

### DISTRIBUTION REPEATABILITY OF 9 ML FROM A 2 L BOTTLE WITH FLEXIPUMP®

Unit: *FlexiPump® Pro* - N/S: 562000S00048 - Software version: 2.2

#### Aim

Evaluate the repeatability of consecutively dispensed volume after the **FlexiPump®** calibration from a 2-litre diluent bottle (bottom strainer and filled bottle for calibration).

#### Materials and methods

##### Protocol:

- Calibrate the scale (resolution 0.01 g) used to weigh successive distributions according to the manufacturer's recommendations. Check the linearity of the balance by testing the certified standard weights of 5, 10, 20, 100, 500 and 1000 g.
- Connect a diluent bottle to a 3.2 mm dispensing assembly.
- Insert the pump hoses of the dispensing assembly into the double pump head of the unit.
- Fill the pipes with the "Fill tubing" function.
- Setting up the distribution program:
  - "Doses" mode
  - 400 rpm rotation
  - Tubings' diameter 3.2 mm
  - Auto power
  - 9 mL volume
- Calibrate the program.
- Place a container on the scale. Tare and then dispense a dose. Note the mass of dispensed diluent. Repeat the tare and then dispense a dose, again noting the mass of dispensed diluent.
- Repeat the operation 100 times.

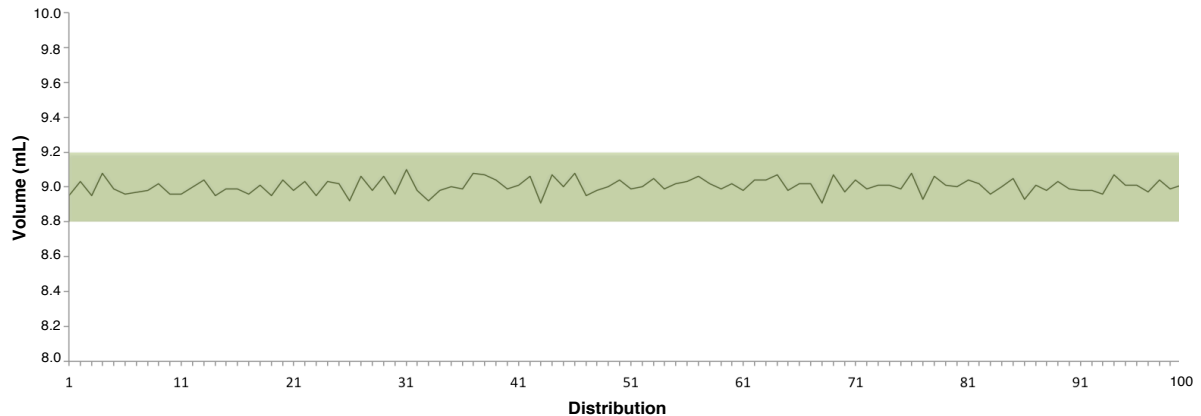
#### Results

##### Calibration data:

- Calibration volume: 8.01 mL
- Accuracy of doses: 1.11%

Distribution	Volume (mL)	Distribution	Volume (mL)
1	8.95	51	8.99
2	9.03	52	9.00
3	8.95	53	9.05
4	9.08	54	8.99
5	8.99	55	9.02
6	8.96	56	9.03
7	8.97	57	9.06
8	8.98	58	9.02
9	9.02	59	8.99
10	8.96	60	9.02
11	8.96	61	8.98
12	9.00	62	9.04
13	9.04	63	9.04
14	8.95	64	9.07
15	8.99	65	8.98
16	8.99	66	9.02
17	8.96	67	9.02
18	9.01	68	8.91
19	8.95	69	9.07
20	9.04	70	8.97
21	8.98	71	9.04
22	9.03	72	8.99
23	8.95	73	9.01
24	9.03	74	9.01
25	9.02	75	8.99
26	8.92	76	9.08
27	9.06	77	8.93
28	8.98	78	9.06
29	9.06	79	9.01
30	8.96	80	9.00
31	9.10	81	9.04
32	8.98	82	9.02
33	8.92	83	8.96
34	8.98	84	9.00
35	9.00	85	9.05
36	8.99	86	8.93
37	9.08	87	9.01
38	9.07	88	8.98
39	9.04	89	9.03
40	8.99	90	8.99
41	9.01	91	8.98
42	9.06	92	8.98
43	8.81	93	8.96
44	9.07	94	9.07
45	9.00	95	9.01
46	9.08	96	9.01
47	8.95	97	8.97
48	8.98	98	9.04
49	9.00	99	8.99
50	9.04	100	9.01

100 successive 9 mL distribution data from a 2 liter diluent bottle



The results obtained are listed and represented on a graph. On this graph, in addition to the curve of results, is given the accepted error interval of  $\pm 0.2$  mL, in accordance with the recommendations of ISO 6887-1, in its section "Preparation of Decimal Dilutions"

Distribution average: 9.0044 mL

- Average deviation: 0.05 %
- Maximum deviation: 0.89 % (0.089 mL)

- Standard deviation of distributions: 0,0423 mL

### Conclusion:

Based on the results obtained in this test, we can conclude that the distribution of successive doses with **FlexiPump**<sup>®</sup> from a 2-litre bottle of diluent shows an excellent repeatability. We do not observe any drift in the volume dispensed as the bottle is empty