

## Operating Principles

MSR Coalescing plate modules are designed to separate oil from water utilizing the buoyancy of the oil droplets. The droplets rise within the water flow according to Stokes's Law, a mathematical relationship that allows calculation of the rise velocity based on the droplet sizes and the difference in specific gravity between the water and the oil. In general, smaller droplets and/or droplets of greater specific gravity rise more slowly.

Because the droplets common in stormwater are generally very small, and very small droplets rise very slowly, if the droplets are to be separated in this manner, the rise *distance* must be short.

Ordinary large empty tanks or API separator type vaults are not efficient at removing small oil droplets because the small droplets rise

slowly and the rise distance required for separation is large.

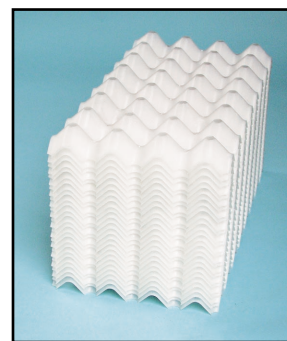
MSR Coalescing plates are closely spaced to minimize rise distances and ensure capture of even very small droplets. The coalescing plates are made from an oleophilic "oil-loving" plastic that helps capture droplets and encourages coalescing.

The water flow carries the droplets into the modules where they rise by buoyancy up to the underside of the coalescing plates where they are captured. As more droplets are captured they form a layer on the plates and eventually break loose as large drops and migrate to the surface through the oil ports designed for that purpose. The oil forms a layer on the surface of the water and is eventually removed for recycling.

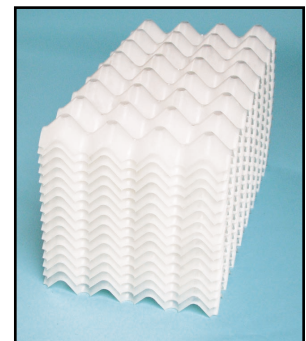
## Applications:

MSR Coalescing Systems have many uses in municipal stormwater, industrial, refinery, or commercial applications. Some places where they can be used are:

- Oil refinery or chemical plant effluent water or stormwater
- Commercial parking lots
- Truck depots
- Airport refueling and parking areas
- Shopping center or school parking lots
- Highways and bridges
- Auto repair facility effluent
- Equipment washdown facilities
- Many other applications



8 mm Spacing



16 mm Spacing