



JUICE SOLUTIONS



PCI Membranes®
Filtration Group®



ABOUT US

For more than fifty years, PCI Membranes® (a Filtration Group® brand) has been manufacturing membranes and membrane systems.

We offer process solutions for a wide variety of filtration applications using microfiltration, ultrafiltration, nanofiltration, and reverse osmosis technologies. Our expertise includes leading polymeric crossflow membranes and membrane geometries available worldwide, enabling us to select the most suitable membrane for each application.

Our open-channel membranes have the advantage of resistance to blocking and fouling by suspended or precipitate matter, with consequent minimal pretreatment requirements and ease of cleaning. With our broad product portfolio, we select the most appropriate membrane type to suit each application, minimizing investment and running costs and maximizing our customer's benefits.

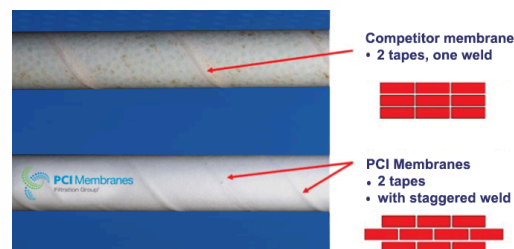
APPLICATIONS

Juice Clarification, Juice Concentration, Sugar Reduction

The PCI Membranes® Advantages

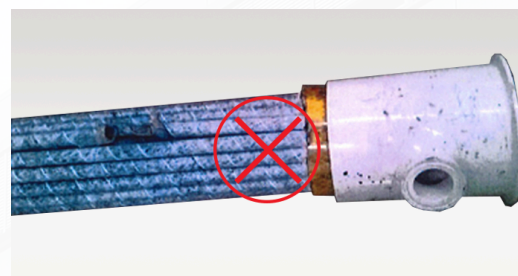
✓ ROBUST CONSTRUCTION

Our double-ply membrane tubes & SS AISI 316L housings allow operating temperatures up to 60°C and operating pressures up to 7 bar.



✓ DESIGNED TO PREVENT MEMBRANE TUBE FAILURE

Thanks to their robust construction, membrane tube failures caused by tube rupture are virtually eliminated. You will not encounter problems of membrane tube explosion, which can be an issue with other membrane manufacturers.



✓ TAILORED PVDF MEMBRANE TYPES FOR FRUIT/VEGETABLE JUICES

- Light-colored juices: FPA10/FPS10/FPU10 (100 kDa MWCO) and FPA20/FPS20/FPU20 (200 kDa MWCO)
- Pink-colored juices: LPA450/LPS450/LPU450 (450 kDa MWCO)
- Dark-colored juices: LMA02/LMS02/LMU02 (0.2 µm pore size)



✓ SIGNIFICANT COST SAVINGS

PCI Membranes®' K19 Series operates at pressures of up to 7 bar, **enabling 90–95% product recovery** (depending on feed solids content). Higher operating pressures increase juice yield, allowing processors to recover more valuable product from every batch while reducing raw material losses and improving overall profitability.

The A19 and A37 Series feature an innovative removable core design that enables fast and straightforward membrane replacement. During maintenance, only the membrane core is replaced rather than the complete module, significantly reducing maintenance costs, downtime, and waste.

For processors upgrading from the A19, the K19 Series provides a cost-effective transition by delivering enhanced filtration performance without requiring major capital investment, helping maximize existing assets while improving operational efficiency.



APPLICATIONS



PCI Membranes® A19, A37, and K19 tubular membranes are designed for efficient ultrafiltration (UF) and microfiltration (MF) in juice clarification. They remove pulp, colloidal haze particles, microorganisms, and unwanted proteins to produce crystal-clear juice without the need for diatomaceous earth (DE) filtration aids.

The A19 and A37 Series incorporate robust stainless steel housings with replaceable membrane cores containing 19 or 37 tubular membranes. The K19 Series provides the same efficient clarification performance in a transparent plastic housing without requiring membrane core replacement.

The open-channel design enables reliable processing of liquids with high suspended solids while minimizing plugging and supporting highly effective cleaning-in-place (CIP). Manufactured from FDA CFR 21 and EU compliant materials, the modules operate at pressures of up to 7 bar. The replaceable core design (A19 and A37 Series) enables fast, straightforward, and cost-effective remembraning.

CLARIFICATION

Designed for efficient fruit juice clarification, PCI Membranes® tubular membrane systems remove suspended solids, microorganisms, colloidal haze particles, and other undesirable compounds while preserving the natural flavor, color, and nutritional characteristics of the juice.

The result is consistently high product quality, increased juice recovery, reduced maintenance requirements, and improved process economics.

For light-colored juices, FPA10, FPS10, and FPU10, as well as FPA20, FPS20, and FPU20, provide high membrane area with minimal pressure drop while preserving the organoleptic characteristics of the juice. For pink-colored juices, LPA450, LPS450, and LPU450 offer a versatile solution across multiple pink juice types. For dark-colored fruit juices, LMA02, LMS02, and LMU02 are the recommended membrane options.

Key Benefits

- Higher product yield with up to 90–95% juice recovery.
- Reduced operating costs through removable core technology.
- Simplified maintenance with fast membrane replacement.
- Tailored membrane selection for a wide range of fruit juices.
- Reliable industrial performance with operating pressures up to 7 bar.

CONCENTRATION

For fruit juice concentration, PCI Membranes® membrane systems provide an energy-efficient pre-concentration step prior to evaporation. By removing water before thermal processing, the technology helps preserve the juice's natural aroma, flavor, and color while reducing energy consumption.

The process lowers operating costs, simplifies cleaning and maintenance, and supports consistent product quality.

APPLICATIONS



SUGAR REDUCTION

PCI Membranes®, in partnership with BlueTree Technologies, offers an innovative membrane-based sugar reduction platform that enables manufacturers to naturally reduce the sugar content of fruit juices while preserving the characteristics that consumers value most. Unlike conventional approaches that rely on additives, enzymatic conversion, or recipe reformulation, this advanced process physically separates naturally occurring sugar molecules from the juice, maintaining its original identity and clean-label appeal.

The technology can achieve up to 50% sugar reduction in fruit juices while preserving the juice's natural flavor, aroma, color, clarity, and overall sensory profile. Because no chemicals or additives are introduced during processing, manufacturers can continue to deliver high-quality products that meet evolving consumer expectations for natural ingredients and transparency.

Beyond product quality, membrane-based sugar reduction provides significant commercial advantages. Lower sugar content can help manufacturers meet changing nutritional guidelines, reduce exposure to sugar taxation in many markets, expand reduced-sugar product portfolios, and strengthen their competitive position in an increasingly health-conscious beverage industry.

Designed for seamless integration into existing production lines, the PCI Membranes® sugar reduction solution combines proven membrane filtration expertise with an industrially scalable process. The compact system offers efficient operation, straightforward maintenance, and reliable performance, making it an ideal solution for beverage producers seeking to innovate without compromising production efficiency.

Key Benefits

- Up to 50% sugar reduction in juice
- Up to 75% sugar reduction in milk
- No additives, chemicals, or enzymatic modification
- Preserve authentic taste, aroma, colour, clarity, and sensory profile
- Maintain clean-label product positioning
- Support compliance with evolving regulations and sugar reduction initiatives
- Minimize sugar tax exposure in applicable markets
- Easily integrate into existing processing lines with a compact, scalable solution

Products

A19

The A19 Series module is characterized by its removable core design (RCM), which permits simple, rapid, and inexpensive membrane replacement, minimizing system downtime. The open channel design enables the processing of liquids with high levels of suspended solids without plugging and facilitates highly effective cleaning-in-place (CIP) interventions. In each membrane core, 19 membrane tubes are potted with epoxy resin. The core is then fitted in the stainless-steel housing with fixing pins, O-rings and end seals. Thanks to the availability of multiple membrane selectivities, this product is suitable for juice clarification, F&B, chemical, pharmaceutical and wastewater treatment applications.



A37

The A37 tubular UF system incorporates a robust, low-cost module in stainless steel or plastic, together with a choice of tubular membranes in various materials. The removable core design (RCM) permits simple, rapid, and inexpensive membrane replacement. The modules are 3.66m in length, housing 37 membranes, 12.5mm in diameter, cast in epoxy resin at each end. The shorter length is designed for retrofitting to non-PCI systems. To ensure system integrity, permeate sampling from individual modules is available. Manufactured with materials approved by the FDA, CFR21 and EU regulations. The open channel design processes liquids with high levels of suspended solids without plugging and facilitates highly effective cleaning in place. The compact design gives the module a high strength allowing operating pressures of 7 bar. PCI's unique in-situ replaceable core enables fast, easy and cost effective remembraning.



K19

Designed for efficiency and reliability, the K19 Series delivers up to 90–95% product recovery, operates at pressures up to 7 bar, and offers robust, field-proven performance. Its FDA, CFR 21, and EU regulatory compliance, combined with a single-use design for simplified maintenance and an integrated flow visibility window, helps ensure safer and more efficient operations. Built around PCI's tubular membrane technology, the K19 is engineered for effective clarification across a broad range of juice types. The modules feature transparent housings to accommodate both new and existing industrial setups. Multiple pore size options enable tailored filtration, removing turbidity and larger particles while preserving color, flavor, and aroma. The K19 housing makes it ideal for juices such as orange, apple, grape, cranberry, berries, carrot, açai, and other exotic varieties.



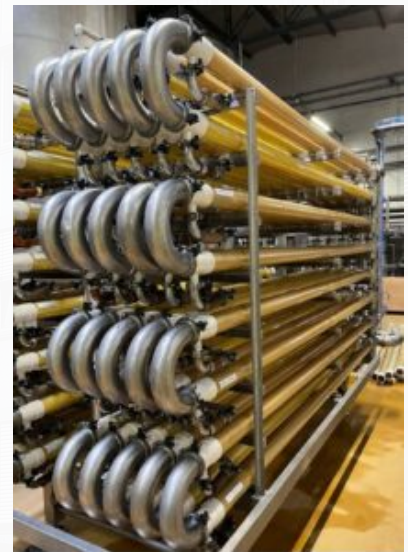
REFERENCES



CUSTOMER REFERENCE – DÖHLER

Döhler, a global producer of natural ingredients, ingredient systems, and integrated solutions for the food and beverage industry, evaluated PCI Membranes® K19 tubular membrane modules with BPA-free housings during a one-year juice clarification trial. The K19 modules were installed alongside competitor products to assess performance, durability, and operational reliability.

Throughout the trial, the K19 modules delivered reliable operation with no reported module failures. Plant operators highlighted the exceptional mechanical robustness of the modules, describing them as "virtually indestructible" compared with alternative products previously used. Following the successful evaluation, Döhler confirmed its intention to purchase additional K19 modules during the next membrane replacement cycle and expressed interest in recommending the technology across other Döhler production sites worldwide.





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Ready to optimize your juice processing?
Contact us through the link below to discuss your application with our membrane filtration experts:
www.pcimembranes.com/contactus/

