



CLEAN PACKAGING STERILIZATION FOR CLEAN LABELLED PRODUCTS

Pulsed light

IMPROVE LINE-EFFICIENCY

- Compact
- Instant treatment
- High speed
- Efficiency

RESPECT PACKAGING INTEGRITY & PRODUCT QUALITY

- No chemical - sustainability
- No residue
- No neo-formed product

Silgan innovative closures with Pulsed light sterilization: Product safety, line efficiency & sustainability

- **Silgan closures**, as a leading global supplier of an extensive range of closures, designs innovative, easy-to-open and tamper-evident closures providing reliable performance.
- **Claranor Pulsed light** fits perfectly to the Silgan closures and allows significant cost savings.

▶ On ESL:

Savings : 25 K\$/year Pulsed light vs PAA treatment (Business Case: Vilsa - Germany / 40 Mio cap/year)

▶ On Hot-fill (up to 185°F)

Simplification of the production line & microbiological efficiency.

The Pulsed Light Sterilization is an instant treatment. The unit is directly integrated on the cap chute & ensures 3 log reduction on thermo-resistant germs. It avoids the bottle tilting step for sterilization and allows the use of a lighter PET bottle & closure sterilization.

SILGAN & CLARANOR

*Packaging & sterilization process working hand in hand:
the better match to protect your product!*



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PULSED LIGHT DECONTAMINATION OF SILGAN CLOSURES FOR HOT FILL & ESL 120 DAYS



High product safety & line efficiency

SILGAN CLOSURES

SILGAN VSI 38 mm - PP Closure



Benefits

- Patented drop down tamper evident safety band
- Multi-lead thread
- Steam or no steam application
- Molded in plug seal liner

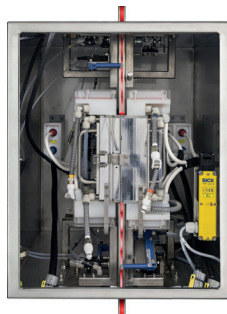


SILGAN GLA 38 mm - HDPE Closure



Benefits

- Patented drop down tamper evident safety band
- Effortlessly resealable
- Three-point seal design
- Inner plug seal



CLARANOR PULSED LIGHT STERILIZATION

Microbiological test objective: Validate the efficiency of a Claranor flash lamp system regarding the decontamination of Silgan closures

Test modality

Aspergillus brasiliensis in multi-dots deposition - VDMA code of practice
Distance reflector cap : 2 mm

Pulsed light sterilization treatment for Hot fill & ESL 60 days

Surface of the cap to decontaminate: **internal surface**
Claranor equipment: Standard Cap unit 2 lamps reflector



Results	Internal surface
PL Treatment	Mean log reduction
1 Flash	4.0
2 Flashes	> 4.5

Pulsed light sterilization treatment for ESL 120 days

Surface of the cap to decontaminate: **internal & external surface**
Claranor equipment: Puls'Full Cap unit 2 x 2 lamps reflector



Results	Internal surface	External surface
PL Treatment	Mean log reduction	Mean log reduction
1 Flash	> 4.8	> 4.8

HIGH PRODUCT SAFETY

