

# **Ceramic membranes in different drinking & process water applications – an overview**

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Ceramic membranes, though known for their much better mechanical, thermal, chemical resistances and pressure ratings, low fouling tendency as well as good cleaning behaviour and regeneration rate, have only been used in niche applications to date.

Due to their relatively high price and limited availability, ceramic membranes have not been able to compete with polymeric membranes for main-stream water treatment applications like drinking water treatment. However, recent new developments of ceramic membranes with higher membrane packing densities and a concurrent reduction in production costs, result in more competitive total treated water cost. In conjunction with all of the above mentioned advantages, ceramic membranes for water treatment are subject to increasing interest and acceptance globally.

The latest development of Nanostone Water includes a monolithic design which offers best overall potential to improve economics so that ceramics have comparable capital expenditures to polymeric membranes. The standard module is a potted monolith module construction that enables potential cost-effective treatment in a 1500 mm long FRP (fibre-reinforced plastic) module with 24 m<sup>2</sup> filtration area using a new and patent-pending process allowing a very flexible and adjustable product design for different applications such as drinking or even produced water treatment.

In this publication, the membrane and module design as well as the field test results of the Nanostone Water potted monolith membrane will be presented and a projection of its lifecycle cost compared with industry standards will be conducted.