

Processes

Naturex stabilizes its blue colorant by osmotic concentration

Maria Guillon | 16 March 2015



Naturex has chosen EDERNA's "**evapeos**" process, manufactured by TIA, to optimize the long term stability of its blue colorant.
© BigDreamStudio – Fotolia.com

TIA, the specialist in industrial filtration, has established a partnership with the Toulouse start-up EDERNA in order to develop and market a new osmotic concentration process. EDERNA has patented the composition of the osmotic agent and the membrane. TIA has incorporated the technology into a machine and industrialized the system.

Naturex, the leader in natural vegetable extracts, has taken advantage of this advanced technology that has enabled it to perfect the long term stabilization of its blue colorant. "This is an industrial first," underlines Fabrice Gascons Viladomat, creator of the process, because until now we did not have the necessary membranes available."

The process enables the concentration a product to be increased after reverse osmosis and before spray drying with substantial savings in energy, while preserving the product. "Reverse osmosis can attain concentration up to 20% of soluble solids, whereas our process achieves up to 60 to 65% of soluble solids without using vacuum or heat," explains the entrepreneurial engineer. "As spray drying consumes around 2000 kW per tonne of water evaporated, the savings in the process are immediate."



The **evapeos** process enables high concentrations to be achieved after reverse osmosis and before spray drying with substantial energy savings, while preserving the product.

The operating principle of the process is relatively simple: the product to be concentrated is circulated on one side of the membrane, while the osmotic agent – a solution with a very osmotic pressure – is situated on the other side. The osmotic pressure difference across the membrane leads to a transfer of water from the product to the osmotic agent. The liquid is circulated until the required concentration is reached. The osmotic agent is continuously regenerated by mechanical vapor recovery (MVR).

Product preservation and energy savings

The process called “**evapeos**” allows elevated levels of concentration to be achieved without heating, at temperatures between 5 and 45°C, and without recourse to vacuum. It operates at pressures below 5 bars and these are practically identical on both sides of the membrane. Depending upon the application, the economies of energy are between 40% and 98% compared to other concentration technologies.

Production of soluble coffee, freeze-dried proteins, alcohol removal... The possibilities are endless... For example, the process enables heat-sensitive fruit juices such as that of melon to be processed while preserving the color and the antioxidants.

This article has been translated from [the original French article](#) by [EDERNA](#).