Technical Note – TN0112
Vereo® Spray Weigh Collect Repeatability Testing

Introduction

This technical note highlights two aspects of repeatability testing using Proveris Scientific's Vereo Spray Weigh Collect (SWC) system:

1. a through-life example of Flonase® using delivered-dose collection with metered does weight tracking,
2. repeatability using an empty device mass measurement.

Repeatability testing is essential for automated shot weight and delivered dose workflows in nasal spray evaluations. The Vereo SWC is designed to support reproducible weighing and collection across the life of a product, while also enabling verification of balance performance and system consistency.

Through-Life Example

A through-life study was performed using a Flonase nasal spray product. Delivered dose collections were generated using two actuations per collection, with analytical recovery compared alongside metered dose weight results. Testing was performed across beginning-of-life (BOL), middle-of-life (MOL), and end-of-life (EOL) stages.

Test Setup

- Two actuations per collection
- Target total shot weight per collection: 200 mg
- Dilution volume: 25.0 mL
- Total recovery target: 100 µg

Example Through-Life Results

Life Stage	Replicate	Total Recovery (µg)	Metered Dose Weight (mg)
BOL	1	99.97	201.9
BOL	2	104.57	201.6
BOL	3	103.35	201.0
MOL	1	104.34	200.8
MOL	2	100.42	202.1
MOL	3	103.60	200.1
MOL	4	100.32	200.6
EOL	1	100.92	194.0
EOL	2	101.19	200.5
EOL	3	100.47	200.8

Stage Averages

Life Stage	Avg Total Recovery (µg)
BOL	102.63
MOL	101.44
EOL	100.83

These example results show consistent analytical recovery across product life stages, with average recovered amounts remaining close to the 100 µg target. Metered dose weight values were also recorded with recovery data to support verification of collection consistency throughout the test sequence.

Repeatability (Empty Device Mass Measurement)
A repeatability assessment was also performed using an empty device. Ten sequential tasks were recorded as pre-shot and post-shot mass values to evaluate balance stability and measurement repeatability under repeated task execution.

Example Results

Task	Pre-Shot Weight (g)	Post-Shot Weight (g)
1	38.0952	38.0953
2	38.0952	38.0953
3	38.0951	38.0951
4	38.0951	38.0951
5	38.0952	38.0951
6	38.0953	38.0951
7	38.0953	38.0953
8	38.0953	38.0951
9	38.0953	38.0951
10	38.0951	38.0951

Summary Statistics

Statistic (Pre-shot Weight)	Value
Average (g)	38.09521
Standard Deviation (g)	0.00009
%RSD	0.0002

The results demonstrate extremely tight repeatability, with minimal variation across ten sequential measurements. The very low standard deviation and %RSD indicate stable mass measurement performance and support the suitability of Vereo SWC for repeatable weighing applications.

Conclusion
This example dataset illustrates how Vereo SWC can support repeatable automated weighing and delivered dose workflows. In the through-life example, analytical recovery remained consistent from BOL through EOL while metered dose weight was tracked with collection results. In empty device repeatability, the system demonstrated highly stable mass measurements across repeated tasks. Together, these data highlight the ability of Vereo SWC to generate reproducible weight-based results that support method verification and routine testing.

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