B&P Engineering

ADSORBER ADS XL

STABILIZATION AND JUICE CONDITIONING

ADS XL adsorber for the production of juice

and concentrates to meet the highest requirements

in terms of stability and juice color.

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Application

ADS XL Adsorber is used in the production of juices and concentrates that require the highest quality in terms of stability and color. Ultrafiltration does not provide color standardization and depending on the raw material used, also may not meet all tests for long-term stability of juices and concentrates. The goal of all currently used methods of ensuring quality of ultrafiltered juices is to reduce or even completely eliminate color components and potential turbidity factors without compromising product quality. The turbidity effect of fruit juices is due to polymerized tannins and proteins. Most proteins are eliminated by ultrafiltration. Adsorption resins beds are an ideal solution to reduce the amount of tannins.

Features

The adsorber allows working in series or in parallel, depending on the desired performance and end product parameters. In order to sustain continuous production process, two columns are in operation mode while the third one is being regenerated. After the regeneration process is completed, the regenerated column joins the production cycle and one of the working columns enters into regeneration mode. The regeneration process starts every 6-8 hours on average – depending on the quality of the juice and the desired output parameters. Concentrated sodium hydroxide and acid are diluted to the desired working concentration. The concentrated chemicals are pumped from an external source into the tanks located in the Adsorber. Soda lye effectively removes components adsorbed by ion exchangers. The acid reduces the amount of water required to flush out the Na ions. While the Adsorber is idle for a long time, the columns fill with 2% sodium hydroxide solution. Before starting new production, the ion bed is being rinsed.

Technical data

Capacity	l/h	5 000 - 30 000 (Brix 15-20)
Deposit volume	L	do 12 000
Temperature range	°C	45-55
Working pressure	Bar	to 3
Power supply	-	3x400, 50Hz: 25kW
Materials in contact with the product	-	316L
PLC	-	Siemens Simatic S7

Advantages

- the modular structure of the adsorber allows for optimal space management at the customer's site
- the use of mix-proof valves enables parallel production and regeneration of the adsorption bed while maintaining maximum product safety
- Intelligent algorithm controlling the closed cycle of the regeneration medium guarantees high savings and minimizes the negative impact on the environment
- full archiving of production and regeneration cycles

Construction

The device is built as a skid system. The adsorber is operated automatically by the built-in SIMATIC ET 200SP CPU 1512SP-1 controller. All electrical and pneumatic controls are installed in the control cabinet. The station is operated by a touch panel installed on the control cabinet.

All functional components mounted on a steel frame include:

- three adsorption columns
- recycled lye tank, concentrated lye tank, valves
- sensors and piping
- electrical cabinet with a control and visualization system
- a chemical dosing system and the necessary valve and measuring fittings