



Industrial Brine Processing Separators, two of a set of four

*As Green, Green, Green as
It Gets!tm*

*MSR COALESCING MEDIA HAS NO MOVING PARTS, NEEDS NO
CONSUMABLES, AND THE RECOVERED OIL IS RECYCLABLE!*

Equipment for Separation of Oil and Water for
Industrial Process Streams and Wastewater

MSR Separators are for Use Wherever You Need to Separate Oil from Water

MSR Coalescing plate separators are one of the best ways to separate two non-mixing liquids. *Almost any hydrocarbon oil and most non-hydrocarbon oils such as corn, orange, or other vegetable oils may be separated from water very satisfactorily.* MSR has many years experience in designing systems for varying applications. The photos below show some of the varied applications of our equipment.

Tire Manufacturing Plant separator in Illinois. This unit provided with media mounted in frames for ease of removal / reinsertion.



Specialty Chemical Manufacturing Plant separator in Texas. This unit removes both light and heavy oils from the water stream



Asphalt Manufacturing Plant separator in Alabama. This unit is provided with rotating skimmers for ease of setting the oil layer thickness.

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.

The droplets common in both industrial applications and stormwater are generally very small, and very small droplets rise *very* slowly. To facilitate good removal, the rise *distance* must therefore be short.

Ordinary large empty tanks or API separator type systems are not efficient at removing small oil droplets because the small droplets rise slowly and the rise distance required for the droplets to come to the surface for separation is large.

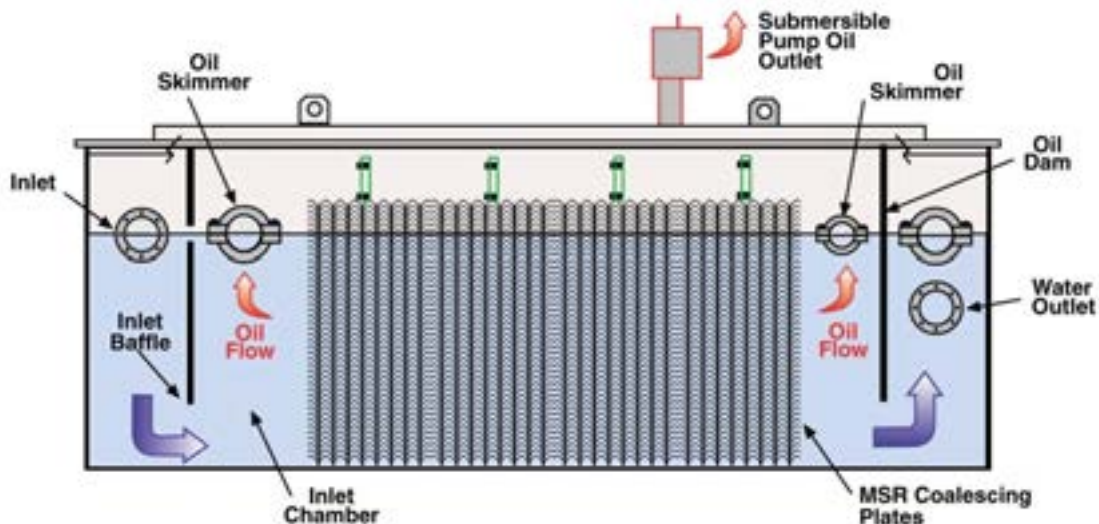
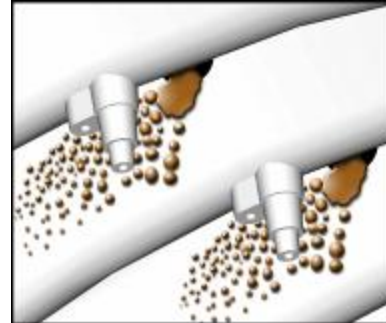
MSR Coalescing plates are closely spaced to minimize rise distances and ensure capture of even very small droplets. The coalescing plates are made from an oleophilic "oil-loving" plastic that helps capture droplets and encourages coalescing. They are available in either nominal 8 mm or nominal 16 mm space

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 periodically removed for use.

Typical MSR Applications:

Oil Droplets on Underside of Plate

Location	Description
Texas	Chemical Plant
Virginia	Military base
Alaska	Mine Vehicle Service
Pennsylvania	Oil Refinery
Argentina	Potash facility
Guam	Commercial Port Facility
British Columbia	Methanol Plant
Venezuela	Fertilizer Production
Romania	Oil Production facility
California	Stormwater processing
Labrador	Hydroelectric Generator



Specialty Chemical Plant Separator Process Flow Diagram

Specialty Separations of Oil and Water

Any Size:

Mohr Separations Research offers virtually any size separator that might be needed from the giant 18,000 gpm system installed at a Canadian hydroelectric plant and the heavy duty high pressure cylindrical separator shown on the truck ready to be shipped (one of two installed at a Wyoming natural gas facility) below to the very small plastic units that can be used for small separation requirements. Two of our smallest units, the MSR-11P and MSR5 units are pictured as well. We utilize a proprietary process simulation program to custom design each separator so that you can be sure that the effluent water will meet your regulatory requirements. Please call and see how our experience can work for you in meeting your environmental needs.



1000 GPM WATER
PROCESSING SYSTEM

0.5 GPM COOLANT
SYSTEM, MODEL MSR5
SHOWN WITH TEXAS HAT
FOR SIZE COMPARISON



MSR-11P NON METALLIC SEPARATOR

MSR DESIGN OIL PRODUCTION SEPARATOR
(ROUMANIA)

Mohr Separations Research, Inc.
1278 FM 407 Suite 109
Lewisville, TX 75077 USA
✉: info@oilandwaterseparator.com

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☎: 918-299-9290
☎: 866-910-5912
Website: www.oilandwaterseparator.com.