

# Titration Instructions

## Before you Start

### What you need:

1. 1 gallon of Distilled Water – Make sure it has “Distilled by process of distillation” written somewhere on the label
2. 1 mixing bottle, a half gallon plastic milk jug cleaned and dried will work
3. 1 spoon
4. 1 piece of paper 2” square
5. Lye, either NaOH or KOH
6. Isopropyl Alcohol – RED bottle of HEET
7. A sample of oil you want to test
8. The B100 Supply Titration Kit.

## Make the alkali solution:

### What you need:

1. 1000 mL Graduated Cylinder – in the kit
2. Lucky 11 Scale – in the kit
3. 1 gallon jug of Distilled Water – make sure it has “Distilled by process of distillation” somewhere on the jug.
4. 1 mixing bottle – A one half gallon milk jug clean and dry will work
5. Sheet of paper 2” square.
6. 1 spoon
7. Lye, either NaOH or KOH.
8. Isopropyl Alcohol – RED bottle of HEET

### The Steps:

1. Measure out 1000 mL of water in the graduated cylinder and pour it in the mixing jug.
2. Make a paper boat for your scale by placing the paper over the bowl on the scale and forming it with your thumb. Remove the excess paper and make sure it does not interfere with the action of the scale.
3. Make sure the top and bottom slide weights are all the way to the left.
4. Zero the scale by moving the center slide to the right until the balance is level. You may need to remove excess paper from your boat to get a good balance.
5. Move the bottom slide to 1g with the top slide all the way to the left.
6. Using the spoon, add Lye until the balance beam returns to level.
7. Use the boat as a funnel and pour the lye into the mixing jug with water.
8. Cap the jug and mix by shaking until all the Lye is dissolved.

## The Blank Titration

### What you need:

1. The Alkali Solution you made above.
2. Isopropyl Alcohol – RED bottle of HEET
3. 10 mL syringe – in kit
4. Either the 5mL syringe from the kit or the 5mL pipette from the kit
5. 4 100mL beakers – in the kit
6. Indicator solution – in kit

### The Steps:

1. Pour 50mL of alkali solution into one of the beakers.
2. Pour 50mL of Isopropyl Alcohol into a beaker; make sure you don't mix up the alkali solution and the alcohol.
3. Using the 10mL syringe measure out 10mL of Alcohol into the 3<sup>rd</sup> beaker
4. Add three drops on indicator.
5. Using either the 5mL syringe or the 5mL pipette, Slowly add alkali solution while swirling and mixing the solution until you get a color change.

## The Titration

### What you need:

1. Everything you collected for the blank titration
2. Sample of oil to test
3. A 3mL pipette – the one in the kit graduated to 1mL

### The Steps:

1. Pour 50mL of oil to be tested in the 4<sup>th</sup> beaker
2. Using the 3mL pipette add 1mL of oil to the titration beaker
3. Mix well, you may need to heat in a microwave a couple of seconds if your oil is solid or does not mix well.
4. Using the same syringe or pipette you used in the blank titration, add alkali solution (keeping track of how much you add) to the titration beaker while mixing or swirling the titration.
5. Stop adding alkali solution when you get a color change
6. You will get a false indication at first, just mix more and the color will go away.
7. Continue adding alkali solution and mixing until the red stays and does not go away.
8. Record the number of milliliters of alkali solution you added to the titration beaker (do not include what was added in the blank titration)
9. The number of milliliters is your titration value.