

# Application Focus

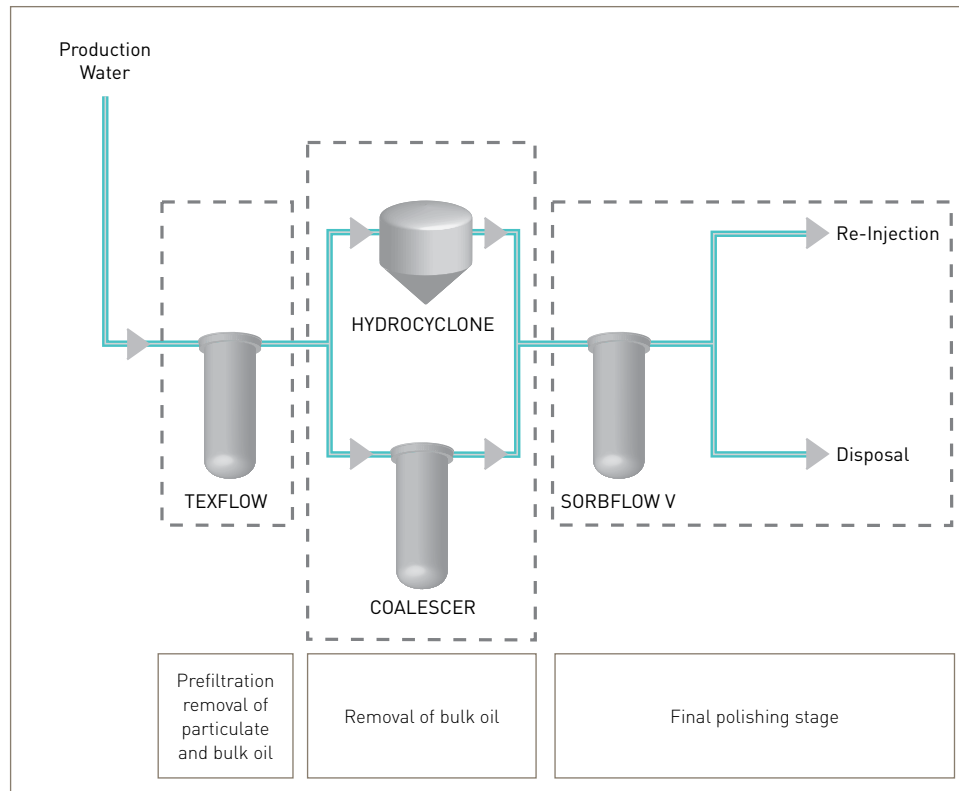
## The Filtration of Produced Water Used in Oil Production



### Protecting Our Environment

During the production of hydrocarbons, a water stream is also produced containing hydrocarbons, inorganic chemicals, radioactive materials and suspended solids. This water can be either re-injected back into the well or disposed of into the sea but even water for simple disposal has to be highly treated to conform to environmental legislation.

Excessive produced water is becoming a major factor in abandoning production wells making water production a major environmental and economic concern. Therefore, effective systems for treatment of this water are necessary. A typical system incorporates a cyclone and a coalescing filter to remove the bulk of the oil followed by an oil adsorption filter for the final polishing stage. The final filter can be protected through the use of a prefilter.



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### Benefits:

- Maintains formation permeability through removal of particulate and bacteria
- Allows utilisation of a natural resource
- Cost efficient method of treatment

### Features:

- Easily retrofitted into existing hardware
- High dirt holding capacity allows for high volumes



ENGINEERING YOUR SUCCESS.

## TEXFLOW



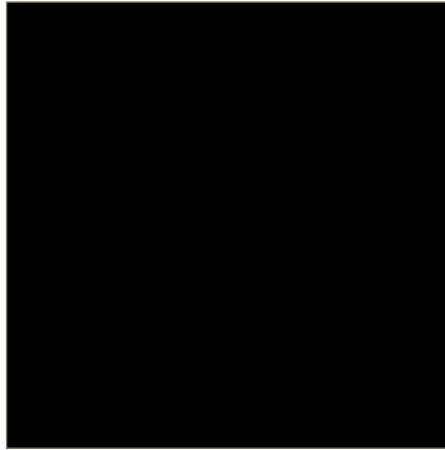
- Protection of absolute filters
- High dirt holding capacity
- Wide chemical compatibility
- Filter ratings from 0.5 to 100 microns

TEXFLOW precision wound depth filter cartridges are manufactured to give a considerable dirt holding capacity coupled with high flow rates and low pressure loss.

TEXFLOW elements consist of a perforated support core of plastic or metal onto which yarn is wound at a pre-set rate, providing each rating of element with its own distinctive winding pattern and performance. During the winding process the yarn is usually brushed (or napped). This has the effect of increasing the working area of the elements thus providing a higher dirt holding capacity whilst maintaining the rigid structure.

Although the cartridges are mainly for liquid filtration, they can also be employed for gases. Other fibres such as polyester, cotton, nylon and rayon can operate at higher temperatures and have differing chemical compatibility. For very high temperatures and for very strong oxidising agents, baked glass fibre elements are used. Glass fibre elements are fitted with voiles as standard, other cartridges can also be fitted with voiles where necessary.

## Coalescer

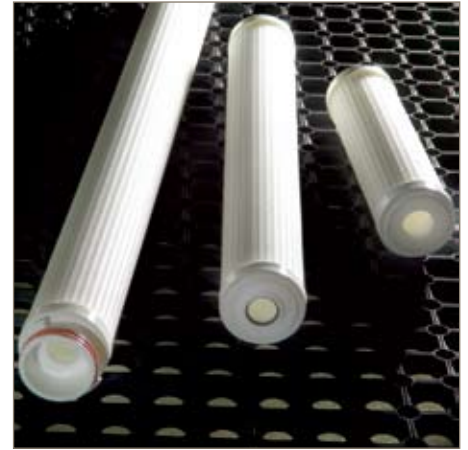


The Parker domnick hunter coalescer product is used to coalesce small droplets of oil into larger ones. This is caused by the produced water flowing through several layers of specially developed media.

As the liquid competes for the flow path through the media, droplets join together to create larger droplets.

The differing specific gravities of the coalesced hydrocarbon and water allows the fluids to separate. Once separated the hydrocarbon can be manually removed reducing the hydrocarbon content of the produced water allowing final polishing from the SORBFLOW V.

## SORBFLOW V



- <30 ppm @ up to 5.3 US gal per minute
- Absorbent polymer is enhanced to maximise utilisation of surface area
- Absorbed hydrocarbon is chemically bound by polymer and is not leachable

SORBFLOW V cartridges differ from those offered by the competition where hydrocarbons are removed through surface adsorption onto the medium, SORBFLOW V cartridges employ a proprietary modified polymer that both absorbs and chemically binds the hydrocarbon molecules into its interior matrices.

The affinity of the polymeric absorbent for hydrocarbon molecules is so great that accelerated testing by the Toxic Characteristics Leachate Procedure (TCLP) indicated the effluent hydrocarbon level in water to be below current and proposed SEPA / EPA limits. The modified polymer controls the speed of absorption by eliminating the potential for skin formation at the polymer / hydrocarbon interface. Consequently this polymer, when incorporated into a radial flow-design cartridge, ensures maximum utilisation of surface area. The nature of the polymer makes it an effective absorbent for free, emulsified and dissolved oils, synthetic lubricants, grease and a multitude of organic solvents.