

Wine Filtration Solutions

Quality Filtration for High Yields and Excellent Product



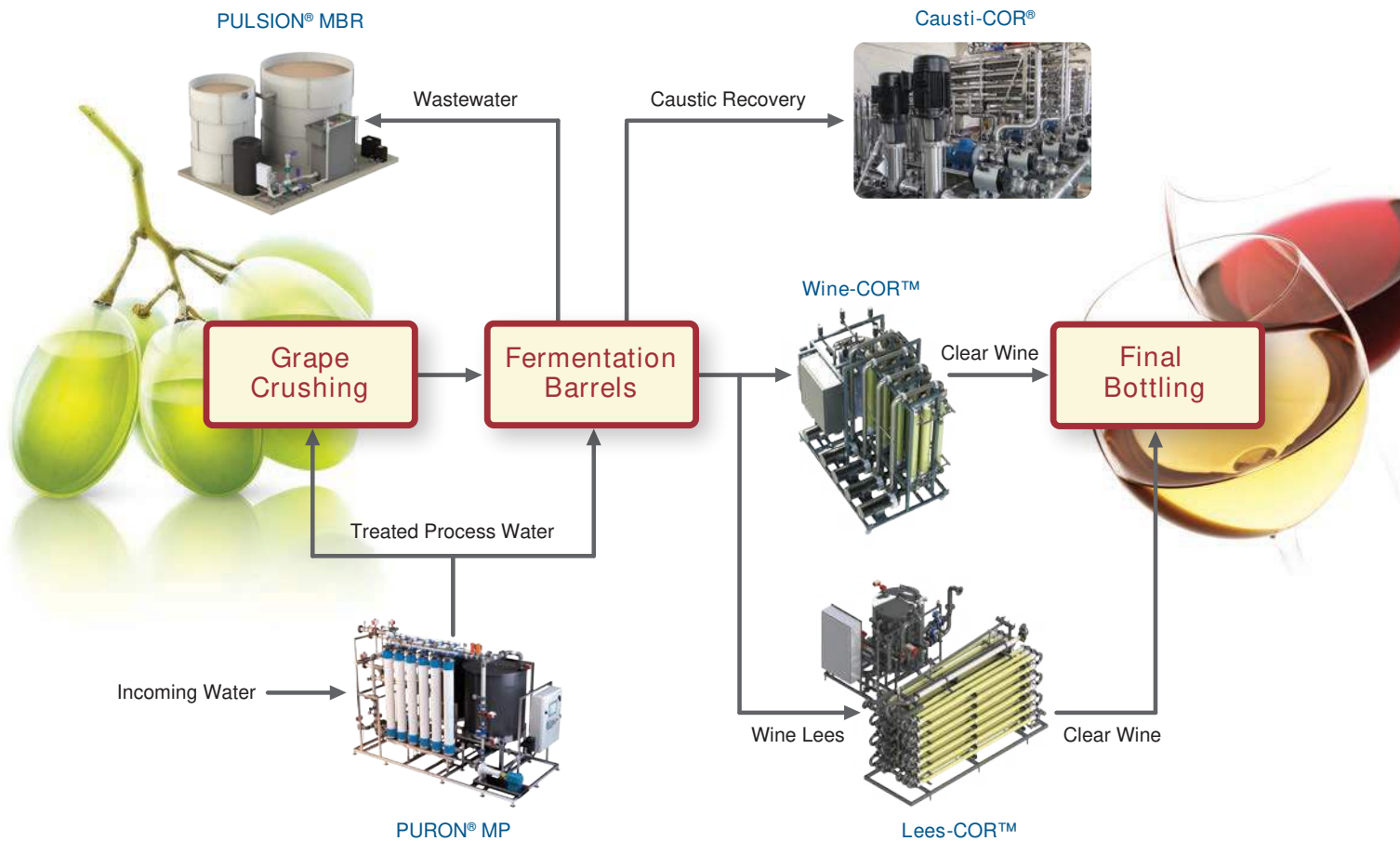
 **KOVALUS**
Separation Solutions™

The KSS Advantage

KOVALUS SEPARATION SOLUTIONS™ (KSS) is transforming the landscape of separations by leveraging a synergistic approach using technologies such as membrane filtration, ion exchange, evaporators, and dryers. Our solutions are tailored to improving product quality, increasing process efficiency, and driving down costs in dairy, food, beverage, life science, and industrial markets around the world.

Wine Filtration

As a complete solutions provider, we have applied our experience and expertise to develop state-of-the-art wine crossflow filtration cartridges and the Wine-COR™ system line. To extract even more value from the operation, we offer the unique Lees-COR™ system which utilizes wide channel tubular products to improve the efficiency and recovery of our customers' wine production line. KSS is a world leader in water and wastewater filtration solutions to meet demanding processing requirements. Our systems are energy efficient and promote sustainable operation to help meet stringent regulations.



Major Applications

WINEFILTER Microfiltration Cartridges

The WINEFILTER™ crossflow membrane was designed specifically for wine filtration. The asymmetric microfiltration (MF) membrane pore structure has been optimized to achieve maximum wine clarity while maintaining color, taste, aroma, and alcohol content.

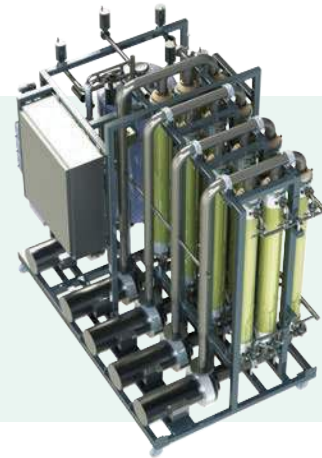
Our WINEFILTER cartridges utilize an optimized MF hollow fiber membrane that gently filters wine to remove sediments and particles and produce clear wine. The cartridges are available in a variety of dimensions to fit different system configurations. WINEFILTER cartridges are easy to install, easy to operate, and easy to clean. They provide a large membrane area of up to 185 ft² (17.2 m²) in our 6-inch diameter by 60-inch-long cartridge.



Wine-COR M-3 Base System



Wine-COR M Expansion Module



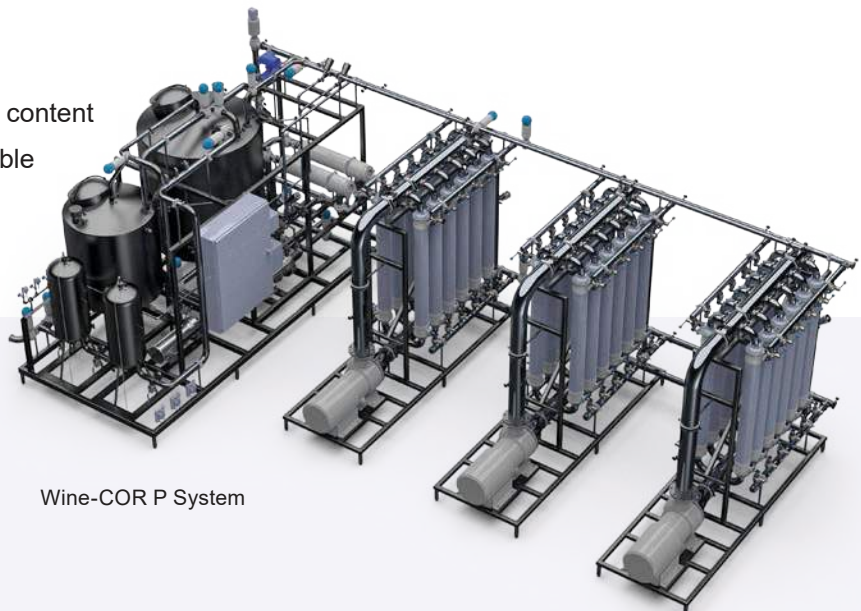
Wine-COR M-12

Wine Clarification

The Wine-COR™ crossflow MF systems are modular and scalable as filtration demand increases. The best-fit system depends on the size of the operation, and KSS offers two standard versions to accommodate small, medium, and large wineries. The Wine-COR M line is best suited for small to medium-sized wineries with filtration needs of 6 – 60 gallons per minute (gpm) or 1.4 – 14 m³/hr. For larger filtration needs, the Wine-COR P line offers large wine processors the most economical filtration solution. These crossflow filtration systems are designed to reduce the total cost of ownership with low energy consumption and sustained filtration runs.

Wine-COR Systems Benefits

- Maintain color, taste, aroma, and alcohol content
- Compact, mobile design, easily expandable
- High yield at over 95%
- Eliminates Diatomaceous Earth (DE)



Wine-COR P System

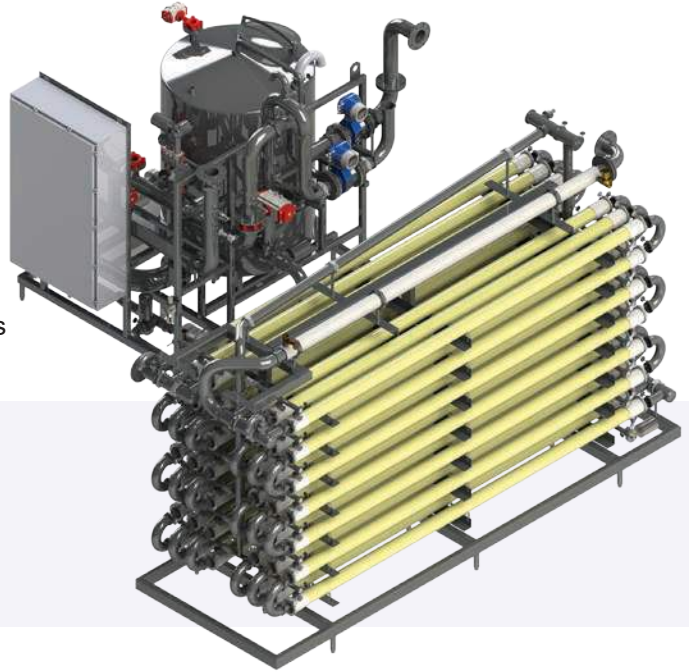
Major Applications

Lees Treatment

The Lees-COR™ system is built on our SUPER-G™ tubular membranes and is dedicated to the treatment of juice and post-fermentation lees. The SUPER-G membrane features a multi-tubular and wide-channel design with a high solids tolerance to squeeze the last drop of juice or wine to increase product yield. Lees-COR systems treat flow rates between 5 and 40 gpm (1 and 10 m³/hr). Including these lees filtration systems in the winemaking process maximizes wine yield and extracts the most value from the operation.

Lees-COR System Benefits

- Robust system design to maximize solids level
- Increased product yield
- Reduced system footprint
- Simple automated operation with safety features
- Eliminates Diatomaceous Earth (DE)
- Utilizes KSS' proven wide-channel tubular modules



White Wine Lees Filtration Comparison



Lees Permeate (End Product)



Feed



Lees Concentrate (Sludge)

Major Applications

Caustic Recovery

Our Causti-COR® systems offer a cost-effective, environmentally friendly way to recover expensive caustic solutions used to clean process equipment. Causti-COR systems utilize our patented SeIRO® nanofiltration (NF) membranes to recover up to 95% of caustic for reuse by removing low molecular weight organic and inorganic contaminants from spent caustic. Our systems are available in small batch design for treatment of streams ranging from 5,000 to 50,000 gallons per day (1 – 8 m³/hr) and in large, pre-engineered designs for larger flow rates.

Causti-COR System Benefits

- Fewer caustic and neutralization acid purchases
- Reduction in effluent volume going to waste treatment ponds
- Lower energy consumption



Winemaking Separation and Filtration Challenges

Partnering with KSS to tackle winemaking separation and filtration challenges allows customers access to one of the largest membrane portfolios in the world as well as unparalleled process expertise by our experienced and dedicated team of engineers. Our team proudly serves the wine industry, providing complete and integrated solutions to help solve our customers' unique processing challenges.

KSS is eager to become the preferred partner for our customers to address challenges including:

- Color concentration (reverse osmosis, nanofiltration, and ultrafiltration)
- Volatile acidity (VA) removal (RO/NF with Ion Exchange)
- Alcohol adjustment (RO coupled with other technologies)

Water & Wastewater Solutions

Process Water Treatment

KSS offers innovative hollow fiber ultrafiltration (UF) membrane technology to meet the highest water quality standards and regulations needed for a successful winemaking operation. Easily installed and serviced, the PURON® MP system is designed for longevity and performance. This water treatment system offers robust engineering and reliable operation at low cost of ownership and a small footprint.



The PURON MP product innovation starts at the membrane, featuring a strong, virtually unbreakable fiber with optimal pore size distribution which has awarded this membrane product drinking water certification for reliable bacteria and virus removal. Superior cartridge design, including efficient air scouring and single potting for improved solids management, offers small, medium, and large wineries a low maintenance, cost-effective, and reliable means of water treatment.

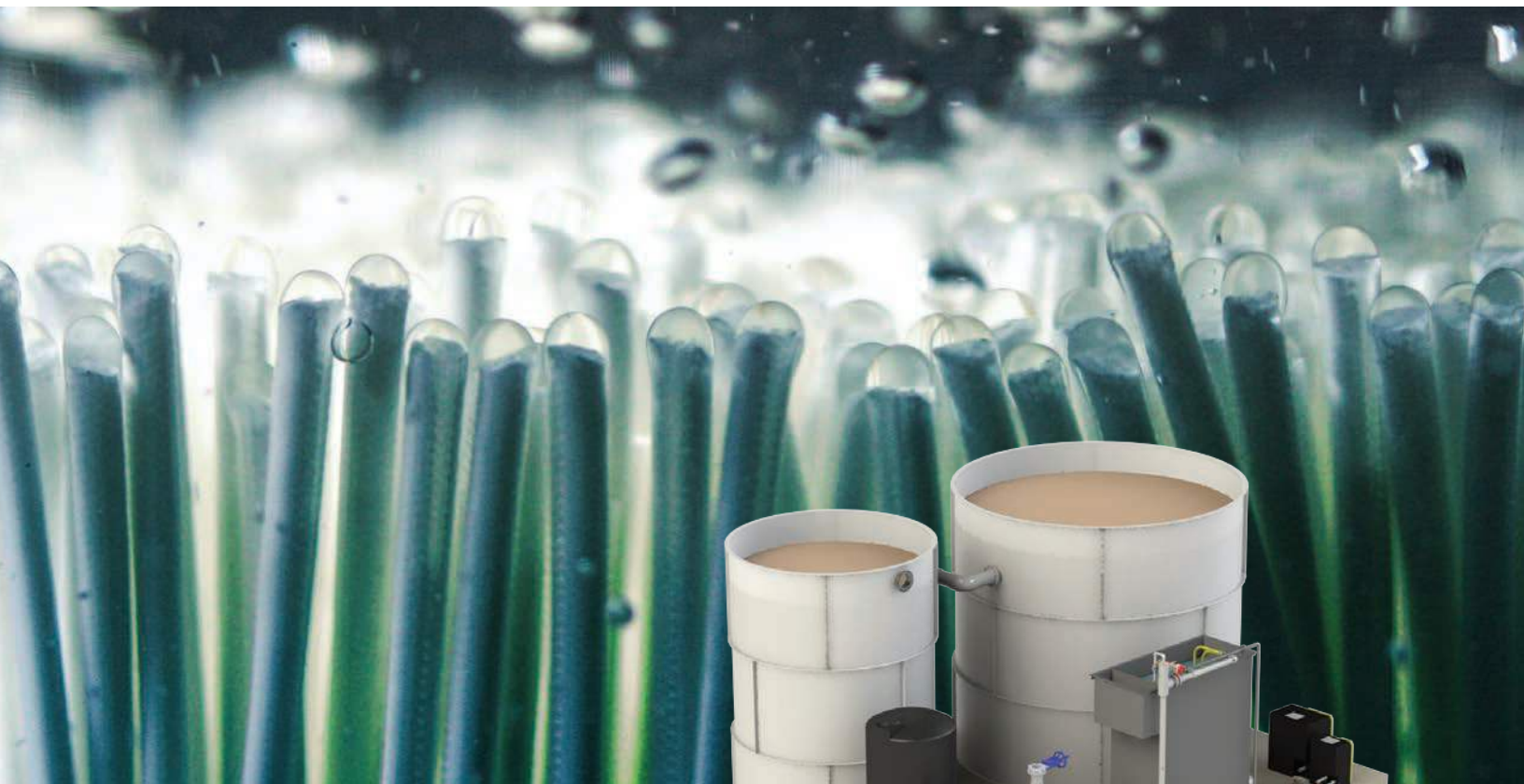
Our PURON MP systems are available in small, packaged plants that treat up to 200,000 gallons per day (32 m³/hr) and in larger pre-engineered skidded systems for greater demand.

Water & Wastewater Solutions

Wastewater Treatment

KSS offers the knowledge and expertise to provide a comprehensive solution to treat winery wastewater economically, comply with discharge limits, or treat the water for reuse.

Unlike retention ponds commonly used for winery wastewater treatment, and other conventional wastewater treatment technologies, MBR technology involves UF membranes which act as a physical barrier to solids and bacteria, producing high-quality effluent. MBR technology easily achieves a sustainable operation by allowing treated wastewater to be discharged for irrigation or reused within the operation.



PURON PLUS MBR System

Our PURON® PLUS MBR systems are available in small, packaged plants that treat up to 120,000 gallons per day (19 m³/hr) and in pre-engineered systems for larger flow rates.

Due to the membrane and module design and operation practices, the PURON PLUS MBR product has quickly become the technology of choice for companies looking to reduce energy, minimize downtime, and increase flux, all within a small footprint.

PURON PLUS MBR Benefits

- Produces lower organic content, color, and turbidity than retention ponds
- Small footprint
- Low maintenance, eliminates the need for residual management and pond sludging



KOVALUS SEPARATION SOLUTIONS

KOVALUS SEPARATION SOLUTIONS™ (KSS) is a global leader in separation technologies.

With best-in-class domain expertise, technologies and systems, KSS is uniquely positioned to help customers purify and recover valuable process streams and achieve sustainability goals across food and beverage, life science, and general industrial markets.

Services & Support

After-Sales Services & Maintenance Programs • SepTrac™ Smart System



www.kovalus.com • getinfo@kss-sep.com

KOVALUS
Separation Solutions™

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