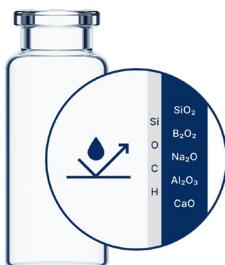




# EVERIC® lyo

Pharmaceutical glass vial with hydrophobic coating to avoid fogging



- For stability reasons, more than 50 % of all biologic drugs are lyophilized.
- Fogging is a widely known undesirable phenomenon that occurs during lyophilization, which results in elevated levels of rejects.
- Overfilling vials to compensate for drug loss through unsatisfactory residual emptying after reconstitution leads to higher costs.
- EVERIC® lyo is unique in combining hydrophobic behavior and the avoidance of free silicone.
- Inner coating is applied using patented and proven plasma impulse chemical vapor deposition (PICVD) technology.
- An additional "release criterion" has been specifically developed.



Si-O-C-H layer applied via PICVD



Layer thickness of ~ 40 nm



Long-term layer stability



Coating bonds covalently to the glass substrate



Suitable for depyrogenation



Dense coating (i.e. non-porous)



Contact angle for water > 90° (hydrophobic surface without silicone)



Stable after washing process



Compliant with all current standards, such as Ph. Eur, USP, JP and CP



No fogging

Particularly suitable for antibody-drug conjugates (ADCs) thanks to hydrophobic inner surface



Elegant lyo cake

Reduced rejects due to improved lyo cake aesthetics



Improved emptying

Less residual volume so no overfilling necessary

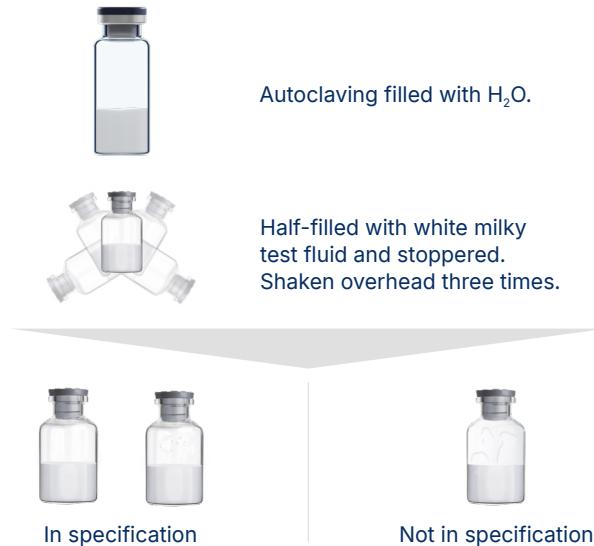


Drug stability

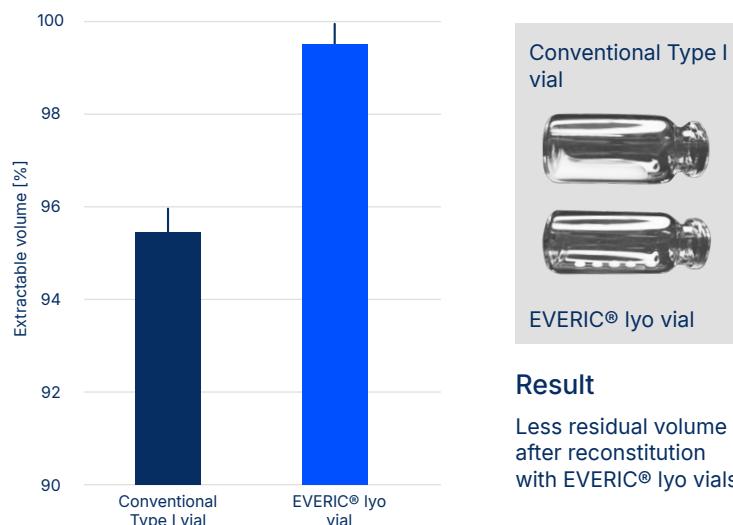
No free silicone thanks to residual free technology

**SCHOTT**  
**PHARMA**

## Release test: Drain-off test for hydrophobicity



## Verifications: Improved emptying



### Result

Less residual volume after reconstitution with EVERIC® lyo vials

## Verifications: No fogging and elegant lyo cake



## Verifications: Stress tests have proven stability

	EVERIC® lyo 10R	EVERIC® lyo 15R	EVERIC® lyo 10R, depyrogenated	EVERIC® lyo 15R, depyrogenated
ca. 5 mm*	average	103	102	99
	stand. dev./range	± 2/± 4	± 2/± 4	± 2/± 5
ca. 15 mm*	average	102	102	98
	stand. dev./range	± 2/± 5	± 2/± 4	± 2/± 5
ca. 25 mm*	average	106	103	101
	stand. dev./range	± 4/± 9	± 1/± 3	± 3/± 5
				± 1/± 3

## Method

10R vials Type I glass and EVERIC® lyo vials.  
5.0 ml formulation dried in 10R vials with different surfaces.  
0.15 mg/ml human growth hormone, 40 mg/ml mannitol, and 10 mg/ml sucrose. Phosphate/glycine buffer (pH 7.0). Sterilization using 0.2 µm PES Filter, 25 °C, 30 min.

## Result

Less cake disruption and dry material pulling from the edge with EVERIC® lyo vials.

## Method

EVERIC® lyo vials: 10R vial (> four years of storage) and 15R vial (three months storage). Contact angle measurement at three lateral positions (bottom, middle, and neck area)\*: Reference vs. depyrogenated (30 min at 330 °C). 15 vials measured per sample type.

## Result

All analyzed vials show hydrophobic behavior with stable contact angle > 90°. No significant differences were observed for different storage times.

### General ordering information

Quality level	TopLine with additional release test									
Packaging	<ul style="list-style-type: none"> <li>Tray with optional divider</li> <li>Pre-washed and pre-sterilized: adaptiQ® (tray, cup nest)</li> </ul>									
Palletizing	Standard Euro pallet (1200 x 800 mm) contains 15–27 layers of nine trays each									
Formats	2R 3R 4R 6R 8R 10R 15R 20R 25R 30R 50R									
Pieces per tray (non sterile)	344 344 344 186 186 154 154 95 95 95 40									

Many configurations are available in small quantities as "Fast Track Articles".

Visit our Online Shop or speak to your sales representative for more information.