

# Corning® Viridian® Vials

**Bring Science to Life. Sustainably.**

Accelerate production in a more environmentally friendly package




## Sustainable Design

### Less is More

Less glass means less raw material extracted from the environment and less material waste at end-of-life.

Corning Viridian vials have a positive impact on every stage of vial usage, from manufacturing to patient use.



-  20% less glass
-  Low-friction coating
-  Type I borosilicate glass



**Reduction in material waste**



**Reduction in CO<sub>2</sub> emissions**

Viridian vials are a drop-in solution that can reduce manufacturing emissions by up to 30% and glass material waste by 20%, while enabling faster and safer fill-finish operations.

An externally coated Type I borosilicate vial can improve quality and boost filling line efficiency, helping our customers increase production in an environmentally friendly package.

A 2 mL Corning Viridian vial weighs 3.5g, compared to a conventional 2R that weighs 4.4g. For a total of 10 million vials, this would eliminate 9 tons of glass from going to landfill. Additionally, this could save up to 114,000 kg CO<sub>2</sub>e, equivalent to >12,900 gallons of gasoline.

### Verified by peer reviewed 3rd party Life Cycle Assessment (LCA)

When it comes to sustainability claims, it's essential to verify your data. Our independent LCA by Sphera confirms Viridian vials claims and highlights the impact it can have for our customers.

Our data shows that even when compared to a conventional vial made with 100% renewable electricity, Viridian vials can reduce emissions by up to 15%.

**Raw Material**  
↓ 0.30g CO<sub>2</sub>e

**Tubing**  
↓ 6.20g CO<sub>2</sub>e

**Transportation**  
↓ 0.02g CO<sub>2</sub>e

**Manufacturing\***  
↓ 4.88g CO<sub>2</sub>e

**11.4g reduction in CO<sub>2</sub>e per 2 mL vial**

\*Manufacturing = Conversion + Coating + Packaging

## Performance Accelerant and Protecting Quality

### Proprietary External Coating

Corning's external coating technology is proven to reduce friction, damage, rejects, and glass particles, improving filling line efficiency.

Protected by our proprietary external coating, vials with reduced wall thickness can withstand typical filling line forces and ensure smooth vial flow through reduction in vial-related interventions.

### Demonstrated Line Performance

In collaboration with Optima, a leading manufacturer of fill-finish equipment, we evaluated the machinability of two vial types:

- Conventional 2R borosilicate vials (4.4g)
- 2 mL Corning® Viridian® vials (3.5g)

The vials were run at 450 vials per minute and recirculated >120 times, simulating >200,000 vials processed for each group.

The trial showed:

- No breakage observed in washing, depyrogenation, accumulation, singulation, or star wheels
- Lower tip over rate from Viridian vials compared to conventional vials
- No need for modification of fill-finish change parts

### Product Portfolio

Corning Viridian vial outer body dimensions match ISO 8362-1 to ensure compatibility with standard container closure components.

Vial Size	2 mL	10 mL
Outer Diameter (mm)	16	22
Overall Height (mm)	35	40
Neck/Flange Diameter (mm)	13	20
Wall Thickness (mm)	0.7	0.7
Brimful Volume (mL)	~4.2	~14.2
Vial Weight (g)	~3.5	~7.8

Additional Viridian vial sizes available upon request.



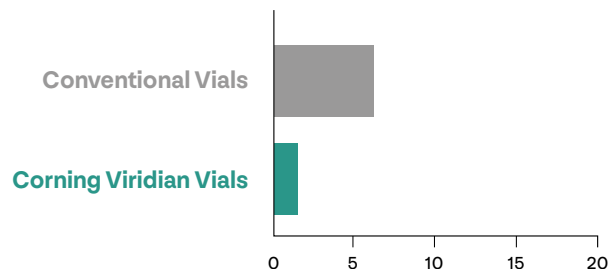
**Improvement in  
fill-finish efficiency**



**Reduction in  
glass particles**

### Tip Overs per Hour

Improved vial handling behavior.



## Contact Us

### Corning Incorporated

Life Sciences, Pharmaceutical Technologies

[www.corning.com/CPT](http://www.corning.com/CPT)

[cptsvc@corning.com](mailto:cptsvc@corning.com)

+1 607-248-6000

For a listing of trademarks, visit [www.corning.com/trademarks](http://www.corning.com/trademarks). All other trademarks are the property of their respective owners.

© 2024 Corning Incorporated. All rights reserved. 8/24 CLSCPT-1007