

OLEOCLEAR

OIL AND WATER SEPARATION



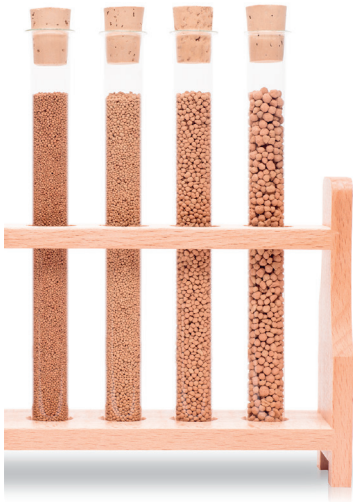
SCREENING AND EVALUATION

OleoClear media granules are based on mineral sedimentary opal-cristobalite rock endowed with high porosity owing to the presence of large amount of nano-sized pores that remain water-wet in an Oil-In-Water environment. The inherently high oleophobic properties and high porosity allows the principle of capillarity and wetting film phenomenon to create a shield that prevents fouling/adhesion of oils or pollutants on the media. The enhanced coalescence effect facilitates removal of emulsified and free oils together with suspended solids (TSS) without the addition of coagulants or demulsifiers and trap the coalesced oils in the intersitial spaces. The water shell on the granules provides an effective and easy regeneration when fluidised during backwashing without the pollutants fouling/adhering to the surface.



DEVELOPMENT & PRODUCTION

For primary entrapment, coalescence and non-clumping properties, OleoClear, through a proprietary method combines a unique biogenic sedimentary algae with highest hygroscopicity. Coalesced oil remains trapped in the intersitial spaces due to this method. As more hydrocarbons are collected in the filter bed, it results in higher removal efficiency of emulsified oil particles accompanied by TSS removal.



TECHNICAL ATTRIBUTES

A disruptive technology to remove oil and TSS from water.

A highly porous and oleophobic filter medium made from a unique combination of minerals for binding and separating contaminants in liquids. The construction of the media is such that there are pores within pores which imparts a very large surface area.

OleoClear granules have:

- Natural and inherent oleophobic properties after being water-wet.
- Anti clumping, coalescence and controlled hygroscopicity.
- Various grades available as shown depending on the level of filtration required.

PRODUCT PROFILE

Oil in water removal through coalescence

Efficient coalescence of emulsified oils together with total suspended solids (TSS) down to 3 micron.

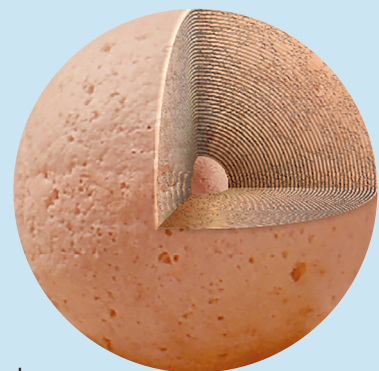
300 ppm of oil and 50 ppm of TSS has delivered <3 ppm of each at the outlet.

Fully regenerable with a simple backwash

One litre of OleoClear can retain 100 mL of oil.

No synthetic coating, no polymers - just pure physics.

- Highly oleophobic,
- No scrubbing,
- Simple backwash,
- No air/gas injection required for backwashing,
- No need for coagulants.

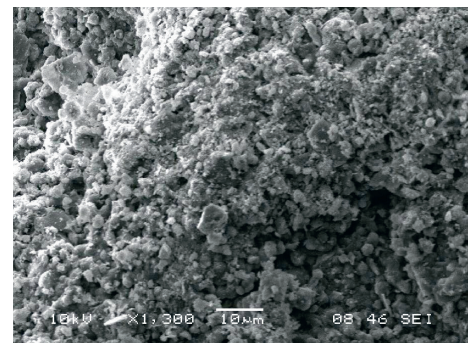
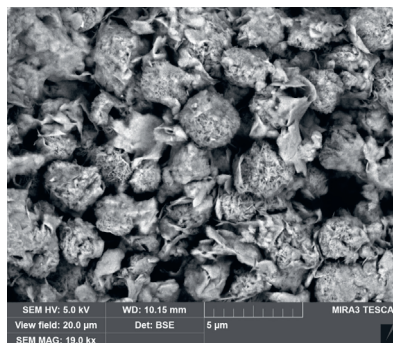
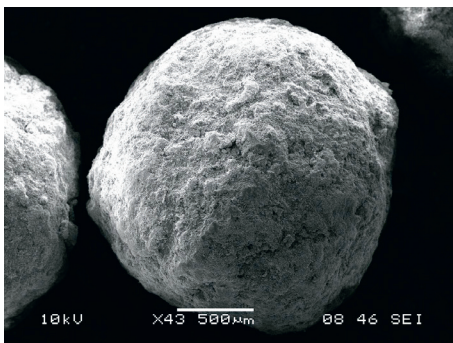


Zero Liquid Discharge Option

The feed water can be used for the backwashing process. Due to very high oil retention in the media and infrequent backwashes, oil concentration in the backwash can be a source of high calorific value. The dilute part can be sent back upstream resulting in Zero Liquid Discharge.

Backwash volumes are 0.2 - 0.5% of the filtered water volume.

A single grain of OleoClear Media under a microscope



WORKING PRINCIPLE

The principle used is COALESCENCE – the highly oleophobic OleoClear media effectively helps oil coalesce in the interstitial spaces and traps the TSS along with it.



Best performance of coalescence will occur when the API of the entrained Oil is less than 45 (>800 kg/m³)

OleoClear media has the unique capacity to handle

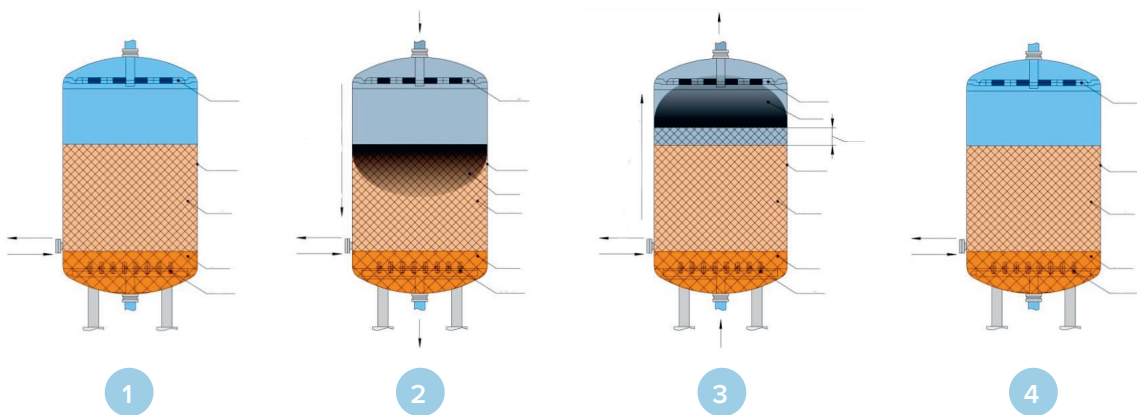
- 1-300 ppm of oil and TSS : > 99% removal of both Oil and TSS.
- 300-700 ppm of oil and TSS : 99% removal of both Oil and TSS
- 700-3000 ppm of oil and TSS : Intermittent loads can be easily handled with a relatively shorter filtration cycle.

Increased oil levels do not have a detrimental effect on the media itself, but it may require an adjustment or acceleration of the backwash process to maintain system efficiency.

Easily replace your existing Filter media with OleoClear with no additional modifications to the overall system resulting in outstanding performance of both oil and TSS removal.

Capable of operating at high temperatures.

WORKING PRINCIPLE - FILTRATION



1. During the FILTRATION cycle, coalesced and emulsified oil becomes significantly larger in the inter-granular space. As a result, they form “liquid lenses” that merge and bridge, connecting the two lenses in the filter bed. These coalesced oil particles attract the TSS and effectively remove the oil and TSS from the inlet water.
2. As a result of the accumulation of oil and TSS in the filter bed, a change in pressure occurs. When the set pressure drop is reached, the filter is backwashed with incoming water to regenerate the media.
3. During BACKWASHING, the trapped Oil and TSS leave the media along with the backwash water. *(This water can be sent upstream to the skim tanks. The coalesced oil that is displaced during the backwash is very easily separated and recovered by the skim tanks or any upstream separator. Suspended solids settle in the form of sludge and are removed using standard methods.)*
4. After the Backwash step, the filter then goes through a FLUSH step to displace any polluted water in the media before the Filtration cycle begins again.

COMPARISON OF NUTSHELL VS. OLEOCLEAR

NUTSHELL MEDIA



- Nutshell media - working principle is Adsorption
- Lower retention of oil and TSS
- It needs vigorous agitation, scrubbing and then a backwash
- Backwash volume is 1.0-1.5% of treated water volume

OLEOCLEAR MEDIA



- OleoClear - working principle is Coalescence
- 10 X higher retention of oil and TSS
- Regeneration is a simple backwash step
- Backwash volume is 0.2-0.5% of treated water volume

Two entirely different principles....OleoClear being significantly superior in performance

CONTACT US



ICMQ Filtration
4/274 Beatty Road, Archerfield Qld 4108
+617 3393 5311 | info@icmq.com.au
www.icmqfiltration.com.au