

Hanby Environmental



**S O I L**

***INSTRUCTIONS & CALIBRATION  
PHOTOBOOK***

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## ***Included in your Soil Test Kit:***

- 15 Ampoules Extraction Reagent
- 15 Vials of Color Development Reagent
- 15 Screw Top Test Tubes w/ Scribed Measurement
- 6 Screw Top Test Tubes
- 1 Wooden Test Tube Rack
- 1 Soil Color Calibration Photobook (located behind top foam of Kit)
- 6 Beakers
- 1 Electronic Balance
- 1 Waste Bottle & Box (located behind top foam of Kit)
- 1 Graduated Cylinder
- 3 Pairs of Safety Gloves
- 1 Pair of Safety Glasses
- 1 MSDS Safety Instruction (located behind top foam of Kit)
- 1 Soil Kit Instruction
- 1 Instructional Video
- 1 Case with Foam Inserts

- 15 Ampoules Extraction Reagent
- 15 Vials of Color Development Reagent
- 15 Screw Top Test Tubes w/ Scribed Measurement
- 1 Waste Bottle
- 3 Pairs of Safety Gloves



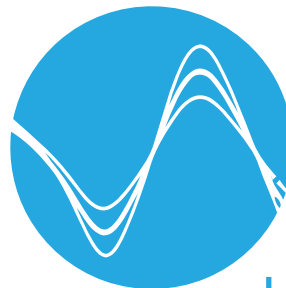
## **A Note about Soil Sampling**

Soils are heterogeneous. That is, they are composed of different substances that vary widely in composition, density and absorptive properties. To simplify matters, we will describe only three soil types: sand, sandy loam and clay. Typically, you will be using Hanby Soil Kit to rapidly check several samples to determine their contamination level.

Here are a few guide lines from users of our kits for over 23 years that can assist you in using the kit to best accomplished your field tasks.

1. In general, a looser (less dense) soil, such as sand or sandy loam; will absorb more liquid (petroleum or water) than compact clay.
2. Humic soils are usually very absorbent. These soils are typically dark and loose. Typically you should select these materials in a sample when you are trying to determine “worst case” (highest concentration of TPH) in your sample. Conversely, clays, which are typically light colored, compact and “gummy” show low TPH.
3. Visually Inspect several samples before you take time to analyze them with the kit.
4. Remember that in most cases you want to “screen” a site for the highest level of contaminant present.

Following these guidelines will help in sure that your field tested samples will not be “false negatives” in comparison to the follow up samples you send to a lab for confirmations.



Hanby Environmental

*“For Accurate Field Analysis.”*

***Hanby***

***COLORIMETRIC***

***Field Test Kit for TPH***

***SOIL***

***KIT INSTRUCTIONS***

## **Six easy steps to Screening TPH's in Soil**

**Rapid, sensitive, positive detection of petroleum in solid samples**



**1. Weigh sample into tared beaker**



**2. Snap ampoule, add solvent**



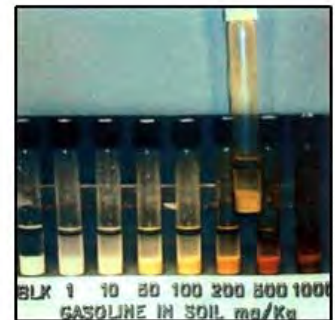
**3. Stir. Mix well**



**4. Pour solvent into test tube.**



**5. Add catalyst, cap, shake.**



**6. Compare with standard photo.**

Hanby Method publications of the U.S. EPA: "Field Methods: Dependable Data When You Need It", Sept., '90 Subsurface Characterization and Monitoring Techniques", May, '93; S.I.T.E. Evaluation Program, Dec '96; "Expedited Site Assessment Tools for Underground Storage Tank Sites", March '97

Colorado Oil and Gas Commission, **Soil Analysis Report Form #24**, Rev. 3/03

# Hanby Soil Test Kit Instructions

**CAUTION: Wear safety glasses and gloves, avoid fumes**  
**Keep work area clean and well ventilated. Safety First!**

## Introduction

The accurate determination of petroleum substances in soils requires that analysis be performed as rapidly and efficiently as possible. Hanby Kits are designed to meet this important objective. Please familiarize yourself with this Field Test Kit and its procedures. Watch the video instructions, observe all cautions concerning the chemical reagents and set up your kit on a stable surface in a open ventilated area.

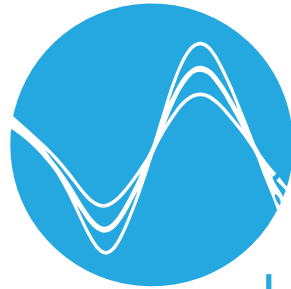
## Soil Procedure

1. Place one of the beakers on the balance and turn it on. It automatically zeros
2. Add 5 grams of soil sample to the beaker with your spatula spoon.
3. Remove one of the soil extraction ampoules from the foam block, hold it firmly on a flat surface and snap off the top. Avoid the sharp glass edges! Empty the ampoule into the beaker. **Avoid solvent fumes!**
4. Chop the sample with the spatula and stir it in the solvent for one minute. If the soil is a clay it will be necessary to 'smear' the soil under the solvent to insure extraction.
5. Remove one of the test tubes from the foam. Carefully pour the solvent from the beaker into the test tube up to the marked line.
6. Take one of the Color Development Vials out of the jar, remove the cap, and carefully empty all the white powder into the test tube. **Avoid contact with the powder on skin, eyes and water!**
7. Firmly screw the cap on the test tube and vigorously shake the tube for 15 seconds. Over the next 2 minutes, periodically shake the tube for 5 seconds.
8. Compare the color of the solid material in the bottom with the appropriate calibration photograph in your photobook. As soon as you have finished the test, record your results.
9. **Important!** Empty the liquid from the test tube into the waste bottle, **DO NOT POUR THE COLORED MATERIAL INTO THE BOTTLE**. This remains in the bottom of the test tube. Put the used test tube back in the foam block foam for later disposal according to MSDS instructions. Do not leave solvent in used test tube. **CAREFUL! The waste bottle builds up fumes...hold it away from eyes and breathing zone when opening it!**

**PLEASE DISPOSE OF WASTE PROPERTY ACCORDING TO MSDS INSTRUCTIONS.**

**HANBY CAN NO LONGER ACCEPT WASTE BOTTLES**



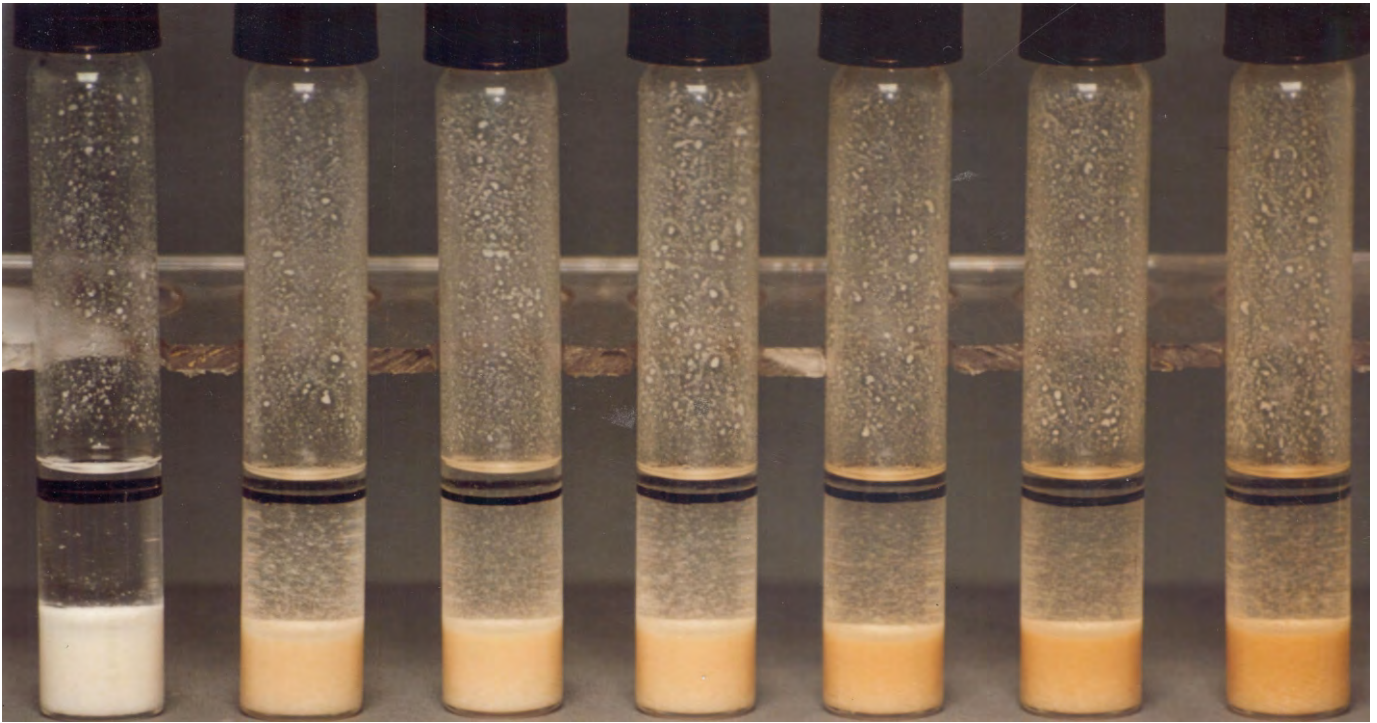


# Hanby Environmental

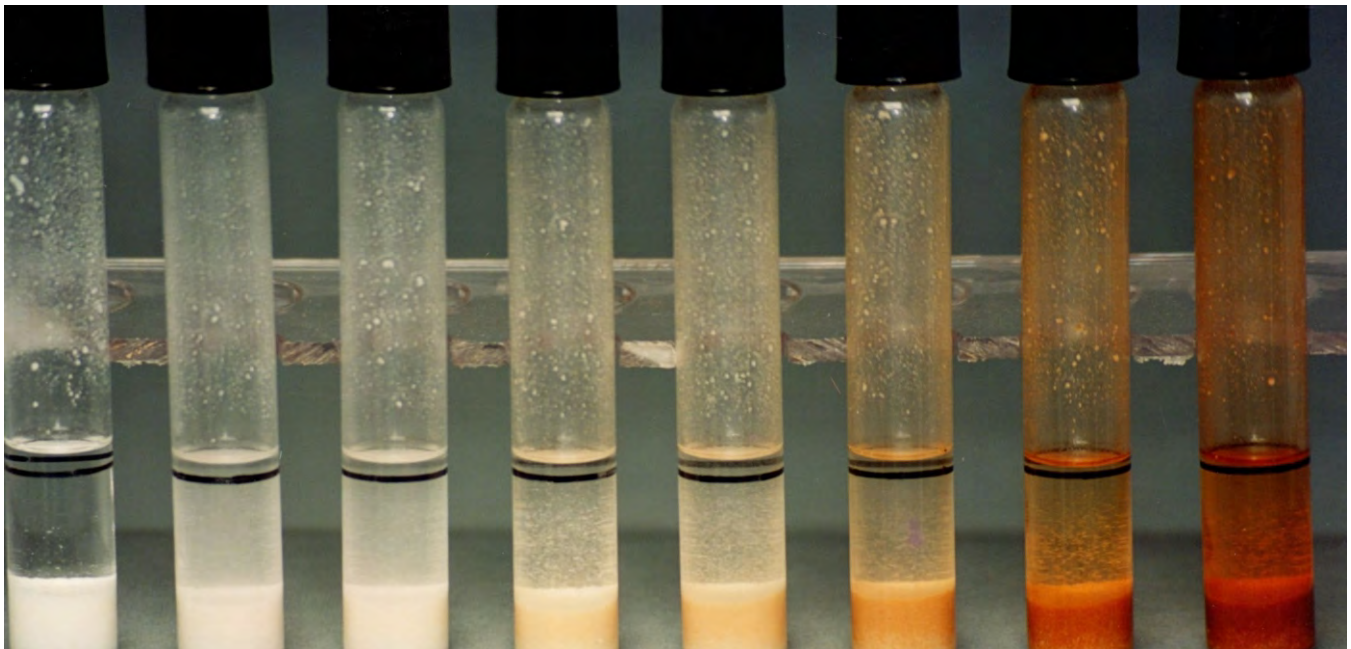
*"For Accurate Field Analysis."*



## Calibration Photobook

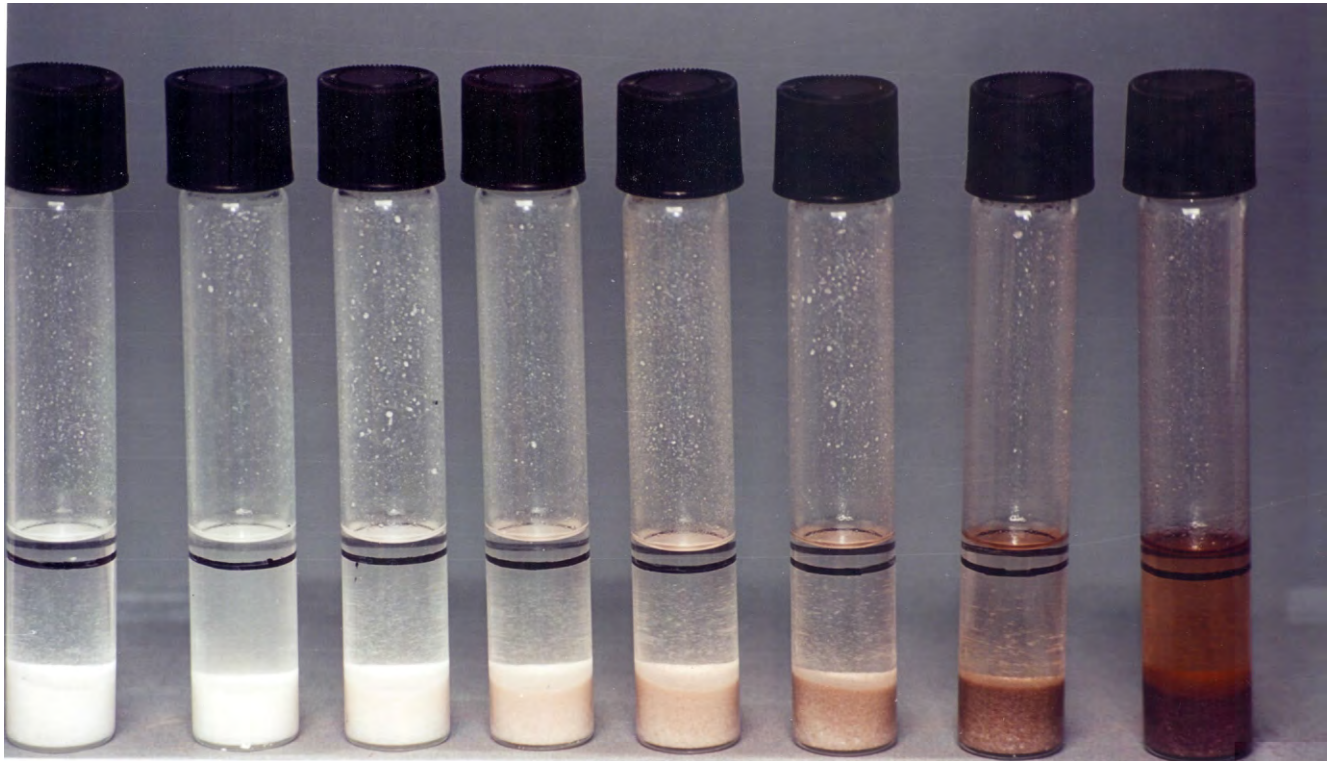


**BLK    40    50    60    80    100    120**  
**GASOLINE in Soil mg/Kg**

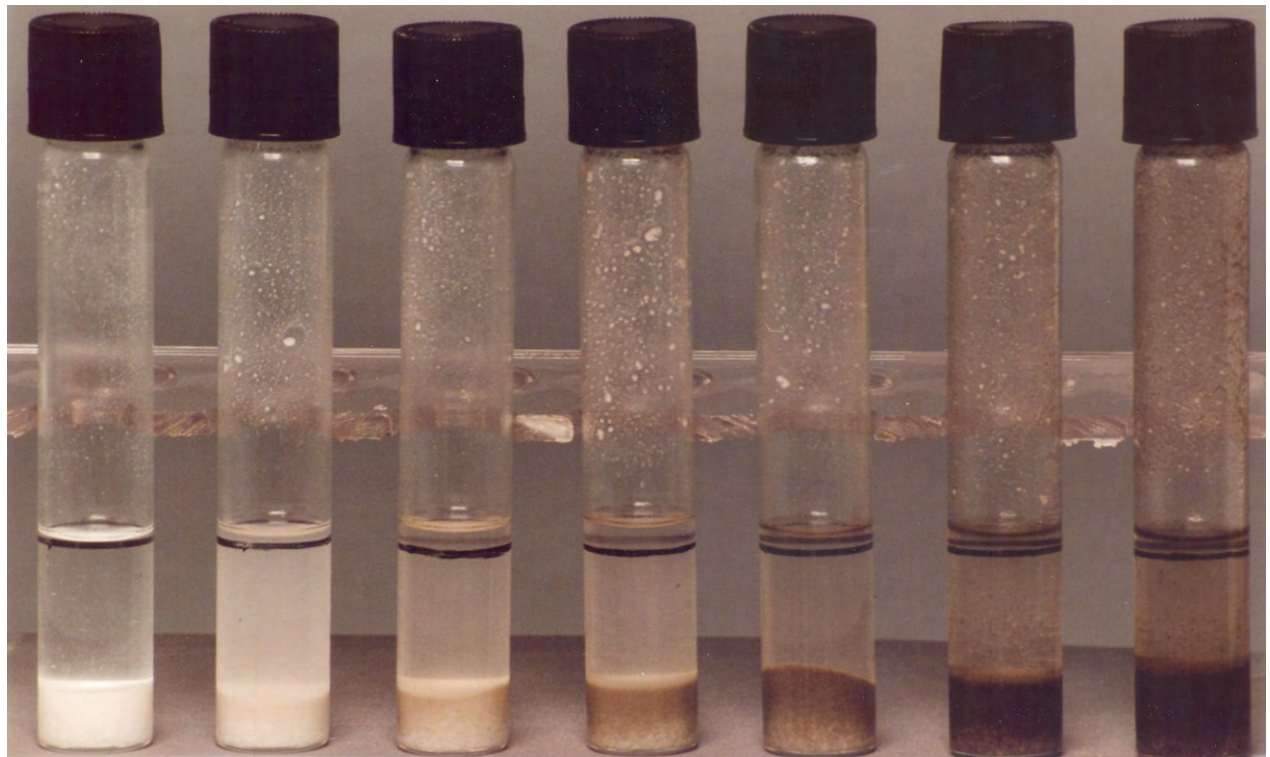


**BLK    1    10    50    100    200    500    1000**  
**GASOLINE in Soil mg/Kg**



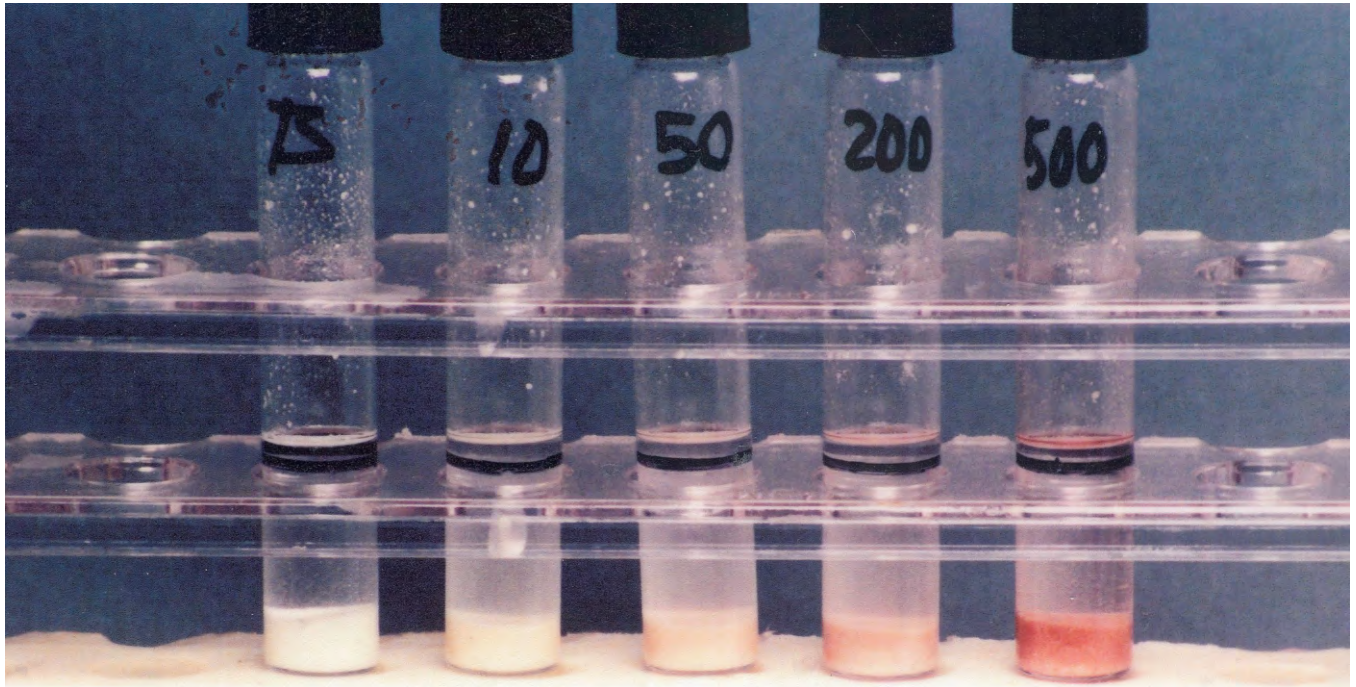


**BLK**    **1**    **10**    **50**    **100**    **200**    **500**    **1000**  
**#2 FUEL OIL IN SOIL mg/Kg**

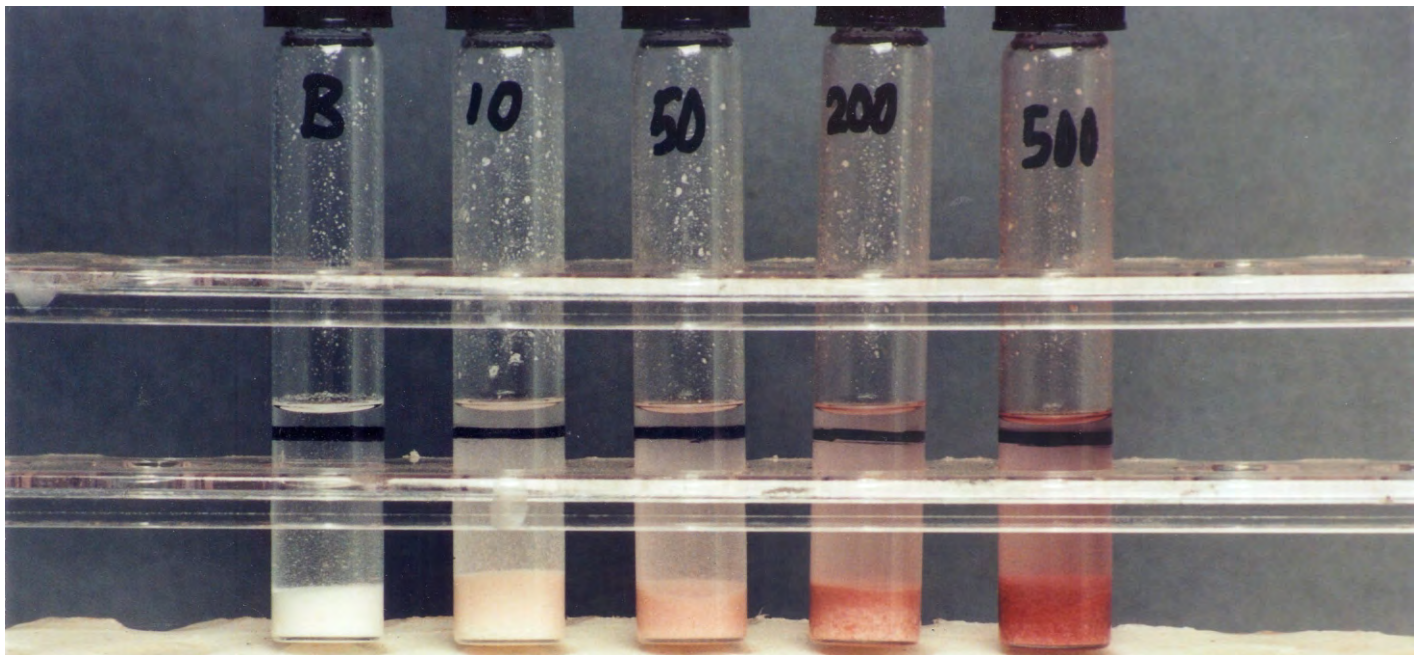


**BLK**    **10**    **50**    **100**    **200**    **500**    **1000**  
**#6 FUEL OIL IN SOIL mg/Kg**



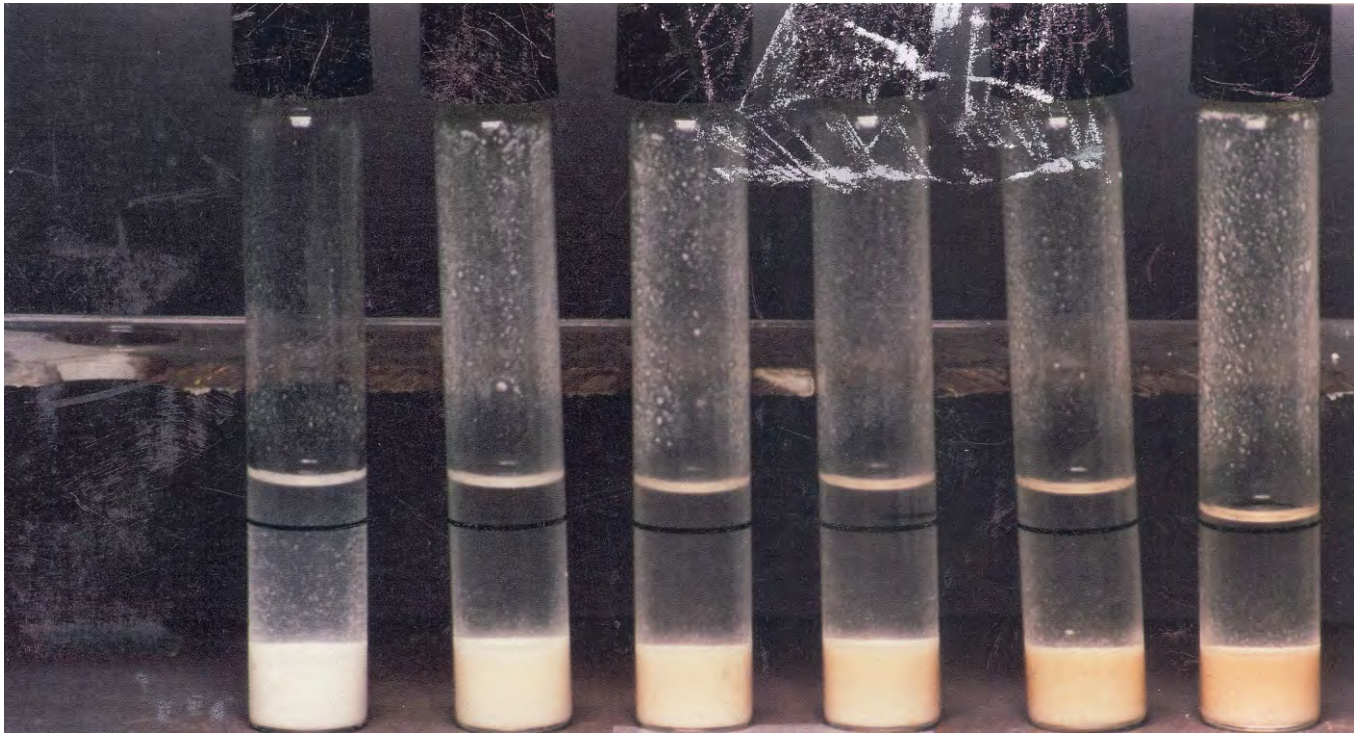


**BLK 10 50 200 500**  
**AROCHLOR 1248 IN SOIL mg/Kg**

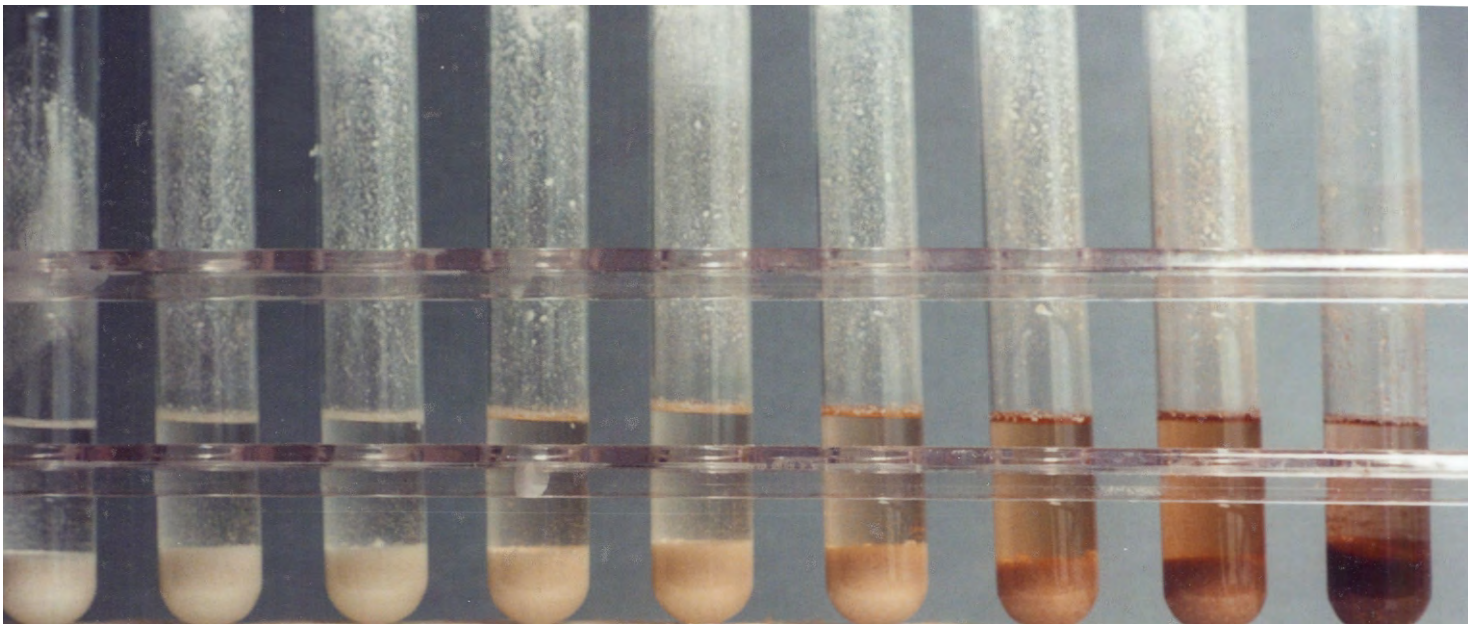


**BLK 10 50 200 500**  
**AROCHLOR 1016 IN SOIL mg/Kg**



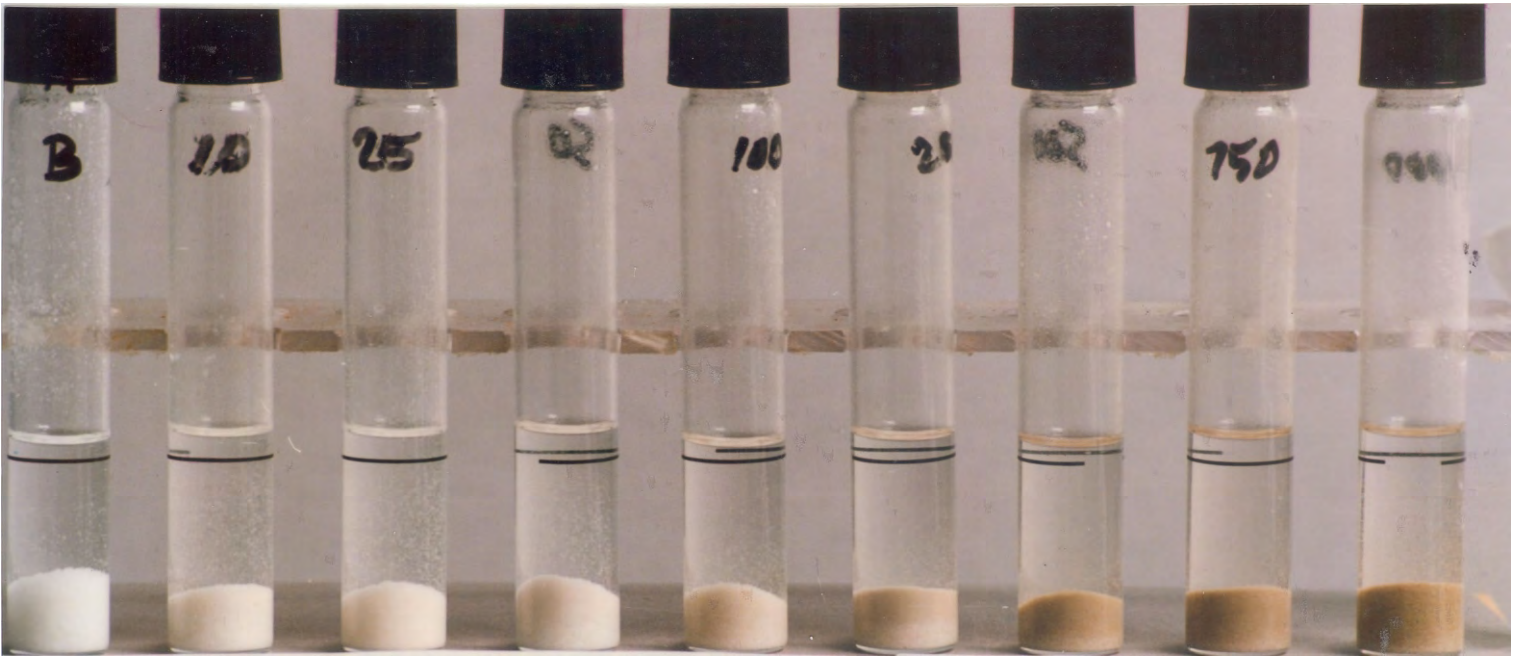


**BLK 10 50 100 150 200**  
**JP-4 IN SOIL mg/Kg (STRS)**

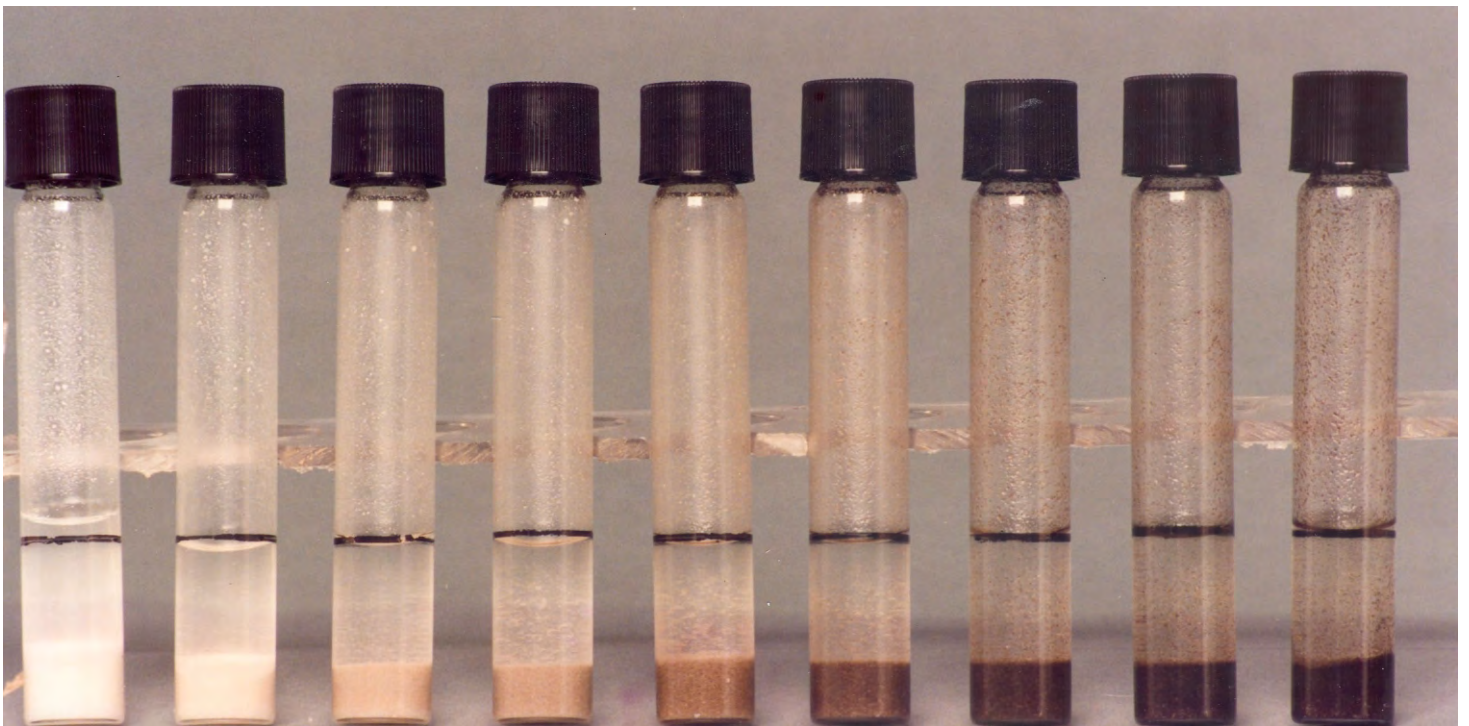


**BLK 1 10 50 100 200 500 1000 2000**  
**JP-5 IN SOIL mg/Kg**



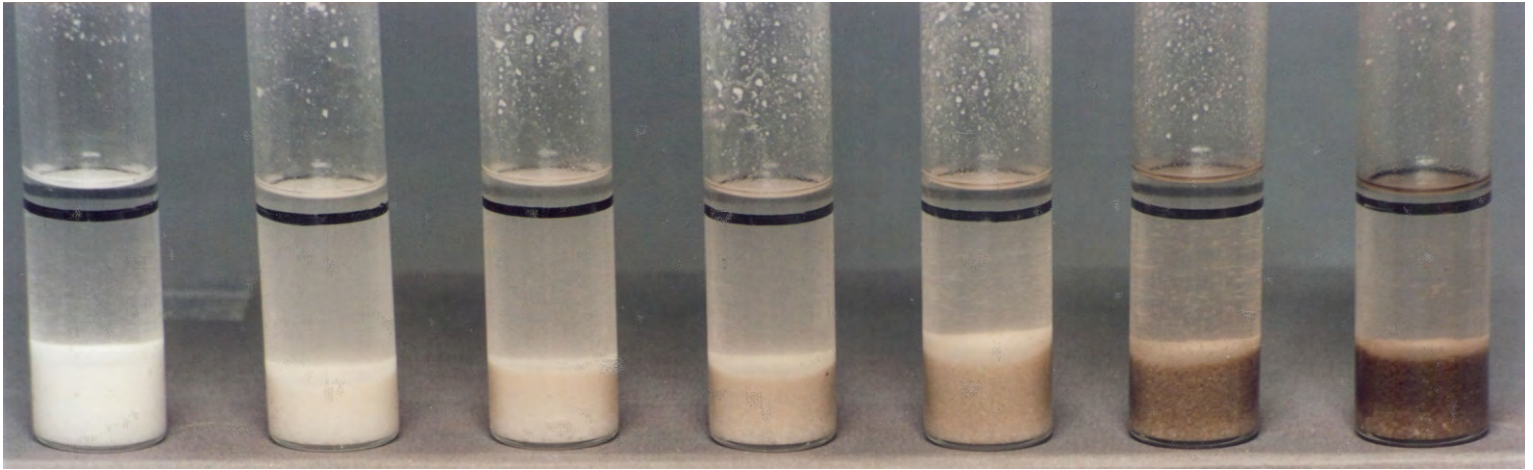


**BLK 10 25 50 100 250 500 750 1000**  
**WEST TEXAS CRUDE OIL IN SOIL mg/Kg**

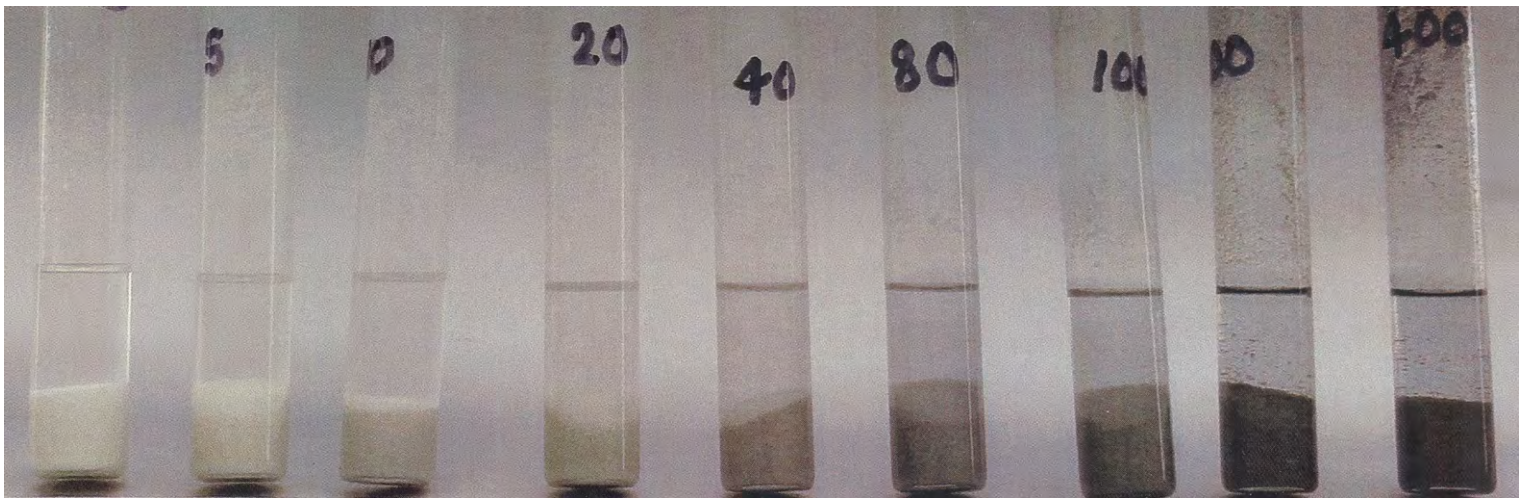


**BLK 10 50 100 200 400 600 800 1000**  
**VALDEZ CRUDE OIL IN SOIL mg/Kg**





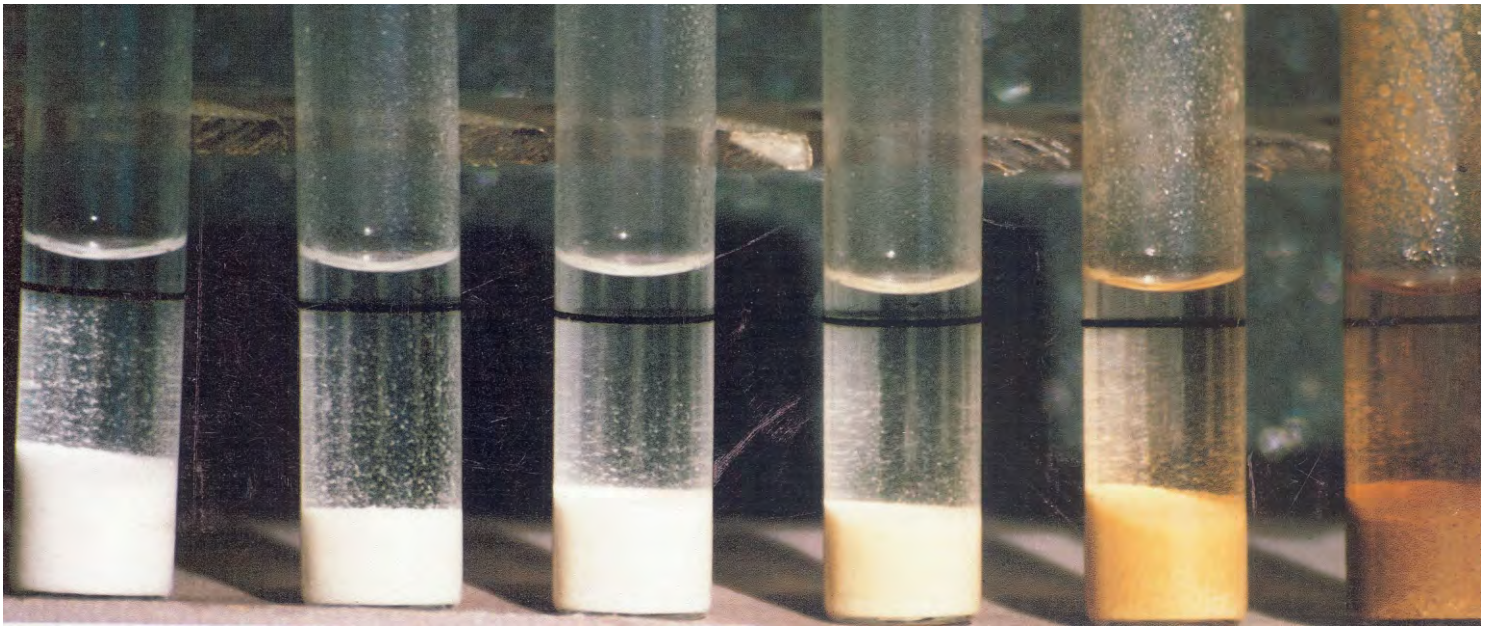
**BLK      10      50      100      200      500      1000**  
**CITRONNELLE, AL CRUDE OIL IN SOIL mg/Kg**



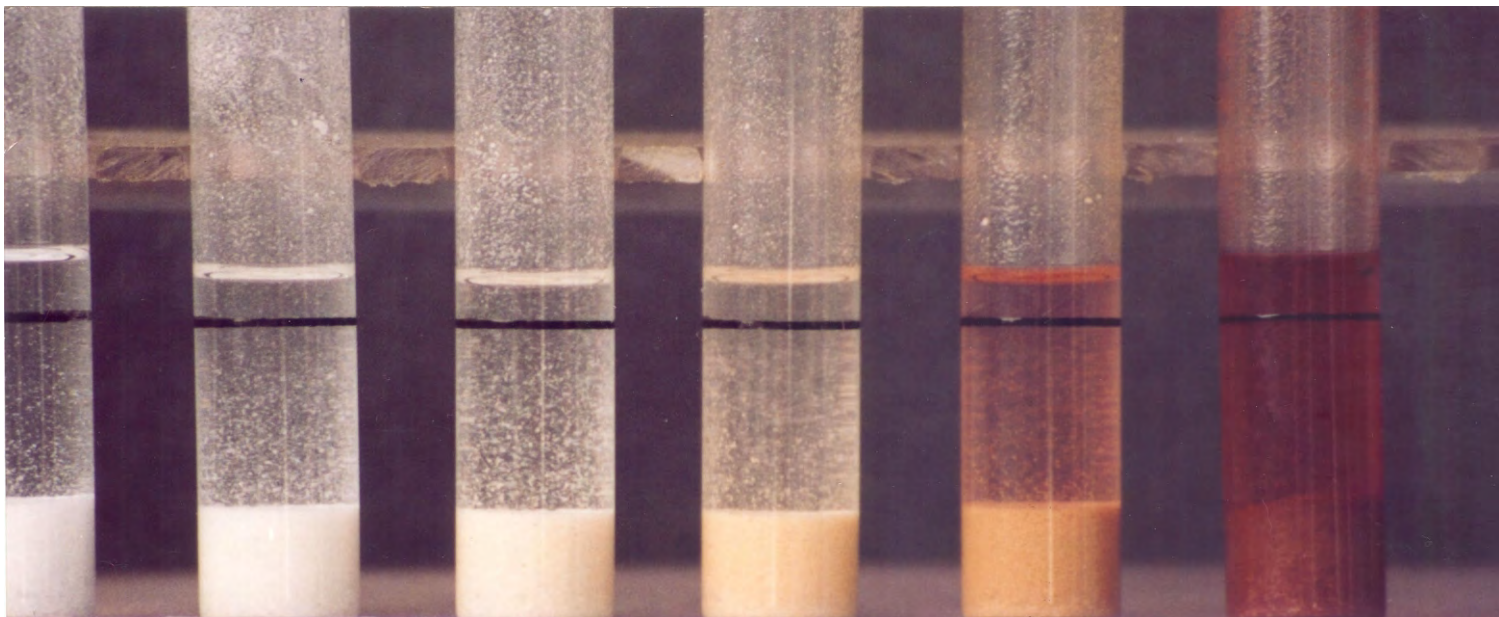
**BLK      5      10      20      40      80      100      200      400**  
**PAH COMPOUNDS (N, Ac, An, Ph, Fl) mg/Kg (PPM)**

**This photograph was prepared by mixing equal mass amounts of:  
 Naphthlene, Acenaphthene, Anthracene, Phenanthrene, and Flouranthene  
 to produce a total soil concentration (mg/Kg) of these PAH's as shown.**



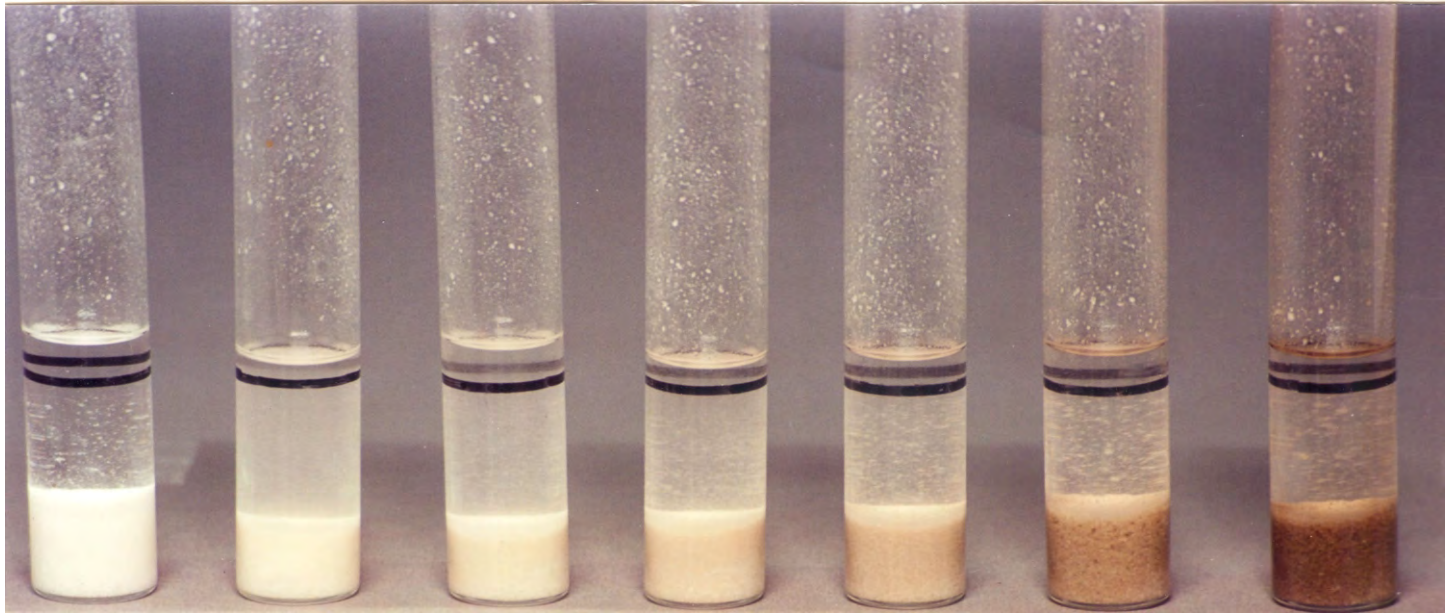


**BLK      25      100      500      2000      10000**  
**TRANSFORMER OIL IN SOIL mg/Kg**

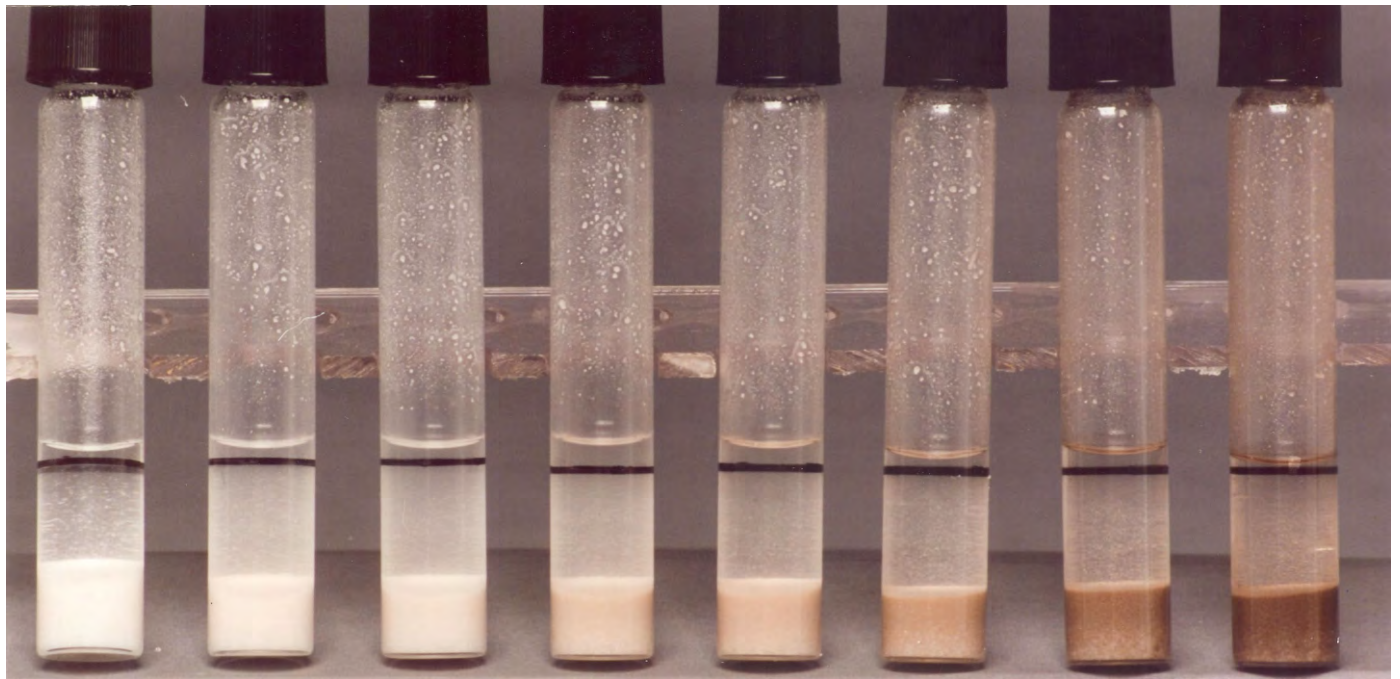


**BLK      50      250      1000      5000      25000**  
**MINERAL OIL IN SOIL mg/Kg**



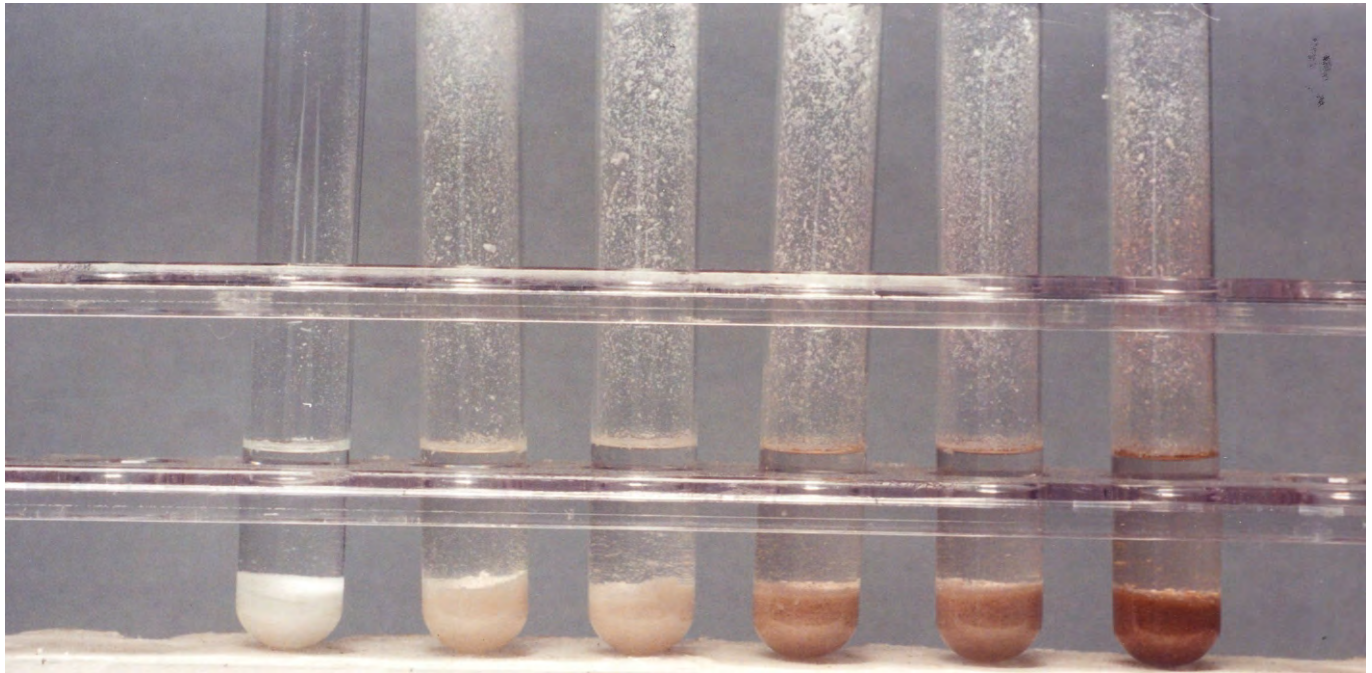


**BLK      10      50      100      200      500      1000**  
**WASTE OIL IN SOIL mg/Kg**



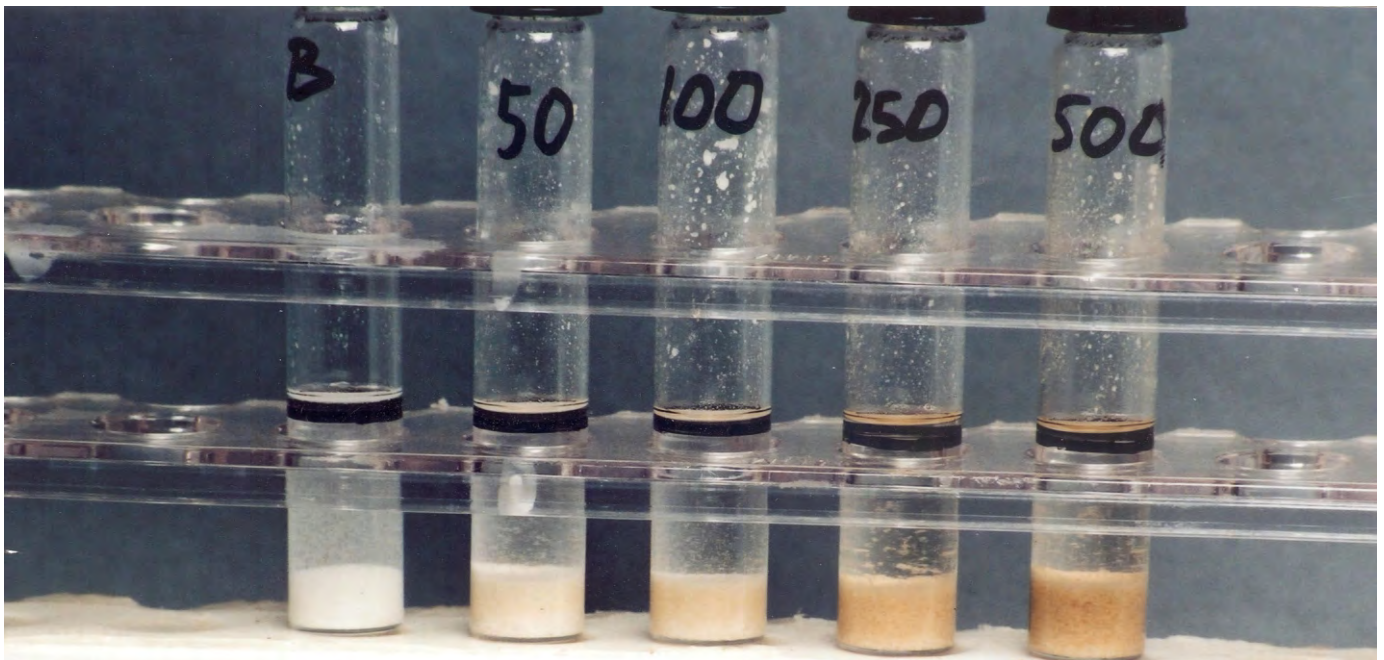
**BLK      1      10      50      100      200      500      1000**  
**DIESEL IN SOIL mg/Kg**





**BLK 10 20 100 200 400**

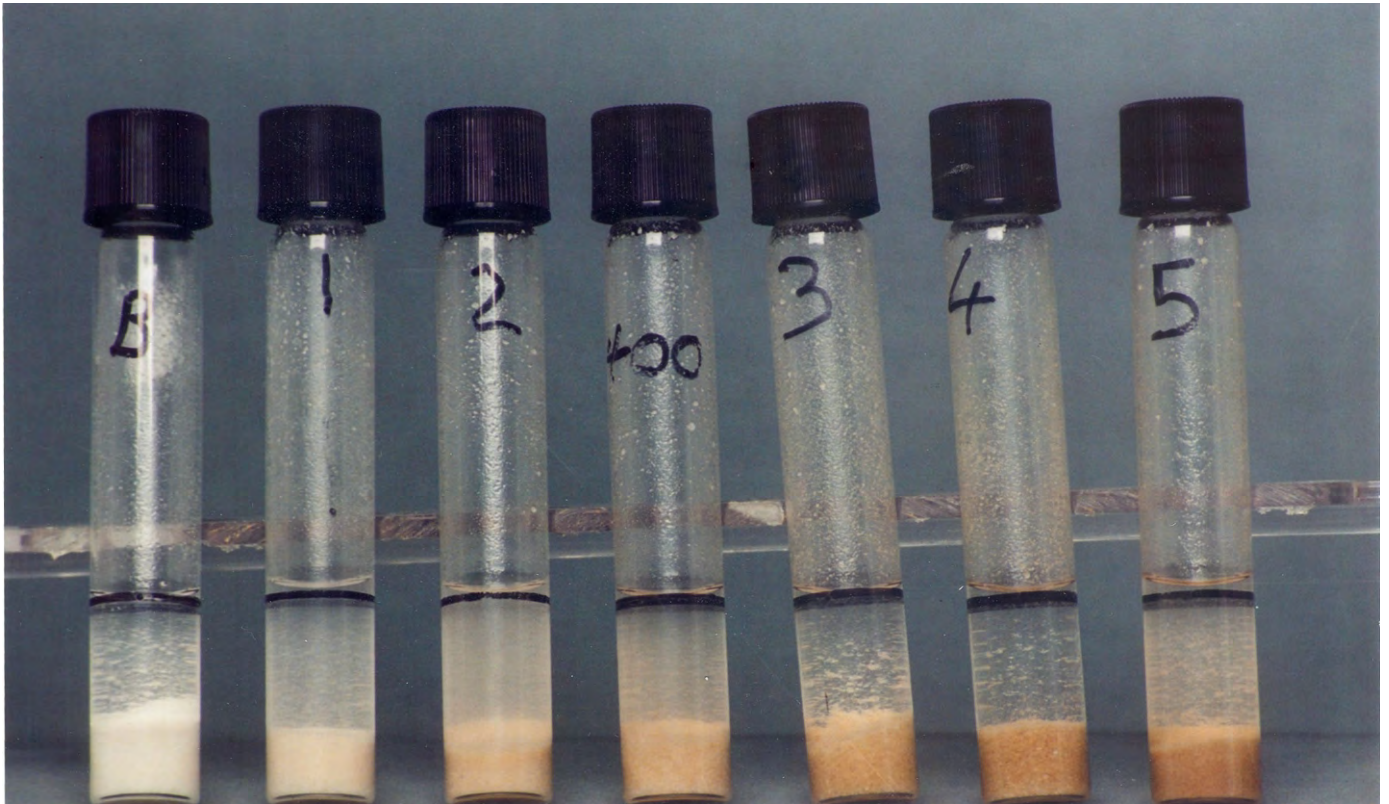
**DDT-DD IN SOIL mg/Kg**



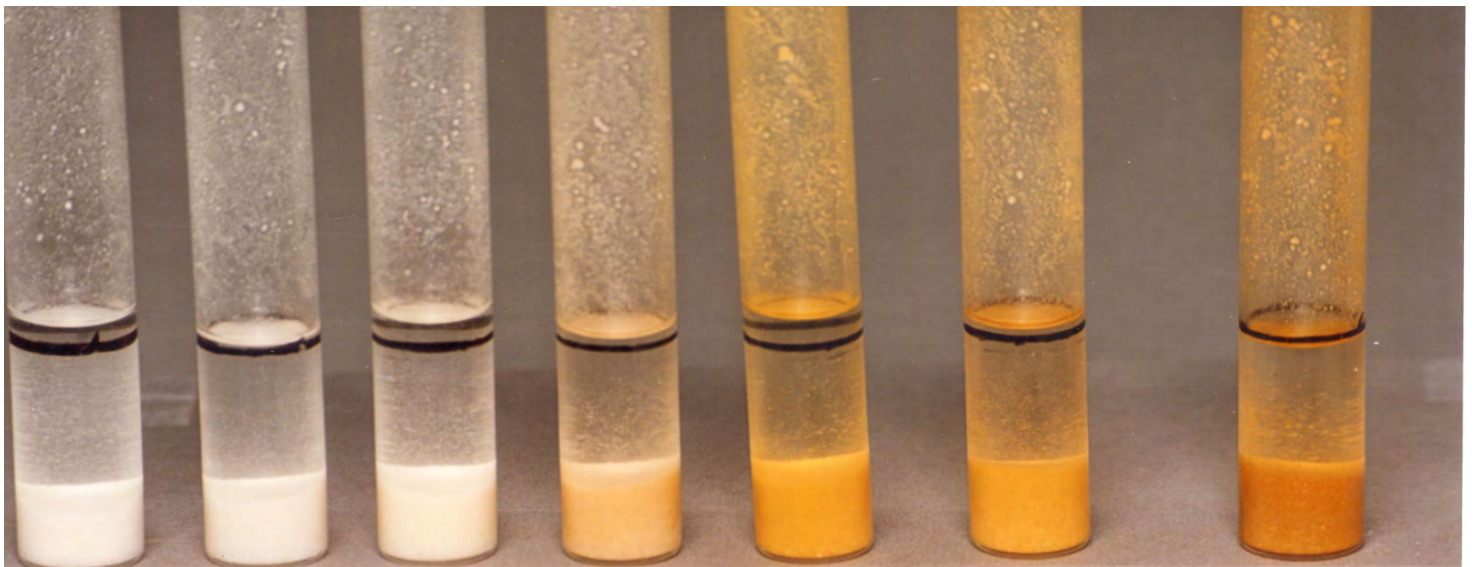
**BLK 50 100 250 500**

**MOTOR OIL (NEW, 10-W-40) IN SOIL mg/Kg**

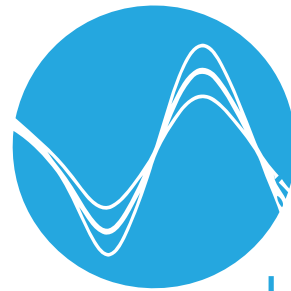




**BLK 50 200 400 500 800 1000**  
**Lubricating oil in Soil (mg/Kg)**



**BLK 100 500 1000 5000 10000 20000**  
**Benzene in Soil, mg/Kg (PPM)**



# Hanby Environmental

**1772 W Sam Houston Pkwy N  
Houston Tx 77043**

**877.806.0901 Toll Free  
713.468.3897 fax**