger aircraft.
- ! The gray ampule in the black-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 used kits properly. Tube #1 and #2 may contain residual PCB's and should be treated as PCB waste if the test results is positive. The mercury in Tube #3 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, consequently, cannot be guaranteed.

DEXSIL[®]

CLOR-N-SOIL IS A TRADEMARK OF THE DEXSIL CORPORATION
AND IS COVERED UNDER ONE OR MORE OF THE FOLLOWING
PATENTS: 4,686,192; 4,957,871; 4,873,056; 5,028,543;
5,200,149.

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