VOC Syringe Calibration Log

Instructions:
1. Enter the water temperature to the **nearest 0.5 deg. C**.
2. Enter the weight of the **single** dispenses of water by the syringe to 4 decimal places.
3. The density is automatically inserted upon entering the temperature.
4. Fill in all other blank cells in table (analyst name, date, balance and thermometer S/N)

Corrective Actions:
1. **DO NOT over-write** calibration results.
2. **Repeat calibration** of the pipette at all volumes and enter results in "Repeat Calibration" worksheet (next tab)
3. If calibration fails again, **check the syringe adjustment** according to the manufacturer's guidelines. Recalibrate the pipette at all volumes, and enter results in the "Corrective Action" worksheet. Enter a **brief explanation** in the "Comments" box.
4. If calibration fails again after adjustment, talk to a supervisor and **do not use** the syringe for preparation and/or analytical purposes.

% Difference should be less than:

Syringe	Range	Vol. (uL)	Differenc
Fixed	8.6 uL	8.6	1.00%
Adjustable	5 uL - 25 uL	5	3.00%
		10	3.00%
		25	3.00%
Adjustable	25 uL - 500 uL	50	1.00%
		100	1.00%
		250	1.00%
		500	1.00%
Adjustable	> 1000 uL	1000	0.60%
		2000	0.60%
		2500	0.60%
		5000	0.60%

Syringe Description	Room No.	Syringe ID	Syringe Type	Volume (uL)	Measurement 1		Measurement 2		Measurement 3		Mean Vol. (uL)	RSD of Vol. (%)	Difference (%)	Pass / Fail	Analyst	Date	Balance (S/N)	Thermometer (S/N)	Temp. (°C)	Water Density
					Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)										
Calib. Curve	345	1	Non-fixed	5	0.0051	**5.11**	0.0052	**5.21**	0.0050	**5.01**	5.11	1.96%	2.23%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	2	Non-fixed	25	0.0249	**24.96**	0.0253	**25.36**	0.0251	**25.16**	25.16	0.80%	0.62%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	3	Non-fixed	50	0.0501	**50.21**	0.0498	**49.91**	0.0497	**49.81**	49.98	0.42%	0.04%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	4	Non-fixed	100	0.1005	**100.72**	0.1007	**100.93**	0.0997	**99.92**	100.52	0.53%	0.52%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	5	Non-fixed	500	0.5002	**501.32**	0.5005	**501.62**	0.5001	**501.22**	501.38	0.04%	0.28%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	6	Non-fixed	1000	1.0005	**1002.74**	1.0007	**1002.94**	1.0008	**1003.04**	1002.90	0.02%	0.29%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	23	Non-fixed	250	0.2505	**251.06**	0.2502	**250.76**	0.2489	**249.46**	250.43	0.34%	0.17%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	25	Non-fixed	5000	5.0005	**5011.68**	5.0007	**5011.88**	5.0000	**5011.17**	5011.58	0.01%	0.23%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	29	Non-fixed	10	0.0100	**10.02**	0.0102	**10.22**	0.0104	**10.42**	10.22	1.96%	2.23%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**
Calib. Curve	345	24	Fixed	8.6	0.0085	**8.52**	0.0086	**8.62**	0.0084	**8.42**	8.52	1.18%	0.94%	PASS	G. Bera	5-Jan-16	D068057		22.0	**0.99777**

Syringe Description	Room No.	Syringe ID	Syringe Type	Volume (uL)	Measurement 1		Measurement 2		Measurement 3		Mean Vol. (uL)	RSD of Vol. (%)	Difference (%)	Pass / Fail	Analyst	Date	Balance (S/N)	Thermometer (S/N)	Temp. (°C)	Water Density
					Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)										
For Dioxane	345	7		5	0.0051	**5.11**	0.0052	**5.21**	0.0050	**5.01**	5.11	1.96%	2.28%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	8		10	0.0100	**10.03**	0.0101	**10.13**	0.0098	**9.83**	9.99	1.53%	0.06%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	9		25	0.0251	**25.17**	0.0252	**25.27**	0.0249	**24.97**	25.13	0.61%	0.54%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	10		50	0.0505	**50.64**	0.0504	**50.54**	0.0499	**50.04**	50.40	0.64%	0.81%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	11		100	0.1005	**100.77**	0.1007	**100.97**	0.0997	**99.97**	100.57	0.53%	0.57%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	12		250	0.2502	**250.88**	0.2507	**251.38**	0.2500	**250.68**	250.98	0.14%	0.39%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	13		500	0.5005	**501.86**	0.5002	**501.56**	0.5001	**501.46**	501.62	0.04%	0.32%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	14		1000	1.0005	**1003.21**	1.0004	**1003.11**	1.0003	**1003.01**	1003.11	0.01%	0.31%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**
For Dioxane	345	15		2500	2.5005	**2507.28**	2.5004	**2507.18**	2.5008	**2507.58**	2507.35	0.01%	0.29%	PASS	G. Bera	5-Jan-16	D068057		24.0	**0.997296**

Syringe Description	Room No.	Syringe ID	Syringe Type	Volume (uL)	Measurement 1		Measurement 2		Measurement 3		Mean Vol. (uL)	RSD of Vol. (%)	Difference (%)	Pass / Fail	Analyst	Date	Balance (S/N)	Thermometer (S/N)	Temp. (°C)	Water Density
					Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)	Wt. (g)	Vol. (uL)										
For Dilution	345	16	Non-fixed	5	0.0051	**5.12**	0.0052	**5.22**	0.0050	**5.01**	5.12	1.96%	2.30%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	17	Non-fixed	10	0.0100	**10.03**	0.0101	**10.13**	0.0098	**9.83**	10.00	1.53%	0.04%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	18	Non-fixed	100	0.1005	**100.80**	0.1007	**101.00**	0.0997	**100.00**	100.60	0.53%	0.60%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	19	Non-fixed	250	0.2502	**250.94**	0.2507	**251.44**	0.2500	**250.74**	251.04	0.14%	0.42%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	20	Non-fixed	500	0.5005	**501.98**	0.5002	**501.68**	0.5001	**501.58**	501.75	0.04%	0.35%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	21	Non-fixed	1000	1.0005	**1003.47**	1.0004	**1003.37**	1.0003	**1003.27**	1003.37	0.01%	0.34%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	22	Non-fixed	5000	5.0008	**5015.63**	5.0005	**5015.33**	5.0010	**5015.83**	5015.59	0.32%	0.31%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	26	Non-fixed	5	0.0051	**5.12**	0.0052	**5.22**	0.0050	**5.01**	5.12	1.96%	2.30%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	27	Non-fixed	25	0.0251	**25.17**	0.0252	**25.27**	0.0249	**24.97**	25.14	0.61%	0.56%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**
For Dilution	345	28	Non-fixed	50	0.0505	**50.65**	0.0504	**50.55**	0.0499	**50.05**	50.42	0.64%	0.83%	PASS	G. Bera	5-Jan-16	D068057		25.0	**0.997044**

Temp. (°C)	Density (g/mL)
15.0	0.999099
15.5	0.999023
16.0	0.998943
16.5	0.998860
17.0	0.998774
17.5	0.998686
18.0	0.998595
18.5	0.998501
19.0	0.998405
19.5	0.998305
20.0	0.998203
20.5	0.998099
21.0	0.997992
21.5	0.997882
22.0	0.997770
22.5	0.997655
23.0	0.997538
23.5	0.997418
24.0	0.997296
24.5	0.997171
25.0	0.997044
25.5	0.996914
26.0	0.996783
26.5	0.996649
27.0	0.996512
27.5	0.996373
28.0	0.996232
28.5	0.996089
29.0	0.995944
29.5	0.995796
30.0	0.995646