



OIL AND GAS

CoaFil™ Technology
Coalescing filtration

WATER TECHNOLOGIES

CoaFil™ deoiling technology

Coafil is a disruptive deoiling technology that replaces the lineup of several classic treatments. By enabling the coalescing and filtering of oil and solids, CoaFil™ allows for high feed loads while still achieving high effluent quality.

Veolia Water Technologies offers a deoiling technology for the removal of hydrocarbons and solids using coalescence filtration. The principle is similar to media filtration but it allows for higher feed oil and solids concentrations and achieves very low discharge concentrations (<1 ppm). High loading capacity as well as simple and short backwash ensures long runtime. A unique and proprietary distribution manifold optimizes distribution and minimizes space requirements and construction costs.

CoaFil can be applied for treatment of produced water or oily wastewater in the oil and gas industry for seawater discharge, re-injection, or re-use applications.

MARKETS AND APPLICATIONS

Oil and gas fields (onshore)

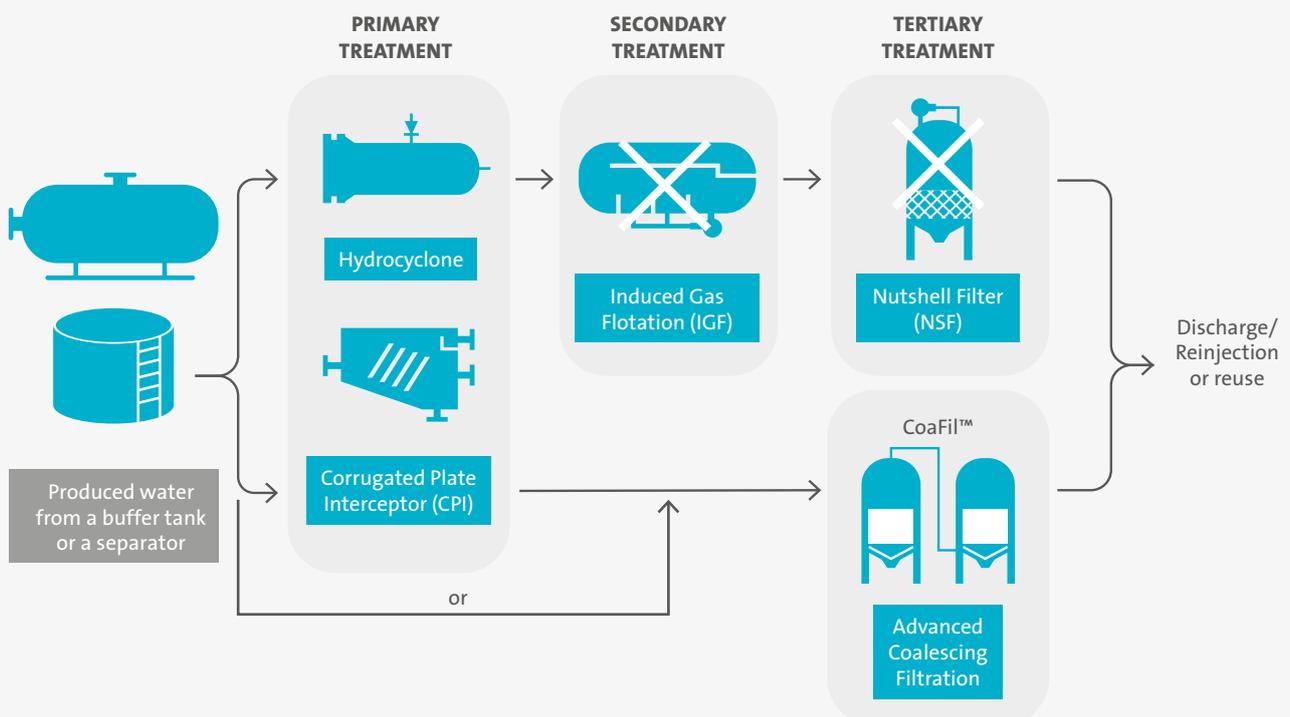
Produced water

Oil refineries

Oily wastewater

WATER TREATMENT PROCESS

CoaFil may replace 2 to 3 technologies of the classic water treatment process. The result is a simplified, single technology treatment line with improved performance enabling lower capital and operational costs.



ADDRESSING YOUR CHALLENGES

REGULATION COMPLIANCE

Environmental regulations are constantly changing, and companies are adapting their operations to meet these requirements. CoaFil can effectively reduce oil and solids concentrations to even less than 1 ppm, ensuring strict compliance with guidelines.

PERFORMANCE

The operation of 2 or 3 different treatment technologies each having their own oil sludge discharge adds to the operational complexity and efforts. CoaFil offers one single technology ensuring lower operational and maintenance costs with high performance.



FEATURES AND BENEFITS



Allows high feed oil and solids concentrations.



Lower CAPEX and OPEX costs due to simplified treatment process.



Avoids the use of chemicals with proven excellent results.



All-in one technology eliminating the need for other secondary and tertiary treatment deoiling technologies.



Improved oil and solids removal compared to flotation units and media filters.



Pilot testing is available for feasibility and performance.



Simple and short backwash with the recovery of pure concentrated oil.



Oleophobic media means easier backwash and reduced risk of 'mud-balling' in the bed causing bypass.



Performance of existing sand, multi-media or nutshell media may be improved by using CoaFil media.

OFFERS



1

General oil & gas engineered CoaFil vessel with media supply and optional auxiliary piping and equipment

2

Media replacement for existing technologies like sand, multi-media or nutshell filters

TECHNICAL SPECIFICATIONS

CoaFil's media has the unique properties of being oleophobic, promoting the coalescing of oil and retaining the coalesced oil in the media bed.

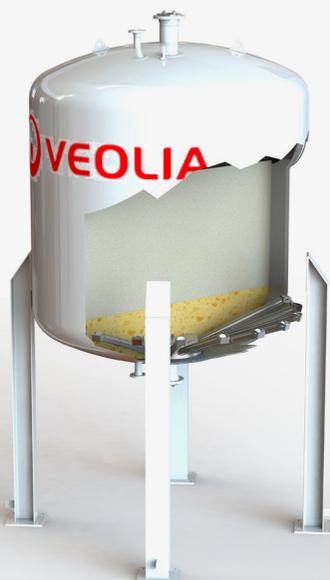
The CoaFil media is available in 3 particle sizes: 0.5-1.0 mm, 0.7-1.7 mm and 1.7-2.5 mm with 2.5-4.0 mm for support layer. Selected size is determined by oil & solids load and properties as well as the required effluent quality.

'Mud-balling,' known as the lumps of media and oil clinging together as large aggregates in the bed, is often seen in other filters. Our technology reduces the effects of 'mud-balling', resulting in a consistent outlet quality.

Ranges for standard CoaFil vessels

Veolia Water Technologies supply a standard range of CoaFil vessels:

TYPE NAME		CF65	CF120	CF180	CF270
Flow rate ranges	m ³ /h	50 - 80	90 - 150	135 - 225	200 - 340
Vessel diameter	mm	2000	2750	3400	4200
Nozzle size	inch	6	8	10	12



SERVICES

-  Spare Parts Management and media supply (four sizes)
-  Pilot or bench scale testing
-  Technical & operational support

Preliminary selection criteria

Filtration can be by a single vessel or two vessels in series when the feed has elevated oil & solids concentrations. The below table shows the

preliminary selection criteria that can be refined based on the oily water properties and operating conditions.

FEED CONCENTRATION dispersed oil	EFFLUENT REQUIREMENTS		
	30 ppm	10 ppm	<1 ppm
20 - 50 ppm	Single 0.7-1.7 mm	Single 0.7-1.7 mm	Series 0.5-1.0 / 0.7-1.7 mm
50 - 100 ppm	Single 0.7-1.7 mm	Single/series 0.5-1.0 / 0.7-1.7 mm	Series 0.5-1.0 / 0.7-1.7 mm
100 - 500 ppm	Series 0.5-1.0 / 0.7-1.7 mm	Series 0.5-1.0 / 0.7-1.7 mm	Series 0.5-1.0 / 0.7-1.7 mm

Note: assuming TSS concentration is <50% of oil concentration.

Configuration options

The feed to the CoaFil filter can be by upstream pressure or a dedicated pump. A backwash pump and a treated water tank may be necessary to do

a clean water backwash or to create sufficient flow rate.

For a single CoaFil (Figure 1), the backwash and/or effluent tank may be existing tanks. Depending on the feed concentration and the required effluent quality, the backwash may be done with feed water.

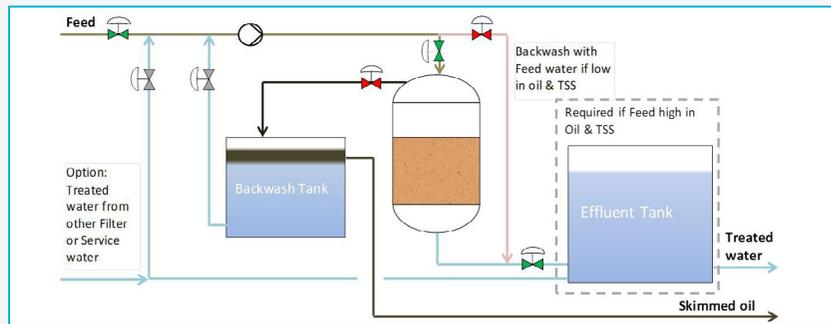


Figure 1 ►

For high feed concentrations, a series of two CoaFil vessels are required (Figure 2). The first, may be backwashed with feed water and the second filter may require a backwash with treated water.

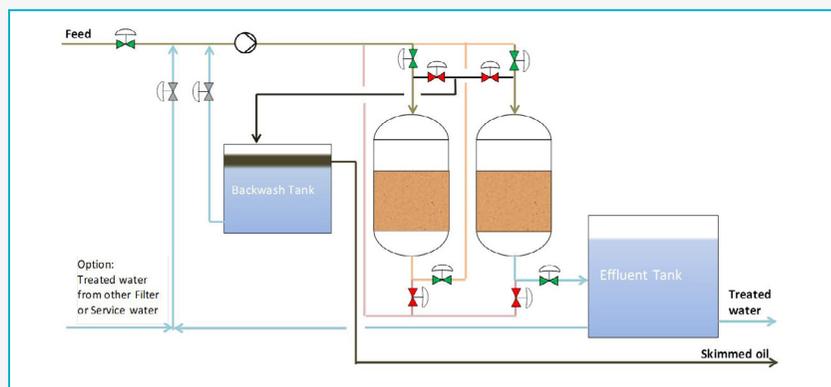


Figure 2 ►

For high feed flow rates, a series of parallel CoaFil vessels are required (Figure 3). By adding a standby (N+1) CoaFil, it is possible to backwash with the direct feed of effluent of the three filters to the backwashed filter.

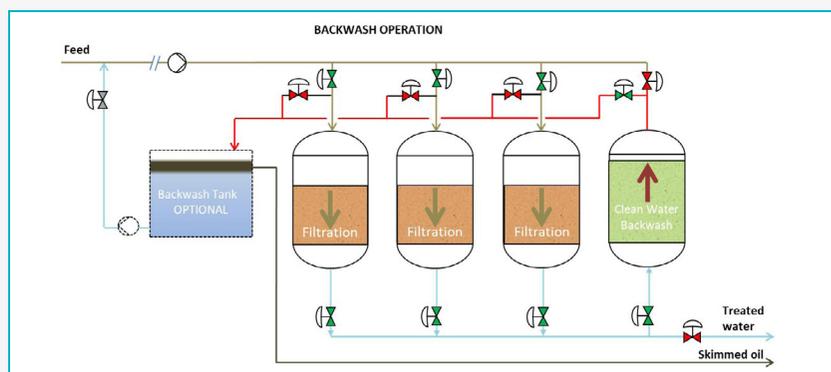


Figure 3 ►

Resourcing the world

Veolia Water Technologies - MPP Systems
Celsiusstraat 34, 6716 BZ Ede, Netherlands
tel. +31318664010 - fax +31318664001
www.veoliawatertechnologies.com