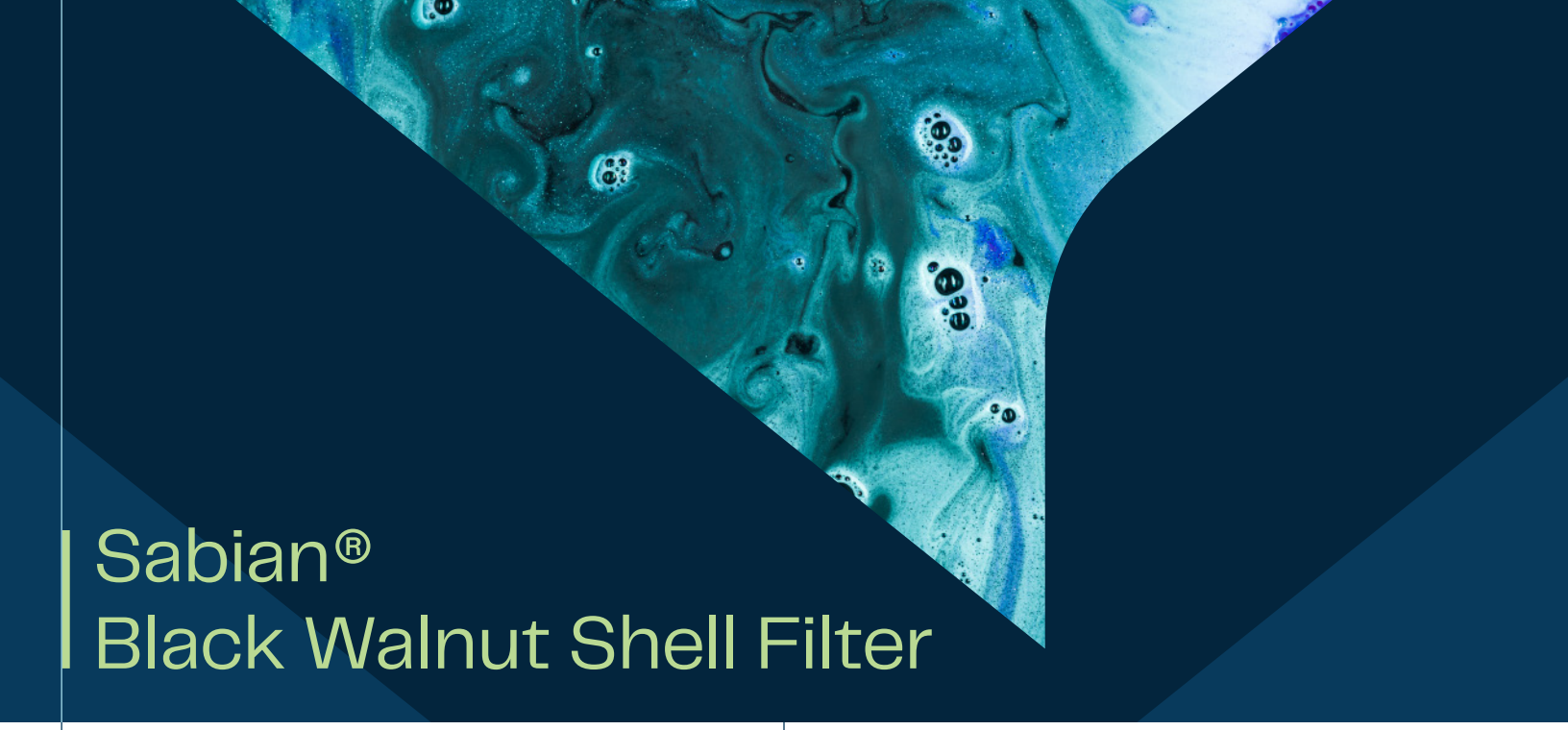


Sabian®
Black Walnut Shell Filter

Tertiary Produced Water Oil and Solids Removal

Sabian® Black Walnut Shell Filters remove the smallest traces of oil and solids that remain in produced water after other treatments. The system removes oil-in-water (OIW) and total suspended solids (TSS) achieving a target water quality of <5 ppm. Capacities range from 2,000 BWPD to 150,000 BWPD with a turndown capability of 45%. Sabian filters are high-efficiency, cost-saving performers. A single vertical vessel can deliver throughputs up to 50,000 BWPD and horizontal configurations are designed up to 150,000 BWPD. Each small-footprint, easy-to-install unit incorporates a patented internal backwash cycle that uses no moving parts and minimizes backwash volume. These features save you capital, auxiliary equipment, site space, energy, filter media, and downtime.

How It Works

As produced water flows through the filter, oil and solids are trapped in a media bed of ground black walnut shells. When the media becomes saturated, a backwash cycle is triggered by either a preset time or pressure drop. Using Enerflex's proprietary system, the media bed is fluidized, agitated, and quickly cleaned within the filter vessel. Oil and oily solids are easily shed from the water-wet black walnut shell media. The cleaned media then resettles for one minute and the filter is back in service. The system is completely hydraulic with no mechanical agitators or scrubbers. The media settles much more evenly than with other systems, thus eliminating dead zones, tar balling, and wormhole (channeling) problems.

Key Benefits

Cost Saving

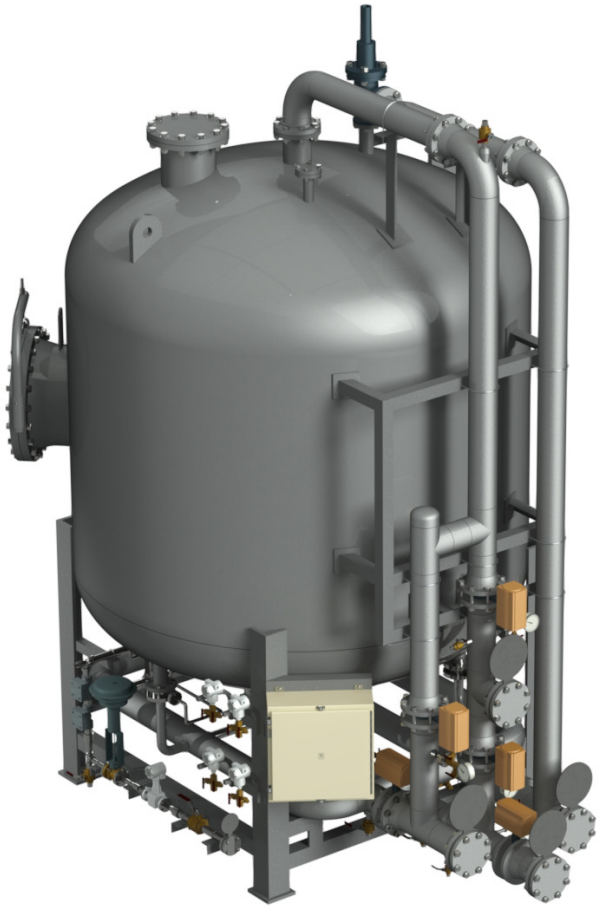
- High single-vessel capacity, less piping and auxiliary equipment, and fewer controls lead to lower installation costs
- Conservative flux rate, lower backwash frequency, and reduced energy consumption and media attrition reduce operating costs
- No failure-prone internal scrubbers, pumps, or other moving parts minimize maintenance costs

Better Performance

- Negligible upstream surge capacity is required because the same pump and water are used for feed and backwash, allowing use of existing tanks with no flow diversion
- Large horizontal configurations are available without the dead zones, tar balls, and wormholes common with other products

Flexibility

- Turndown capacity to 45% of maximum flow gives predictable results in unpredictable flow conditions



Standard Features

- ASME code pressure vessel
- One charge of crushed black walnut shell media
- On-skid piping, valves, and fittings
- Water-resistant control panel

Materials of Construction

- Filter vessel: internally coated (NACE MR 0175) carbon steel
- Removable internals: 316 SS
- Piping: internally coated (NACE MR 0175) carbon steel

Standard Options

- Backwash treatment tank
- Filter feed pumps
- Backwash pumps
- Upgraded materials for pumps, valves, instruments, and piping
- Ancillary equipment such as transfer pumps and chemical injection
- Cold-weather protection such as skid enclosure and tank insulation
- Water characterization services
- Other options as required to meet specifications

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