

PARTNER IN STAINLESS STEEL

KHTEC®

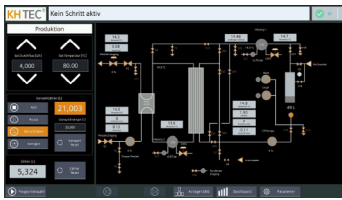


Innovative | Efficient | Gentle on Products

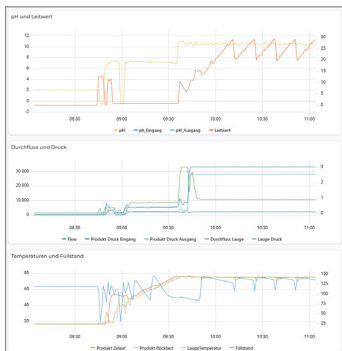
SO₂ Membrane System

The gentle way to remove SO₂ from juice and grape must.

CHARACTERISTICS



Intuitive Operation via Siemens



Trend Recording and Data Logging

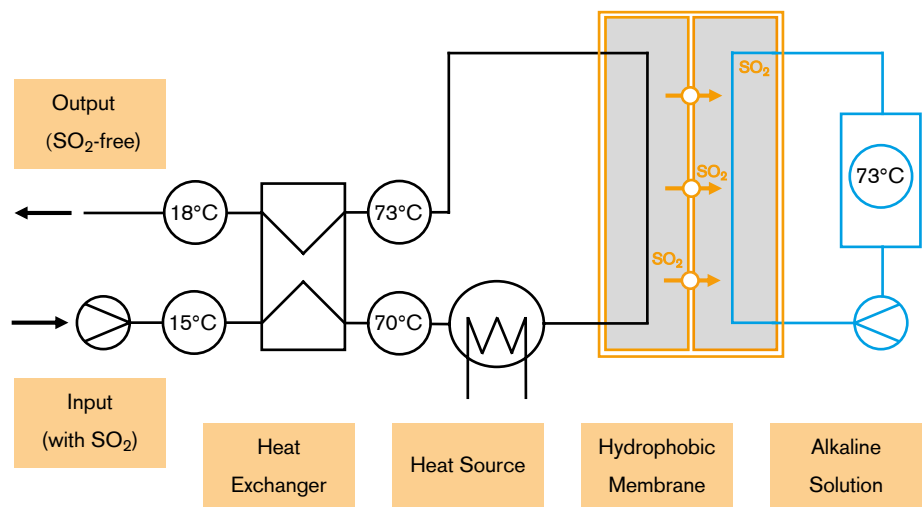
The innovative SO₂ Membrane System by KH process TEC GmbH utilizes a purely physical method based on membrane technology to remove SO₂ from juice and sweet reserves. During the production process, the juice is heated to 60-80°C, causing the SO₂ to evaporate and then bind to an alkaline rinsing solution. The SO₂ diffuses through a hydrophobic membrane, which separates the juice from the rinsing solution. In the alkaline solution, the transferred SO₂ is irreversibly bound as a salt of sulfurous acid.

For heating the juice, customers can choose between an electric or steam-based heating system, depending on their requirements. To ensure energy efficiency, a plate heat exchanger is integrated, enabling energy recovery from the process. This reduces energy consumption by approximately 80% compared to conventional column desulfurization systems. Unlike traditional desulfurization methods, where the juice is first evaporated and then condensed, this complex step is entirely eliminated in the membrane process.

The control of the alkaline rinsing solution is managed via integrated sensors, ensuring automated regulation. The entire process, including cleaning, operates fully automatically, guaranteeing high operational safety and minimal maintenance requirements.

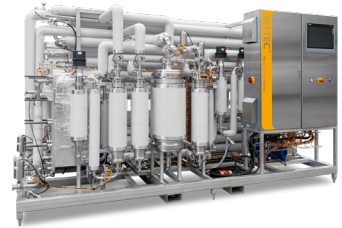
The SO₂ Membrane System thus offers a resource-saving and energy-efficient solution for removing SO₂ from juices and sweet reserves. It is characterized by significantly reduced energy consumption and lower technological complexity.

PRINCIPLE OF DESULFURIZATION WITH MEMBRANES



SIZES AND SPECIFICATIONS

Type SO ₂ Membrane System	L x W x H	Membranes
1000 L/h	4000 x 1200 x 2500 mm	3 x 20m ² & 1 x 140m ²
2000 L/h	4000 x 1500 x 2500 mm	3 x 140m ²
3000 L/h	4500 x 1500 x 2500 mm	4 x 140m ²
3000 L/h with buffer tank	5000 x 2000 x 2500 mm	4 x 140m ²



Type 1000 L/h

ADDITIONAL INFORMATION

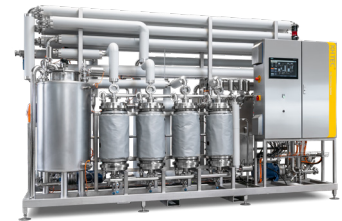
The heating options of the SO₂ Membrane System provide maximum flexibility: the system can be heated either by steam or electrically, based on the customer's preference. An innovative, integrated control system allows the user to intuitively set all process parameters and start operations quickly and efficiently. Additionally, the system supports remote control and monitoring through an app, accessible via smartphones, tablets, or PCs.

To optimize the process, the system offers detailed trend recording of key parameters. This feature is included as standard and simplifies the evaluation and documentation of operational data. Automatic dosing of caustic soda and acid ensures maximum safety for the operator, while the simple integration and expandability of the system allow adaptation to future production requirements.

A unique feature of the system is the optional extension for partial alcohol reduction in wine. However, this function should be considered during the system's planning phase, as it requires specific structural adaptations and compliance with customs regulations within the European Union.



Type 2000 L/h



Type 3000 L/h



Type 3000 L/h with buffer tank



Award-Winning Innovation:
At the INTERVITIS INTERFRUCTA
HORTITECHNICA 2018 the SO₂
Membrane System was awarded
the „Innovation in GOLD“ award.

Key Features of the SO₂ Membrane System

- Gentle desulfurization at low temperatures to preserve the quality of juices.
- High process reliability through automation for efficient and reliable operation.
- Automatic, resource-optimized dosing of caustic soda and acid, reducing operational costs and ensuring efficient resource usage.
- Pre-select counters for precise quantity measurement, minimizing operator intervention and eliminating the need for continuous monitoring.
- Automatic cleaning after reaching the target quantity, extending operational uptime and simplifying maintenance.
- Continuous operation for over 10 hours, enabling high production capacity and minimizing downtime.
- Remote control and monitoring via app, computers or mobile devices, ensuring maximum flexibility and convenient operation.
- Maximum operator safety through fully automated dosing of caustic soda and acid.
- Customizable system size to meet specific customer requirements.
- Expandable for alcohol reduction in wine, offering additional applications and flexibility.
- Energy-saving design through efficient process management and the use of heat exchangers for energy recovery and utilization.
- Flexible heating options, either steam or electric, for optimal adaptation to operational conditions.

These features highlight the versatility and efficiency of the SO₂ Membrane System, offering users a safe, flexible, and product-friendly solution for desulfurization and other applications in the beverage industry.

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