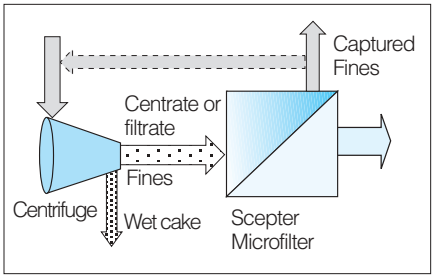
Scepter® Microfiltration for Fines Recovery

APPLICATION BULLETIN

AB-MS-101

Frequently centrifuges pass fines downstream in their centrate causing process losses and disposal problems. Filtering centrate with a Scepter Microfiltration system removes particulate down to 0.1-micron size allowing product capture and reuse or cost effective solids disposal.



Fines Recovery System

Scepter Microfiltration modules use a smooth titanium dioxide filter surface sintered to the inside diameter of porous stainless steel tubes to retain fine solids and pass liquids. Tubes are arranged in modules similar to heat exchanger designs. These rugged, all metal modules are mounted with alloy pumps, pipes, valves, and controls to form a reliable system.

Filtration Process

A typical continuous system takes centrate feed from a customer supplied buffer tank. The system pressurizes feed to greater than 100 psig, adjusts the temperature to the correct operating range (warmer is usually better) and injects it into a circulation loop that provides circulation cross-flow in the Scepter microfiltration tubes. Clear filtrate collected in module shells can be routed to other processes or to disposal. Concentrated material in the loop is released through a flow-regulating valve to be recovered or for disposal.

Above: Scepter system. Top left: Scepter filter modules are composed of porous stainless steel tubes with a patented, permanent TiO_2 coating sintered to the tube's inner surface. Inset shows magnified surface of tube coating at 20,000X.

In batch operations, concentrate returns to the feed tank, where it mixes with the incoming centrate to increase the feed tank concentration. When a critical feed tank concentration is reached, the tank contents are directed to recovery or disposal.

Process pressures, temperatures, and flow rates are typically controlled by on-board or remote mounted PLC or DCS controllers.