MiBX FuelX Test Kit Instructions

ATP-Express Mail-In Laboratory System featuring our patented TubeX Technology

SET-UP & PREPARATION

1. The MiBX **FuelX ATP-Express** kits are built around our patented 'Functional Packaging' TubeX technology. This unique concept & design integrates the packaging itself with the consumables to create a complete test system within itself. This provides many benefits including better safety and handling, reduced waste, and a streamlined test procedure.

2. Before starting, clear a designated workspace and put on the included nitrile work gloves. The FuelX tubes are designed to be used to capture all of the liquid waste, as well as any solid waste during cleanup after sample collection & processing.

3. Inside of the main kit box, you will see three of the FuelX Sample Collection tubes as described above, plus the Express-Mail Pack that includes all of the components needed to express-mail your sample specimens back to our laboratory for complete analysis, data-logging, and reporting – all included with the ATP-Express System. The Express-Mail Pack can contain up to three specimen samples.

4. Unpack the contents of the Express-Mail Pack, and set aside in a clean area of your workstation. For now, Do Not remove the caps from the three specimen bottles included in the Express-Mail Pack.

5. **Sample-Quality Notes:** Begin the procedure by collecting a fuel sample from the Unit-Under-Test. We will only need 50ml of fuel for the test, but it is best to collect 500-1000ml (½ to 1 liter) of sample so that we get a good representation of the fuel in the tank. Once you have collected your fuel sample, let it sit for a few minutes and then take a look to see if the sample has visible water it in. If it does, make an estimate as to the amount and note this on the return label. Then, thoroughly mix the fuel sample to disperse the water into the fuel before proceeding.

PREPARING THE FUEL SAMPLE

6. To begin, make sure that you have removed all of the kit-contents from one of the FuelX Tubes, and then replace its top-cap. Next, snap the included Microbe Capture Filter into the top-cap of the FuelX Tube – using the filter tip to puncture the center of the green seal in the top-cap.

7. **Capture the Microbes:** With the FuelX Tube & Capture Filter prepared, use a Sample Collection syringe from the FuelX Kit to draw-up 50-mL of the (mixed) fuel to be tested. Next, screw this Sample Collection syringe onto the Microbe Capture Filter that you installed in the top-cap of the FuelX Tube. Firmly press the Sample Collection syringe plunger to force the fuel directly through the Capture Filter. The FuelX Tube will capture the pass-through waste fuel and retain it for proper disposal later. Unscrew the Sample Collection syringe from the Capture Filter**, fully remove the syringe plunger**, and set aside for the next steps. ***Tip:*** *At this point, any microbes that were in the fuel will now be captured in the Capture Filter*.

8. **Wash & Dry the Microbes**: Next we will Purify the captured microbes. From the TubeX components, locate the vial with the BLUE color label called **PureX**. This is the fluid we will use to purify the captured microbes. Pick up the Sample Syringe barrel only (plunger still fully removed from previous step) and re-attach it to the Capture Filter. Now, pour the entire contents (5ml) of the PureX liquid into the Sample Syringe barrel, then place the Sample Syringe & Capture Filter assembly back on top of the FuelX Tube as before. Now, carefully re-insert the Sample Syringe plunger back into the barrel, and push all of the PureX fluid **and all of the air in the syringe barrel** through the Capture Filter. The FuelX Tube will again capture all of the pass-through liquid waste.

9. **Extract & Suspend the Microbes:** At this point, we now have Purified microbes captured in the Capture Filter. Next, we need to get them out of the Capture Filter (extract) and "Suspend" them for shipment so that they can be Regenerated and analyzed back at the laboratory. We will use the special **RegenX** fluid to do this.

10. **Prepare:** To get ready for the Extraction, first unscrew the Sample Syringe from the Capture Filter, and fully remove its plunger as before. Set both parts aside. Next, take one of the larger yellow-cap Specimen Cups from inside of the Express-Mail Pack, remove its cap and set it aside too. Finally, from the FuelX tube components, find the vial with the YELLOW label, called **RegenX**. This is the fluid we will use to Extract & Suspend the microbes.

11. **Execute the Extraction:** Attach the Capture Filter to the Sample Syringe barrel (the plunger still fully removed). Hold the Capture Filter & Sample Syringe barrel assembly above the (opened) Specimen Cup. Pour the entire contents of the YELLOW label RegenX fluid into the Sample Syringe barrel. Now, while still holding the Capture Filter & Sample Syringe assembly above the opened Specimen Cup, carefully re-insert the Sample Syringe plunger and push all of the RegenX fluid, and air, into the Specimen Cup.

12. We now have Extracted & Suspended microbes captured in the fluid that is now in the Specimen Cup! Promptly replace the lid on the Specimen Cup, and make sure that it is tightly sealed.

13. **Do this Now**: It is best practice to immediately label the sample contained in the Specimen Cup before proceeding with any other samples. Use one of the included self-adhesive orange-color "Specimen for Test" labels to do this. **Important:** Be sure to record the proper information that will allow each particular specimen to be very clearly identified as to where it came from, when, by who, etc. ***Tip:*** *It is easiest to write-in the information on the Specimen-For-Test label before sticking it onto the Specimen Cup.*

14. **Cleanup:** With the microbial specimen now fully prepared and safely preserved in the Specimen Cup, **and fully labeled**, you can gather any solid wastes, remove the top-cap from the FuelX Tube, and drop the solid wastes directly into the FuelX Tube for disposal later. The FuelX Tube contains a special absorptive material and liner that will have absorbed all of the liquid wastes. Be sure to dispose of the contents in safe manner that is compliant with environmental & safety standards as mandated for fuel-saturated wastes.

15. **Repeat Until Complete:** Go back to Step (6) above, and repeat this entire process for all of the samples that you will include in the Express-Mail Pack shipment, up to THREE samples per Express-Mail pack.

16. **Ship It!** Once you have completed the samples for shipment, write-in the information on the included C.O.C form, place all of the Specimen Cup samples into the Express-Mail Pack box, seal the box, and attach the Pre-Paid return shipping label. The Express-mail Pack & Samples can now be shipped back to the MiBX Laboratory for compete ATP Analysis, Data-Logging, and Reporting within 48 hours of receipt.