

## What is a microbe?

Many people are familiar with microorganisms (microbes) or bacteria, as they are also commonly called. Microbes are found throughout the world, in soil, on water, plants, animals, rocks, and people.

After death, all living organisms decompose to their base elements of water, carbon, nitrogen, phosphate, and trace elements. This process is called bioremediation or mineralization. It takes approximately one million bacteria to recycle the 6 million organic molecules that make up life.

*Basically microbes were "green" before the rest of the world discovered the importance of going "green".*

It is difficult to describe a simple yet complex form of life like the microbes. Because of their size (1 micron) they are so small that a powerful microscope is required to see them. It took the development of the microscope before man learned that microbes were the chemical agents of decay, fermentation, and disease.

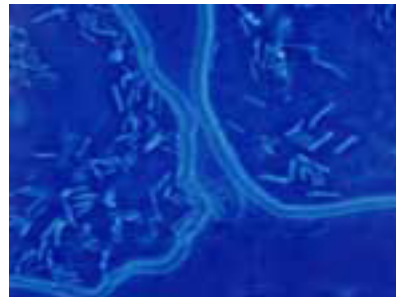


**Figure 1 - microbes inside an oil droplet**

Because of the power of advertising many people think of microbes as being bad and need to be destroyed. Like many things in life there are good and bad microbes. There are a great many good and beneficial microbes in the world. Without

beneficial microbes the earth would not be able to recycle many items.

Their size makes the microbe the smallest living unit that can contain the necessary complex chemicals for life processes and the necessary enzymes for recycling complex organic matter.

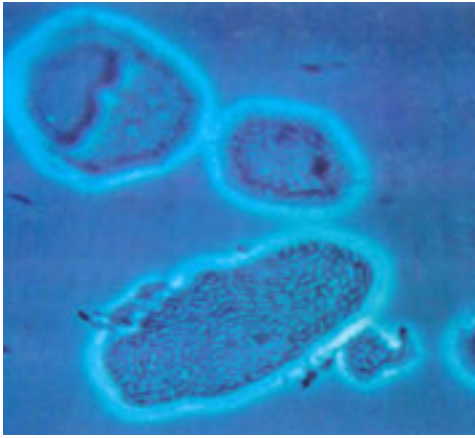


**Figure 2 - Microbes digesting oil**

These small cells also have a large surface to volume ratio allowing for a maximum cell wall activity and interchange of materials in and out of the cells. In this way, nature fabricated the total microbe population for maximum activity in recycling of all natural organic matter.

The microbes that we produce at Oppenheimer Biotechnology, Inc. are hydrophobic. In other words the microbes prefer to attach themselves to the item (namely the oil) they are converting and prefer to stay out of and away from water when they can.

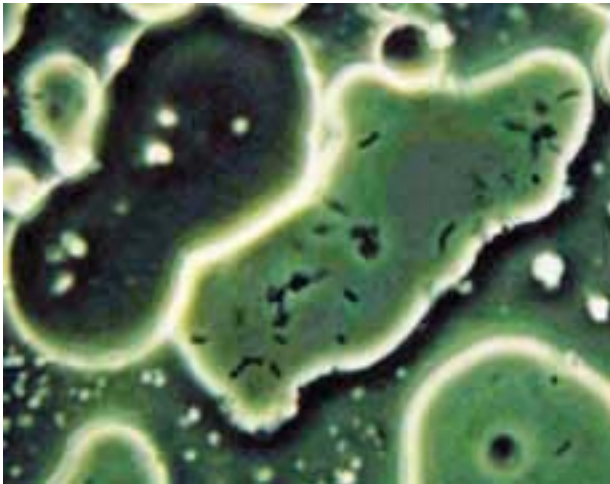
This is important because when you are applying the product in a wet environment you don't want the microbes to get diluted in the water.



To see how we use microbes in our everyday lives please click on our [products page](#) or look at our [case studies page](#). From large projects in the oilfield to use in the average household, microbes are changing the world.

## MICROBE FACTS

Their average size is one micron, a 10,000th of a centimeter, 25,000ths of an inch, or 1 millionth of a meter. More than 27,000 species of bacteria have been identified. There are many millions of microbes that have not yet been identified.



The bacteria, which may be motile or non motile, have three basic shapes: round (coccus), rod (bacillus), and spiral (spirillum). Motile means that the microbes can move around by themselves without help. Microbes are the earth's most primitive single celled organisms. Their basic role in life is to recycle the components of living organisms, converting them to the nutrient chemicals used by plants in photosynthesis and chemosynthesis.