DRY TECHNOLOGIES FOR CLOSURE STERILIZATION

Range of sustainable Vaporized Hydrogen Peroxide (VHP) based sterilization solutions for caps and foil.

GEA Engineering for a better world.

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Quality up to the final mile.

VHP-based sterilization technologies for closures.

In the aseptic process, cap sterilization is just as important as container sterilization, as caps also come in contact with the beverage. Caps must be sterilized before capping to reduce the risk of microbiological contamination and to ensure product safety, by preventing alterations to the beverage's desired properties, including taste, smell or appearance. Likewise, sterilization ensures the product maintains its shelf life.

To allow customers achieve this goal, GEA offers both H2O2-based sterilization technologies for caps and aluminum foil seals. This includes Sterilcap units for both sport and flat plastic caps, and Sterilfoil units for aluminum foil.
Both Sterilcap and Sterilfoil can be combined with all GEA aseptic or ESL filling systems for both High Acid and Low Acid beverages in PET or HDPE bottles.

STERILCAP VHP R

Rotary sterilization unit for both sport and flat caps, designed with buffer capability for optimized efficiency and optimized TCO.

Sterilcap VHP R is a caps sterilizer based on a decontamination effect of H2O2 in vapor form at the required concentration and temperature, where the treatment process duration allows to guarantee up to 6 log reductions. The design of the chutes inside the module ensures that all the cap surfaces are properly exposed to prevent any shadowed area.
Sterilcap VHP R is located on the top of the filler in order to feed the capper by gravity and has a very compact layout. Decontamination parameters guarantee a gentle treatment without removing the caps slipping agent.
Since GEA Sterilcap VHP R is based on a dry sterilization technology, it does not require any water consumption. Sterilcap VHP R is also capable to treat both sport and flat caps in the same unit, moreover it is able to perform a fast changeover without losing sterility.
The system represents the perfect cap sterilization solution to be coupled with the GEA dry sterilization platforms GEA ABF, GEA DBF and GEA Whitebloc, in order to allow the usage of one single chemical sterilizing media. It also can be coupled with any other GEA aseptic filling solution.
In addition to an excellent sterilization performance, the Sterilcap VHP is designed to create a buffer of caps to guarantee the necessary accumulation required by a blow fill solution: in case of cap jamming on the sorting chute, the number of caps inside the unit allows the aseptic blow filling bloc to be emptied without any loss of preforms or bottles.
In the event of production interruption, the gentle treatment based on low temperature and low chemical concentration allows to maintain the caps inside the module without needing to discharge the caps which can be used as soon as the production starts again.

Sterilization performed by step-by-step movement.
Long treatment time allows very low concentration and temperature preventing any cap deformation.

STERILCAP VHP R

Features

Suitable for both flat and sport caps.

Up to 6 Log on *B.atrophaeus* for aseptic HA and LA applications.

No water consumption.

No condensation and risk of residue for total product safety.

Decontamination and buffer phases integrated in one unit.

Configuration

Compact layout.

Integrated H2O2 sterilizing solution preparation and dosing allowing stand alone configuration.

Possible retrofit on PAA wet aseptic line for dry solution and sport caps handling.

Caps handling

Sport and flat caps automatic changeover without losing sterility and with no need for mechanical intervention.

Gentle treatment which avoids slipping agent removal.

VHP treatment

Sterilizing volume physically isolated.

Effective VHP treatment with an **all over uniform H2O2 concentration and distribution**.

Long treatment time allows very low concentration and temperature ensuring complete and constant control on dimensional deformation of caps without overheating and overstressing the caps and no need of additional rinsing for cooling.

STERILCAP VHP L

Robust but gentle decontamination treatment for aseptic and ESL applications.

Specifically designed for both aseptic and ESL applications, the GEA Sterilcap VHP L is a H2O2-based dry sterilization module offering a wide range of decontamination target levels to meet a variety of shelf-life requirements.
Despite being a robust decontamination treatment, the GEA Sterilcap VHP L is a gentle technology. The caps are handled using only the VHP flow and the slope of the sterilization chute, avoiding any deformation of the cap shape.
No water consumption is required during production making it suitable for sustainable solutions in the sensitive beverages market.
The GEA Sterilcap VHP L is a compact solution which can handle both flat and sport caps without requiring any format changeover optimizing the productivity of the line, and can be retrofitted to existing plants.

Sterilizing chute.
The compact and easy accessible sterilizing chute allows homogeneous internal and external decontamination process.

VHP mixture preparation unit.
The H2O2 sterilizing solution preparation and dosing unit integrated in the sterilizing module allows the standalone configuration.

STERILCAP VHP L

Features

Both flat and sport caps can be treated.

Up to 6 Log on *B.atrophaeus* for aseptic HA and LA applications.

No water consumption.

No condensation and risk of residue for total product safety.

Easy process due to few critical parameters.

Caps handling

No mechanical devices for feeding the caps, which are gently moved thanks to the slope of the chute (compact and easily accessible through a window) and the thrust of the VHP.

Gentle treatment at low temperature and low concentration which avoids slipping agent removal and cap deformation or distortion.

Configuration

Compact layout.

Integrated H2O2 sterilizing solution preparation and dosing allowing stand alone configuration.

Possible retrofit on PAA wet aseptic line for dry solution and sport caps handling.

VHP treatment

VHP low temperature for caps treatment.

No caps rinsing needed: VHP flowrate combined with air flow allows to evaporate H2O2 before capping.

No caps loss during production stand-by thanks to sterilizer internal low temperature: in case of production interruption, VHP flow is by-passed and deviated to a second parallel circuit with no overexposure of VHP for caps.

STERILFOIL VHP

Unique module for H2O2 sterilization of aluminum foils.

The Sterilfoil VHP L provides customers with a safe and hygienic sealing system for HDPE and PET containers. Sterilfoil is a simple, linear system mounted on top of the capping area and integrated within the microbiological isolation area of the machine.
The system uses vaporized hydrogen peroxide (VHP) technology to provide a highly effective microbiological sterilization solution for aluminum foil closures.
A compact sterilization chute allows simultaneous internal and external foil decontamination. The foils are pushed forward in a pressurized VHP flow guided through shaped rails to reach the induction heads turret located in the filler sterile isolator.
The Sterilfoil VHP L is combined with a rotary sealing turret designed by GEA and integrated inside the microbiological isolation area.

Highly effective microbiological sterilization.
Compact decontamination chute for combined internal/external treatment of aluminum foils.

Versatile solution for HDPE/PET bottles applications.
Foil infeed system and GEA patented induction sealing turret of GEA aseptic sterile solution.

STERILFOIL VHP

Features

Up to 6 Log on *B.atrophaeus*.

Flexible treatment for aseptic high acid and low acid application.

No water consumption.

Highly effective microbiological decontamination.

VHP treatment

Compact sterilization chute for internal and external decontamination.

Pressurized VHP is used to push forward foil lids and sterilize them at the same time.

Sterilization chute is heated up to maximize temperature uniformity and to avoid H2O2 condensation along the surfaces and on transition areas.

Configuration

Compact layout.

Integrated H2O2 sterilizing solution preparation and dosing.

Positioned on top of the capping area and integrated within the microbiological isolation area of the equipment.

Combined with a rotary sealing turret designed by GEA and integrated inside the filler microbiological isolation area.

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Mod. 797. EN 03/2023