

# Evaluation of RECOVEROL\*Demulsifiers in the Bottle Test

### *Introduction*

In the recycling of waste oil, the operator often has to contend with wide variations in waste streams. Such variations may be due to differences in oil quality, amount of water and solids (BS&W), the presence of detergent or other chemical contaminants.

Indeed the unknown history of a batch of waste oil makes it imperative to screen several demulsifiers and identify the most cost-effective and reliable product.

### *The Bottle Test*

The simple bottle test can provide a wealth of information regarding the application of demulsifiers, provided it is performed conscientiously and intelligently.

The purpose of this test is to select the treating compound and identify the smallest working concentration, under the conditions applicable in the system. In order to duplicate plant conditions, the operator must identify all treatment conditions, especially the expected settling time. The bottle test must then be performed under those conditions.

### **Material Required**

The materials required are available from most laboratory suppliers and are listed below:

- 100 cc, glass, graduated bottles
- 1cc pipettes with 0.01 cc graduations
- Water bath or oven with thermostat control up to 200° F
- RECOVEROL demulsifier samples

### *Procedure*

Having obtained a representative sample of the emulsion, determined the BS&W, and identified test conditions, proceed as follows:

1. Fill test bottles to the 100 cc mark, and clearly label them.
2. If heating is required, bring the oil to temperature prior to chemical addition.
3. Pipette into each bottle the required amount of chemical addition.
4. Shake the bottles by hand 50-100 times, depending on the extent and severity of agitation in the system.
5. Observe and record immediate changes in the emulsion, e.g. color change, droplet size or appearance of free water.
6. Periodically record the rate of water separation.
7. Select the demulsifier that gives:
  - a) **The most rapid oil-water separation,**
  - b) **The best quality oil,**
  - c) **The least oil loss into the water layer, and**
  - d) **The smallest rag layer or interface.**

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