Hydrocarbons

Naturally effective effluent treatment

Hydrocarbon-rich effluents generated from sectors such as petroleum, pharmaceutical and chemical industries tend to be high in BOD and COD and can result in heavy fines if consent limits are not met. Traditional chemical treatment can have a detrimental environmental impact which has resulted in more treatment plants moving to biological degradation using microbial strains with the correct abilities to break the compounds down.

Reduce operating costs

Achieve consent levels

Improve plant efficiency

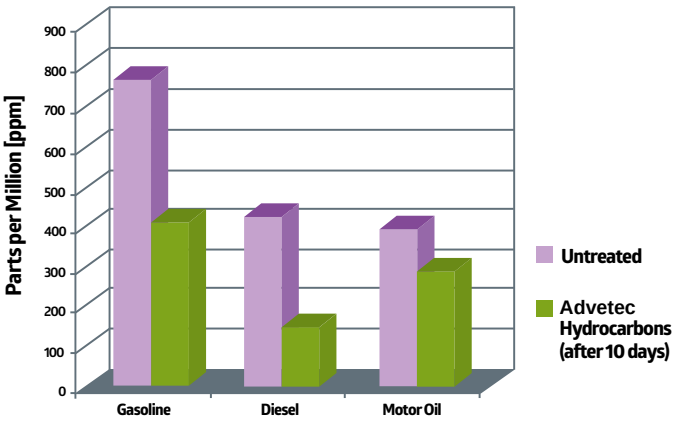
ADVETEC

advanced environmental technologies

The levels of toxicity in hydrocarbon contamination reduce the overall performance on the treatment plant biomass. Strict consent limits are typically in place as such pollutants must not be released into the environment.

Hydrocarbons may be aliphatic (in chains or simple rings) or aromatic (in particularly stable ring form). As the hydrogen molecules may be substituted for other atoms or functional groups, the structural possibilities are almost endless and hydrocarbon molecules can be very large and complex making them difficult and slow to degrade. As well as the toxic nature of hydrocarbons, they can cause filamentous outbreaks and become entrained in floc, increasing operating costs and causing significant plant issues.

There are a number of microbial species which can degrade complex hydrocarbons, but as many of the most undesirable molecules are resistant to degradation, it is essential to select microbes with the correct metabolic abilities. Advetec Hydrocarbons has a range of organisms with mixed and broad enzyme activity which improves the range and speed of degradation as the strains work together to carry out all steps necessary for the reaction. Introduction of the right biological solution can dramatically reduce chemical costs (e.g. powdered activated carbon) and TSS.



Advetec Hydrocarbons degrade a wide range of hydrocarbons including:

- Short- and long-chain hydrocarbons
- Cyclic aliphatic hydrocarbons
- Aromatic hydrocarbons
- Complex substituted hydrocarbons

The products are available in liquid or powdered form.

The most efficient reactions for hydrocarbon degradation take place aerobically, with temperature and the chemistry of the pollutants affecting growth rates. The correct nutrient balance must be provided to ensure that lack of nitrogen or phosphorous do not become limiting factors for microbial growth. In some cases surfactants may be used to increase solubilisation of contaminants and make them more bio-available to the degrading microbes.

Part of the range allows for hydrocarbon degradation in applications such as land remediation, waste disposal/recycling, food production.