

INSTRUCTIONS FOR **FAME CHECK™**

Fatty Acid Methyl Ester Titration Kit - A quantitative test for FAME content in fuel

EACH KIT CONTAINS:

1. One plastic test tube (**Tube #1**) (w/plain cap) containing a 4 ml plastic vial and a 2 ml break-top vial containing **Reaction Solvent** (red lettering).
2. One plastic test tube (**Tube #2**) secured with titration burette and cap assembly, one 30 gauge needle, one white syringe plunger rod, and one wire tool.
3. Two green sampling syringes with preset stops.
4. One screw top vial containing **Extraction Buffer** (green lettering).
5. One 2 ml break-top vial containing **Extraction Solvent** (black lettering).
6. One screw top vial containing **Indicator Solvent** (blue lettering).
7. Two tissue wipes

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

1. PREPARATION: Remove contents from kit box. Check that all components listed above are present and in serviceable condition. Unscrew the cap from **Tube #1**, remove the contents, and place the empty tube in one of the holes at the front of the box. Unscrew and remove the titration burette assembly from **Tube #2**. Empty the contents from **Tube #2** and place the empty tube in the second hole at the front of the box. Take the 2 ml **Reaction Solvent** vial and snap the glass at the neck to open. (**Important: When snapping glass vials do NOT remove the protective plastic sleeve from the top of the vial.**) Pour all the **Reaction Solvent** into **Tube #1**. Important: The contents of some of the glass vials may be difficult to dispense. To expedite the addition of vial contents, hold the vial securely in the mouth of the tube and tap the tube on the lab bench.

2. SAMPLE INTRODUCTION: Work the plunger on one green sampling syringe a few times to ensure that it slides easily. Place the tip of the syringe into the fuel sample and slowly pull back on the plunger approximately $\frac{1}{4}$ of the way, then stop and push the plunger rapidly to discharge the sample and remove air bubbles. Refill syringe until it reaches the preset stop. Remove the syringe from the sample and wipe excess liquid on the outside of the syringe with a tissue wipe, **do not blot the tip**. Check the contents of the sampling syringe to ensure that the test sample is free of air bubbles. If not, discharge the sample and repeat the steps above. When sampling is complete, place the tip of the syringe into **Tube #1** and dispense the sample by depressing the plunger.

3. REACTION: Add contents of the 4 ml plastic vial to **Tube #1**. Recap the tube and shake vigorously for one minute. Place the tube back into the holder and allow the reaction to proceed for an additional 9 minutes.

4. EXTRACTION: Remove cap from **Tube #1**. Pour the contents of the **Extraction Buffer** vial into the tube first, then the **Extraction Solvent**. Recap the tube and shake for 1 minute. Return the tube to the holder and wait 5 minutes. During this waiting period, prepare the titration burette.

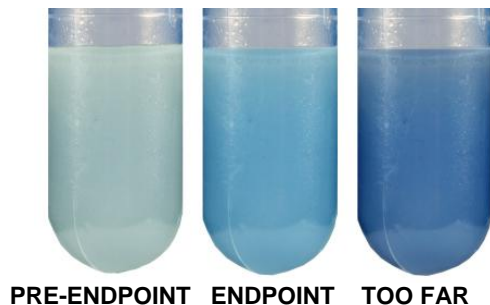
Snap the white plunger rod into the black rubber plug in the back of the burette. Hold the titration burette upright (threaded cap up), and flick the burette gently near the tip to raise any air bubbles to the top. Next, invert the burette so that the tabbed end cap is up. (Do not break the tab.) Remove the entire cap assembly by twisting it off, or, use the V-shaped wire tool by positioning the wire tool around the groove at the junction of the cap and the body of the syringe. Press the wire into the groove and squeeze the two wire ends together to pop the cap from the syringe. Install the 30 gauge needle onto the end of the burette.

5. ANALYSIS: At the end of the 5 minute waiting period, pour the **Indicator Solvent** into **Tube #2**. Work the plunger on the 2nd green sampling syringe a few times to ensure that it slides easily. Remove the cap from **Tube #1** and insert the syringe into the tube letting the end tabs of the syringe rest on the top of the tube. The tip of the syringe should be in the top (organic) layer. Draw back slightly on the plunger to fill the syringe only about 3 mm, then push on the plunger to discharge the contents and remove any air bubbles in the syringe. (Repeat if needed) Carefully refill syringe until the plunger reaches the preset stop drawing up only the organic layer. **Be careful not draw up any of the bottom (aqueous) layer.** If any of the aqueous layer is inadvertently sampled, the results will not be accurate. Wipe the outside of the sampling syringe, **do not blot the tip**, and dispense the contents into **Tube #2**. (Recap **Tube #1** and set aside.)

Carefully insert the assembled titration burette into **Tube #2**, and screw the cap on. Shake the tube for 5 seconds. Important: **Do NOT zero the plunger prior to analyzing the sample.**

Dispense the titrant slowly by pushing down on the white plunger rod. Add titrant in 0.25% increments (one division). It is important to shake the tube between additions to completely mix the titrant with the solution. Continue adding titrant until the solution turns pale blue and remains pale blue after shaking. NOTE: The endpoint should be no more than one addition past the "pre-endpoint" color shown below. A dark blue color means the titration has been carried too far. (see photo)

6. RESULTS: Read the FAME content directly from the titration burette at the tip of the black plunger and record the result.



SUGGESTIONS FOR USING THE FAME CHECK® TEST KIT

- The kit is designed for testing useable fuel oils and is not intended for use on water/fuel mixtures or waste fuels. For samples that may contain water, contact Dexsil about the Hydroscout Analyzer System for quantifying water content in organic samples.
- The FAME CHECK kit works well on all types of fuel oils including diesel, jet fuel and kerosene. It is designed for use only on fuels which are hydrocarbon based. For questions regarding the applicability of use for your sample, contact Dexsil's technical service department.
- Perform the test in a warm, dry area with adequate light and ventilation. In cold weather, a truck cab is sufficient.

CAUTION

- **In case of accidental breakage or spillage onto skin or clothing, wash with large amounts of water. All of the ampoules are poisonous and should not be taken internally.**
- **Dispose of used kits properly. Contact Dexsil if you have 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.

This kit is manufactured by **DEXSIL®** Corporation
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FAME CHECK is a registered trademark of Dexsil Corporation
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