

Continuous fibres lead to successful filter

An improved design of wound string filter has doubled contaminant holding capacity and avoided the shedding of small fibres back into the fluid. Tom Shelley investigates

POINTERS

- Wound string fibres based on a novel continuous fibre process are said to have twice the dirt holding capacity and life of conventional wound string filters and half the pressure drop
- The favoured media is either no or low contaminant polypropylene but cartridges made of polyester or cotton are also available
- Use of continuous fibre avoids the shedding of small fibres into the fluid being filtered

Wound string filters are setting new benchmarks for efficiently catching large amounts of dirt, without risk of introducing stray fibres or other contaminants into the fluid stream being filtered.

Initially made of melt spun polypropylene for the filtration of water, the filters are now also available in polyester and other materials and are finding their way into oil and gas applications.

The manufacturer responsible for the filter is Syntech Fibres in Pakistan, which started out as a producer of polypropylene textiles. Director Hamid Omar told *Eureka* during a recent visit, that moving from the competitive synthetic textile business into manufacturing and engineering was 'a business breakthrough' and the firm is now focussing its entire efforts on making filters.

The innovative, patent-pending 'Sedifilt' device is a wound filter, with the yarn made up from continuous filaments. Rather than being round, the filaments are multi-lobed, which ensures a higher dirt holding capacity and lower resistance to flow. The filaments are randomly oriented to each other, intermixed, looped and entwined to produce a bulky yarn. When wound into a cartridge, each filament continues, without a break, throughout the length of the yarn. During winding, the pitch, number of crossings and space between each yarn is continuously varied so that the inner layers are close wound, while the outer layers are more open, but using the same

The patent-pending Sedifilt string wound filter cartridges (top) have multi-lobed continuous filaments

Right: comparison of Sedifilt and conventional filter media



True graded density
High dirt holding capacity

High porosity
Low pressure drop

using lubricants, wetting agents, emulsifiers, anti-oxidants or anti-static agents. Polyester media filter cartridges with stainless steel cores are available for high temperature applications.

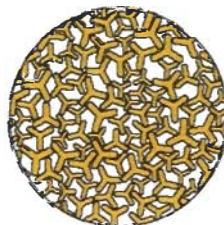
The filters are suitable for: reverse osmosis pre-treatment and filtering drinking water; beverages; gases; electronic, electroplating and photographic solutions; deep well injection of processed water for oil and gas; waste water disposal and cooling towers.

winding tension. Each yarn traps the randomly protruding short loops of adjacent yarns to yield a stable structure.

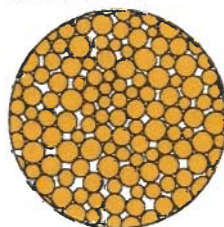
The diamond-shaped voids normally found in conventional wound string filters are avoided, and there are no short fibres that can break away as loose bits. Dirt holding capacity and filter life is said to be about double that of conventional wound filters and pressure drop is halved.

The favoured material is polypropylene, melt spun without

To access this and other related articles go to www.eurekamagazine.co.uk click "Reference Library" and key in 'filters' to the search box
Syntech Fibres **Enter 538**



Conventional round cross section of individual fibres has fewer micro-voids giving lower dirt holding capacity and higher resistance to flow.



Sedifilt Media

High bulk, stable, three-dimensional random structure comprising continuous filaments.



Conventional Media

Low bulk, non-stable, round structure comprising short fibres.

