Curing and marinating – GEA is offering a new system for brine filtration

Injecting marinade into poultry, meat or fish not only extends the products' shelf lives but also improves their taste, colour, juiciness and consistency and ensures a consistent yield for producers. Two factors are especially crucial to achieving all of this: precise distribution of the brine and its subsequent storage. To accomplish this, GEA has developed the ScreenFilter, a brine filtration system that optimises the injection process.

The new ScreenFilter with the MultiJector from GEA. (Photo: © GEA)

Seamlessly reusing brine

In its classic form, brine is a highly concentrated solution of salt and other functional or seasoning ingredients in water. In industrial curing and marinating, it is injected into meat, poultry or seafood during the injection cycle. Surplus brine is collected, filtered and reused. During this process, it is crucial that the proteins from the meat are not activated when filtering the brine. To ensure this, fat and gelatinous particles that would otherwise clog the needles during the injection process are filtered out.

Clogged needles resulting from poor filtration cause production interruptions due to additional cleaning requirements and therefore impair efficiency. The shelf life of the cured products is additionally extended by treating them with brine. However, clogged needles can lead to inconsistent or incorrect distribution of the brine and therefore pose a risk to the shelf life, quality and safety of the food product.

Experts for industrial brine injection

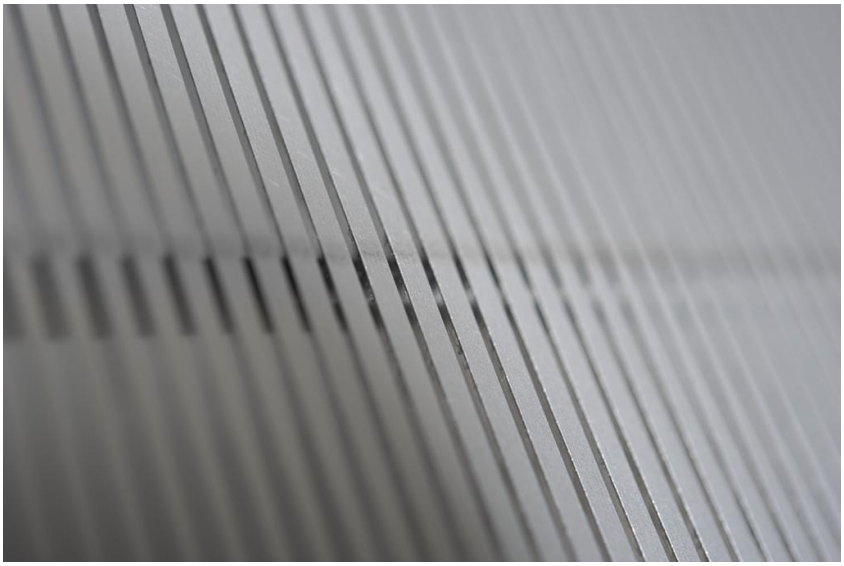
With some 50 years of experience, the GEA experts in Bakel, the Netherlands, are amongst the pioneers of industrial brine injection. Their portfolio includes filters that are constantly being adapted to users' requirements. The most recent innovation, the ScreenFilter, is an in-house development that exploits the principles of passive filtration and gravity. In comparison with conventional systems, the filter enables faster machine set-up and significantly reduces the time required for cleaning work.

"The system has been developed specifically for the passive filtration of low-viscosity brines and prevents the activation of proteins during filtration", explains Willem Prinssen. The GEA product manager recommends rotary filters for applications that require higher-viscosity brine. If, for example, "the viscosity is increased due to the addition of thickening agents, fibres or proteins."

Only a very few parts of the filter itself have to be cleaned. The photo shows the filter in its cleaning position. (Photo: © GEA)

Less susceptible to damage

Due to gravity, the brine runs downwards along the filter deck. The filter is self-cleaning and therefore discharges any impurities. Only a very few parts of the filter itself have to be cleaned, thus saving time and reducing the susceptibility to damage that could otherwise occur due to constant removal and installation. This design is characterised by the fact that the filter element does not rotate and the filtrate does not have to be continuously removed from the surface of the filter element.



The filter deck of the ScreenFilter is easily accessible. (Photo: © GEA)

Passive filtration shortens the cleaning time

The filter deck of the ScreenFilter is easily accessible and can be cleaned or exchanged during operation, meaning that the cleaning time is shortened accordingly. In comparison with active systems, the passive filtration process produces less foam, which benefits the injection stability. Due to the special design of the filter container, less brine is required for the process and, consequently, less brine is wasted.

The new system can be seamlessly integrated into the line along with the MultiJector from GEA, operates with a dense injection pattern and enables high precision. The SuperChill brine cooler keeps the temperature of the brine constant while the MultiShaker removes surplus brine, closes needle puncture sites and activates proteins. This minimises standard deviations during production and leads to increased quality, yield and profits.

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