Volume Measurement in ThermoScientific 95040470 KingFisher 24-Deep-Well Polypropylene Microplates Using the Scarlett™ 01 Volume Analysis System

Summary

The Scarlett 01 Volume Analysis System accurately quantified liquid volumes in ThermoScientific 95040470 KingFisher 24-deep-well microplates across multiple volumes. These polypropylene conical (V-bottom) plates hold up to 5 mL per well and are widely used for magnetic bead purification and high-volume sample preparation workflows. Scarlett measurements demonstrated excellent agreement with gravimetrically determined reference volumes across the evaluated 500–5000 µL working range.

Key Results

- Scarlett successfully measured liquid volumes in **ThermoScientific 95040470** KingFisher 24-deep-well V-bottom polypropylene microplates.
- Successful volume measurement from **500–5000 µL** using 10 mg/mL BSA in 1× PBS.
- Observed Inaccuracy: **–2.19% to +3.06%**
- High measurement precision with a **maximum CV of 1.02%.**

Performance Overview

Table 1. Test Summary

Parameter	Value
Plate Manufacturer / Model	ThermoScientific 95040470
Plate Type	24-deep-well, square-well, conical V-bottom, polypropylene
Volume Range Evaluated	500–5000 µL
Liquids Evaluated	10 mg/mL BSA in 1× PBS
Maximum Inaccuracy	≤3.1%
Maximum CV	1.0%

Verification Results

Across the evaluated range, Scarlett measurements closely matched the gravimetrically determined reference volumes. Inaccuracy values ranged from –2.19% to +3.06%, while coefficient of variation (CV) values remained below 1.02%.

Table 2. Measurement Performance Results

Gravimetric Volume (µL)	Mean Volume (µL) (n=6)	[a] Inaccuracy	CV
498	496	-0.41%	1.02%
995	973	-2.19%	0.81%
1,990	2,051	3.06%	0.91%
2,985	3,041	1.86%	0.80%
3,980	4,042	1.13%	0.48%
4,975	4,978	0.07%	0.62%

a – Inaccuracy (%) is calculated relative to gravimetrically determined reference volumes.

Measurement Method

Measurements were performed using a calibration curve generated from gravimetrically determined volumes spanning the test range. Reported inaccuracy values are relative to these reference volumes.

Conclusion

The Scarlett 01 Volume Analysis System demonstrated accurate and precise liquid volume measurements of a 10 mg/mL BSA solution in KingFisher 24-deep-well microplates (ThermoScientific 95040470) across a wide volume range from 500–5000 µL. These results support reliable volume verification and quality control workflows in laboratory and automated liquid handling environments.

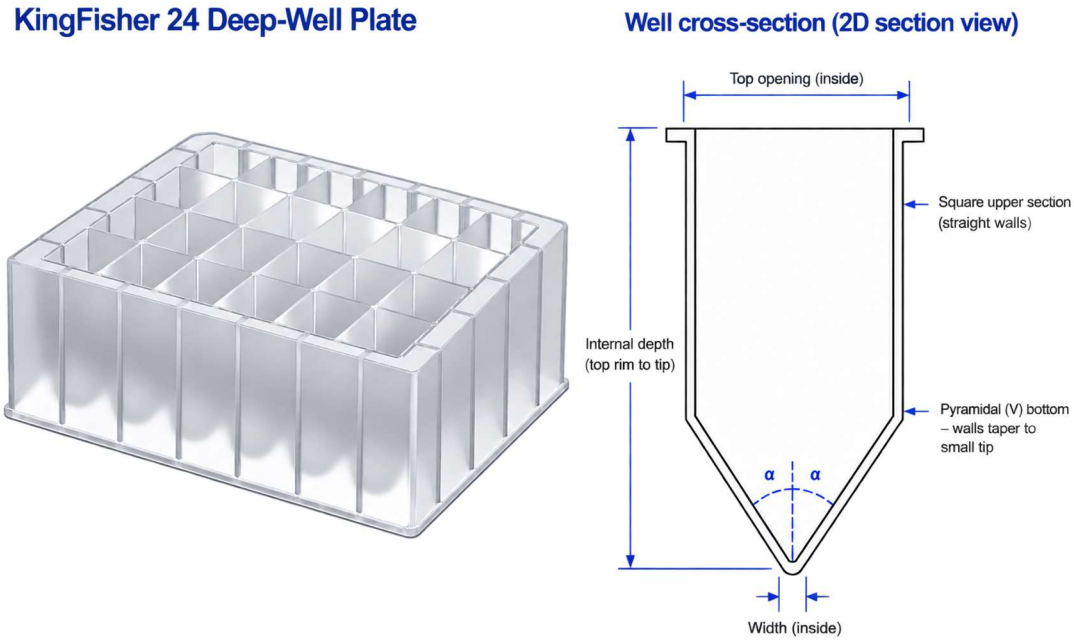

Figure 1. ThermoScientific 95040470 KingFisher 24 deep-well plate and well cross-section.

Your plates. Your reagents. Your workflow. Contact Aventix hello@aventix.io to learn how Scarlett 01 can support your volume verification workflow.