

Wastewater solution for mining operations

Thousands of litres of wastewater can be reclaimed through proper filtration methodology.

As a result of ineffective filtration systems, it is estimated that local mining operations lose up to 30 percent of their wastewater during operations. In addition to the devastating environmental consequences in a country where water is scarce, this inefficiency is also exceptionally costly.

To alleviate this problem, I-CAT Environmental Solutions offers the Hyflux Kristal hollow fibre ultrafiltration (UF) membranes and AZUD filtration systems, which are installed in combination to serve as a comprehensive and holistic industrial wastewater filtration solution.

I-CAT technical manager Morné van Wyk says that as part of the company's comprehensive wastewater filtration offering, the Kristal UF membrane is installed as a pre-filtration solution that is designed to remove all suspended solids from the water.

"Kristal is internationally recognised as having unparalleled performance in operational consistency and stability. Using reverse osmosis, the Kristal UF membrane is able to trap all suspended solids up to 0,01 microns in size, before the water is passed onto the next phase of filtration," he explains.

The Kristal UF membrane is available in modified polyethersulfone (PES) or polyvinylidene difluoride (PVDF) materials to ensure greater hydrophilicity and less fouling. It also features an asymmetric structure for higher flux, a sharp rejection profile for high permeate quality, and boasts an enhanced tolerance to cleaning chemicals to ensure a long service life and effective air-scouring.



Once the water has undergone the pre-filtration process, van Wyk indicates that it then goes through the AZUD range of filtration products, including; the Helix automatic disc filters, which are designed to achieve the most efficient and economic water filtration in numerous applications.

"With this technology, a helix generates a centrifugal effect, which moves the remaining particles in the water away from the discs. The filtered water is then introduced in the opposite direction through the filtering element structures, which decompresses the stacks of discs, thereby creating a back-flushing effect – whereby solids are expelled through the drain valve," he adds.

What's more, AZUD Luxon automatic screen filters continuously supply filtered water during the flushing cycle, as it flows through a pre-filter before reaching the screen, where the particles are retained and the filtered water is released through the outlet.

A hydraulic valve opens on the drainage outlet, activating the AZUD Flex Protect system, which generates a helical movement along the screen to vacuum the captured particles. The captured solids are then expelled through the drain valve.

In addition to ensuring greater environmental compliance and efficiency for heavy industries, I-CAT's unique water filtration solution can also benefit municipalities. "The reclaimed water can also be sent to municipalities, where it can be sufficiently treated for potable usage. In addition to saving water, this solution also speeds up the process of diverting the reclaimed water to wherever it is most needed," concludes van Wyk.

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