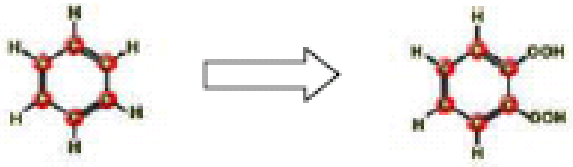
gPRO® Technology

Hydrocarbon Conversion Process

The microbiological enzymatic oxidation of a hydrocarbon results in a fatty acid or carboxylic acid. When microbes biodegrade hydrocarbons, the following chemical reaction occurs.

C-C-C-C-C-C-C-C-C-C
to
C-C-C-C-C-C-C-C-C-C-OOH
decane to decanoic acid



benzene rings to catechol

These fatty or carboxylic acids are then further broken down for energy and carbon by beta oxidation, which removes two carbon atoms at a time as follows. -- oxygen requirement for the first step of bioremediation to a fatty acid is minimal, requiring only 2 or 4 atoms per hydrocarbon molecule.

R-C-C-C-COOH ⇨ **R-C-COOH + C-COOH** ⇨ **CITRIC ACID CYCLE**

The two carbon atoms are accepted in the citric acid cycle that produces energy and carbon for protein. Final end products of hydrocarbon biodegradation are energy, protoplasm, carbon dioxide, and water.