

INSTRUCTIONS FOR **TITRA-LUBE® TAN Test Kit**

Quantitative Test Kit to Determine Total Acid Number Values
Between 0 and 2 in Petroleum Products and Lubricating Oils.

EACH KIT CONTAINS:

1. A plastic test tube with a black dispensing cap containing a white-dot ampule (bottom) and a blue-dot ampule (top) - Tube #1.
2. A plastic test tube with white cap containing 7 ml of an aqueous buffer solution and a red (yellow-dot) ampule - Tube #2.
3. A polypropylene sampling syringe and a tissue wipe.
4. A plastic titration burette attached to a plastic screw cap.
5. A white, plastic burette plunger rod.
6. A plastic filtration funnel

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

DIRECTIONS

1. PREPARATION Remove components from the box and place the 2 test tubes into the holder in the front of the box.

2. SAMPLE INTRODUCTION Unscrew the cap from the black dispensing cap from Tube #1. Work the plunger of the sampling syringe a few times to ensure that it slides easily. Place the tip of the syringe into the well-mixed oil sample to be tested and slowly pull back on the plunger until it reaches the stop and cannot be pulled further, making sure the sample contains no air bubbles. Remove the syringe from the oil sample and wipe any excess oil from the outside of the syringe with the enclosed tissue. Dispense the oil sample into Tube #1.

3. REACTION Replace the black dispensing cap on the test tube tightly. Break the bottom (colorless, white-dot) ampule in the test tube by squeezing the tube firmly once in the center of the ampule. Shake the tube well for 15 seconds.

4. EXTRACTION Remove the caps from both test tubes and pour the clear buffer solution from Tube #2 (white cap) into Tube #1 (black dispensing cap). Replace the black cap tightly on Tube #1 and break the top (blue-dot) ampule in Tube #1. Shake the mixture vigorously for 30 seconds. Vent the tube by partially unscrewing the dispensing cap one half turn and re-tighten the cap securely. Stand the tube upside down on its cap and allow the phases to separate for a full three minutes.

5. ANALYSIS Place the plastic filtration funnel into Tube #2. Position Tube #1 over the funnel and, while keeping the black-capped tube vertical, slowly open the nozzle on the 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 through the filter into Tube #2 (up to the 5 ml line) by squeezing the sides of Tube #1. Do not allow any oil to pass through the filter into the test tube. If the tube must be squeezed twice to dispense enough solution, make sure to let the air in slowly so that the oil and water layers are not mixed. Close the nozzle on the dispensing cap on Tube #1 and remove the filter funnel from Tube #2.

6. Place the plunger rod into the titrating burette and press until it clicks into place. Tap the titrating burette gently while holding upright to ensure all air bubbles are on top next to the plunger. Break off (do not pull off) the tip on the titration burette. Place the burette into Tube #2 and tighten the cap. Break the red (yellow-dot) ampule by squeezing the sides of the test tube and shake the tube initially for ten seconds. **Do NOT zero the plunger prior to analyzing the sample.** While shaking the tube, slowly depress the plunger rod and look for a color change. Continue adding titrant until the solution changes from blue-green to orange.

7. RESULTS Read the TAN number of the oil sample directly off the titrating burette right at the tip of the black plunger.

SUGGESTIONS FOR USING TITRA-LUBE TAN KIT

- ! The kit should be examined upon opening to see that all of the components are present and that all the ampules (3) are in place and intact. The liquid in Tube #2 (white cap) should be approximately ½ inch (1 cm) 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.
- ! If the top (blue-dot) ampule is broken prior to the transfer of liquid from Tube #2 to Tube #1, stop the test immediately and start over using another complete kit. When an incorrect testing sequence is followed, a false reading may result.
- ! In Step #4, tip Tube #2 to an angle of only about 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 recrush broken glass as it may come through the plastic and cut fingers.
- ! The bottom ampule in the black-capped tube contains a flammable solvent. Do not use test kit near fire or flame. Do not smoke while performing test. The top ampule contains a dilute base solution.
- ! 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.
- ! The kit contains both dilute base and acid and small amounts of combustible solvents. None of the components are severe health hazards.
- ! Wear rubber gloves and safety glasses while performing test.
- ! Keep out of reach of children.
- ! Refer to Material Safety Data Sheet for additional information
- ! Used kits should be disposed of as used solvents. Do not throw in trash unless solvents have been drained from the test tube first.

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.

This kit is manufactured by **DEXSIL**[®] Corporation
One Hamden Park Drive, Hamden, Connecticut 06517
(203) 288-3509 FAX: (203) 248-6523
<http://www.dexsil.com>

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