



## ACID SPLIT METHOD FOR SOLUBLE OILS

### APPARATUS:

Oven  
Babcock bottles graduated 0-100% (Kimble 15066-10 or equivalent)  
50 ml. Volumetric pipette or 100 ml graduate cylinder  
Centrifuge  
Hot plate (optional)  
Beaker (optional)

### REAGENTS:

Sulfuric Acid (1:1 or 2:1, acid:water)

Caution: When preparing the 1:1 or 2:1 sulfuric acid, the acid should be added to the water slowly. The mixture will become extremely hot and should be allowed to cool before handling. **Never add water to acid!**

### PROCEDURE:

1. Measure the appropriate sample size of the test fluid into the babcock bottle. See table below for recommended size.
2. Bring the total volume in the babcock bottle up to 50 mls with distilled water.
3. Slowly add sufficient acid to bring the volume in the babcock bottle up to but not over the 90% level. Warning: the addition of the acid will cause the babcock bottle to become hot.
4. Place the babcock bottle in an oven at 140 – 160 degrees F overnight.
5. Remove the babcock bottle from the oven and centrifuge the sample for 20 minutes.
6. Allow the sample to cool to room temperature, then read the oil split. Each division represents 0.2 mls. If there is a noticeable cuff (solid material below the oil) record this separate from the oil.
7. Using the appropriate factor for the sample size (see chart below) determine the concentration of the emulsion.

### CALCULATIONS:

% Concentration = (mls of oil) X (factor)

### REFERENCE CHART:

Expected concentration	Sample size	Factor
0 –16%	50 mls	2
16 – 30 %	25 mls	4
30% and over	10 mls.	10

### COMMENTS:

If results are needed quickly, or if the emulsion does not split well overnight, the babcock bottle may be placed in boiling water for a few hours to reduce the time needed or improve the oil split.

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