Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

Sample data

No.	Comment / ID	Start time	Sample size	Corr. f	Density
1/6	CaCO3	7/30/2012 11:56:44 AM	5.0 mL	1.0	1 g/mL
2/6	CaCO3	7/30/2012 12:01:49 PM	5.0 mL	1.0	1 g/mL
3/6	CaCO3	7/30/2012 12:06:55 PM	5.0 mL	1.0	1 g/mL
4/6	CaCO3	7/30/2012 12:12:02 PM	5.0 mL	1.0	1 g/mL
5/6	CaCO3	7/30/2012 12:17:09 PM	5.0 mL	1.0	1 g/mL
6/6	CaCO3	7/30/2012 12:22:19 PM	5.0 mL	1.0	1 g/mL

Results

No.	Comment / ID	Start time	Sample size and results			
1/6	CaCO3	7/30/2012 11:56:44 AM		5.0	mL	
			R1 =	0.99446	--	Titer
2/6	CaCO3	7/30/2012 12:01:49 PM		5.0	mL	
			R1 =	0.99371	--	Titer
3/6	CaCO3	7/30/2012 12:06:55 PM		5.0	mL	
			R1 =	0.99472	--	Titer
4/6	CaCO3	7/30/2012 12:12:02 PM		5.0	mL	
			R1 =	0.99023	--	Titer
5/6	CaCO3	7/30/2012 12:17:09 PM		5.0	mL	
			R1 =	0.99599	--	Titer
6/6	CaCO3	7/30/2012 12:22:19 PM		5.0	mL	
			R1 =	0.99578	--	Titer
-/-			R2 =	0.994	--	Mean Titer

Titer

	Titer	0.99415

Statistics

Rx	Name	n	Mean value	Unit	s	srel [%]
R1	Titer	6	0.99415	--	0.00210	0.211
R2	Mean Titer	1	0.994	--	NaN	NaN

Raw data

Sample

No.	1/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 11:56:44 AM

Method: TiterofEGTA **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: 7/30/2012 11:56:44 AM

Sample end 7/30/2012 12:01:49 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:12 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 375.4 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.063035 mL
		Q1 = 0.623776 mmol
		EEQ1 = 358.2 mV
		EHNV1 = 427.2 mV
Excess		VEX = 0.936965 mL
		QEX = 0.115436 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	
Time	t = 3:21 min	

Calculation

Result	R1 = 0.99446 -- Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 9.930487
Molar mass	M[Calcium carbonate] = 100.09 g/mol
Equivalent number	z[Calcium carbonate] = 1
Duration	tUSE = 04:31 min

Measured values EQP titration [1]

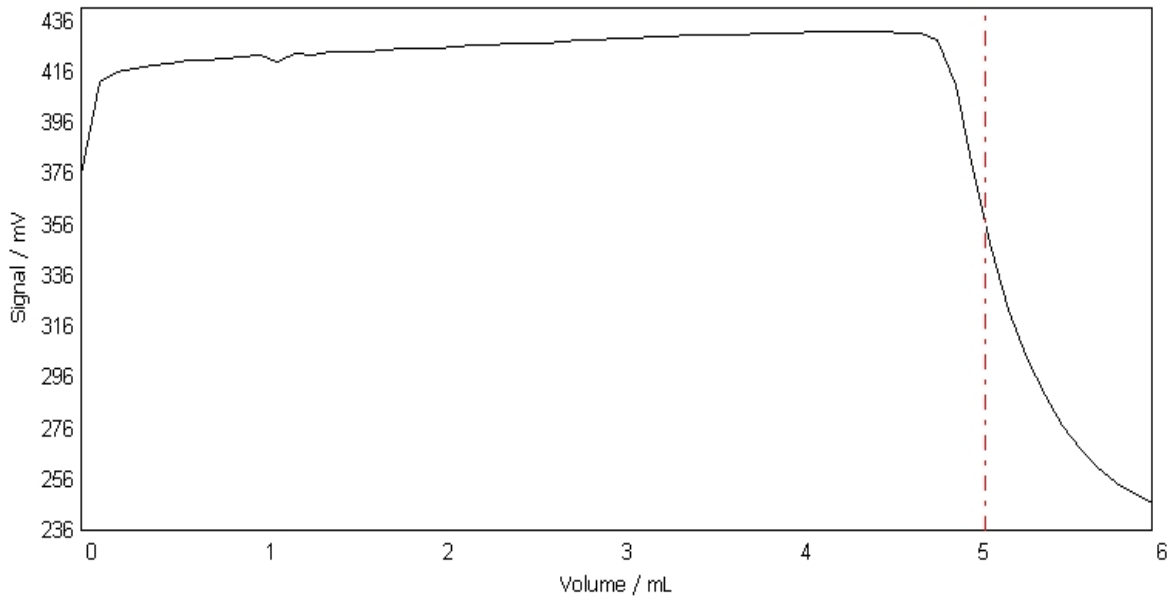
Titrant	EGTA c = 0.1 mol/L TITER = 1.23202
Sensor	DP5
Sample	1/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	375.4	NaN	NaN	0	25.0
0.1000	0.1000	412.2	36.8	NaN	3	25.0
0.2000	0.1000	416.1	3.9	NaN	6	25.0
0.3000	0.1000	416.9	0.8	NaN	9	25.0
0.4000	0.1000	418.5	1.6	NaN	12	25.0
0.5000	0.1000	418.9	0.4	-12.07	16	25.0
0.6000	0.1000	420.4	1.5	7.43	19	25.0
0.7000	0.1000	420.6	0.2	4.85	22	25.0
0.8000	0.1000	420.9	0.3	3.07	26	25.0
0.9000	0.1000	421.9	1.0	1.72	29	25.0
1.0000	0.1000	422.2	0.3	1.37	32	25.0
1.1000	0.1000	420.0	-2.2	3.34	35	25.0
1.2000	0.1000	422.9	2.9	3.99	38	25.0
1.3000	0.1000	422.2	-0.7	4.86	41	25.0
1.4000	0.1000	423.5	1.3	5.87	44	25.0
1.5000	0.1000	423.9	0.4	5.57	47	25.0
1.6000	0.1000	423.7	-0.2	2.42	50	25.0
1.7000	0.1000	424.4	0.7	3.58	53	25.0
1.8000	0.1000	424.8	0.4	2.95	56	25.0
1.9000	0.1000	425.2	0.4	3.77	59	25.0
2.0000	0.1000	425.0	-0.2	3.78	62	25.0
2.1000	0.1000	425.9	0.9	3.55	65	25.0
2.2000	0.1000	426.3	0.4	3.56	68	25.0
2.3000	0.1000	426.4	0.1	3.22	72	25.0
2.4000	0.1000	426.8	0.4	3.04	75	25.0

Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	2.5000	0.1000	427.2	0.4	2.84	78	25.0
	2.6000	0.1000	427.2	0.0	3.98	81	25.0
	2.7000	0.1000	427.7	0.5	3.82	84	25.0
	2.8000	0.1000	428.3	0.6	3.72	87	25.0
	2.9000	0.1000	428.7	0.4	3.41	90	25.0
	3.0000	0.1000	429.0	0.3	3.20	93	25.0
	3.1000	0.1000	428.8	-0.2	2.53	96	25.0
	3.2000	0.1000	429.6	0.8	2.71	99	25.0
	3.3000	0.1000	429.6	0.0	2.82	102	25.0
	3.4000	0.1000	430.1	0.5	2.93	105	25.0
	3.5000	0.1000	430.2	0.1	2.63	108	25.0
	3.6000	0.1000	430.6	0.4	2.11	111	25.0
	3.7000	0.1000	430.6	0.0	2.43	114	25.0
	3.8000	0.1000	431.0	0.4	2.10	117	25.0
	3.9000	0.1000	431.1	0.1	1.97	120	25.0
	4.0000	0.1000	431.4	0.3	1.41	123	25.0
	4.1000	0.1000	431.5	0.1	1.13	126	25.0
	4.2000	0.1000	431.5	0.0	0.51	129	25.0
	4.3000	0.1000	431.5	0.0	1.25	132	25.0
	4.4000	0.1000	431.5	0.0	8.93	135	25.0
	4.5000	0.1000	431.5	0.0	15.26	138	25.0
	4.6000	0.1000	431.2	-0.3	-6.22	142	25.0
	4.7000	0.1000	430.8	-0.4	-62.24	145	25.0
	4.8000	0.1000	428.2	-2.6	-139.12	148	25.0
	4.9000	0.1000	410.9	-17.3	-213.57	151	25.0
	5.0000	0.1000	377.7	-33.2	-263.34	154	25.0
EQP1	5.063035	NaN	358.2	NaN	-271.12	NaN	NaN
	5.1000	0.1000	346.7	-31.0	-273.79	157	25.0
	5.2000	0.1000	322.3	-24.4	-242.52	161	25.0
	5.3000	0.1000	303.5	-18.8	-185.69	164	25.0
	5.4000	0.1000	288.6	-14.9	-134.03	167	25.0
	5.5000	0.1000	277.0	-11.6	-102.27	171	25.0
	5.6000	0.1000	268.0	-9.0	NaN	174	25.0
	5.7000	0.1000	260.5	-7.5	NaN	177	25.0
	5.8000	0.1000	254.8	-5.7	NaN	180	25.0
	5.9000	0.1000	250.4	-4.4	NaN	183	25.0
	6.0000	0.1000	246.7	-3.7	NaN	186	25.0

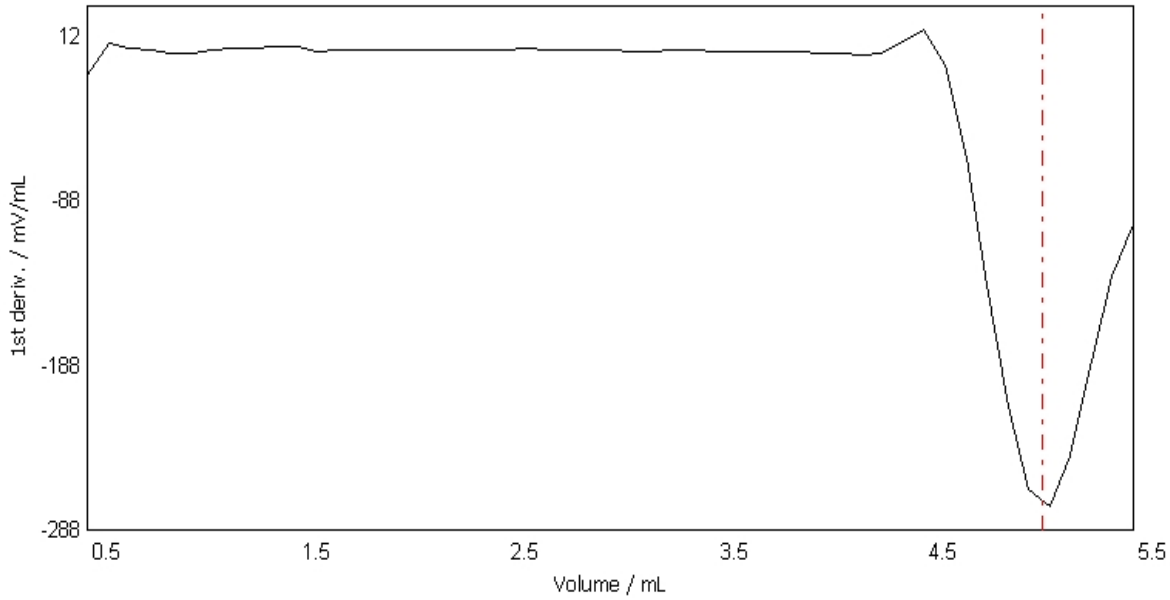
E - V curve **EQP titration [1]**
Sample 1/6



Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

dE/dV - V curve EQP titration [1]

Sample 1/6



Raw data

Sample

No.	2/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 12:01:49 PM
Sample end	7/30/2012 12:06:55 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:13 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 415.4 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.066875 mL
		Q1 = 0.624249 mmol
		EEQ1 = 382.1 mV
		EHNV1 = 448.7 mV
Excess		VEX = 0.933125 mL
		QEX = 0.114963 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	

Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

Time t = 3:21 min

Calculation

Result R1 = 0.99371 -- Titer
Formula R1=m/(VEQ*c*C)
Constant 1/(cst*z)
C = 9.930487
Molar mass M[Calcium carbonate] = 100.09 g/mol
Equivalent number z[Calcium carbonate] = 1
Duration tUSE = 04:31 min

Measured values **EQP titration [1]**

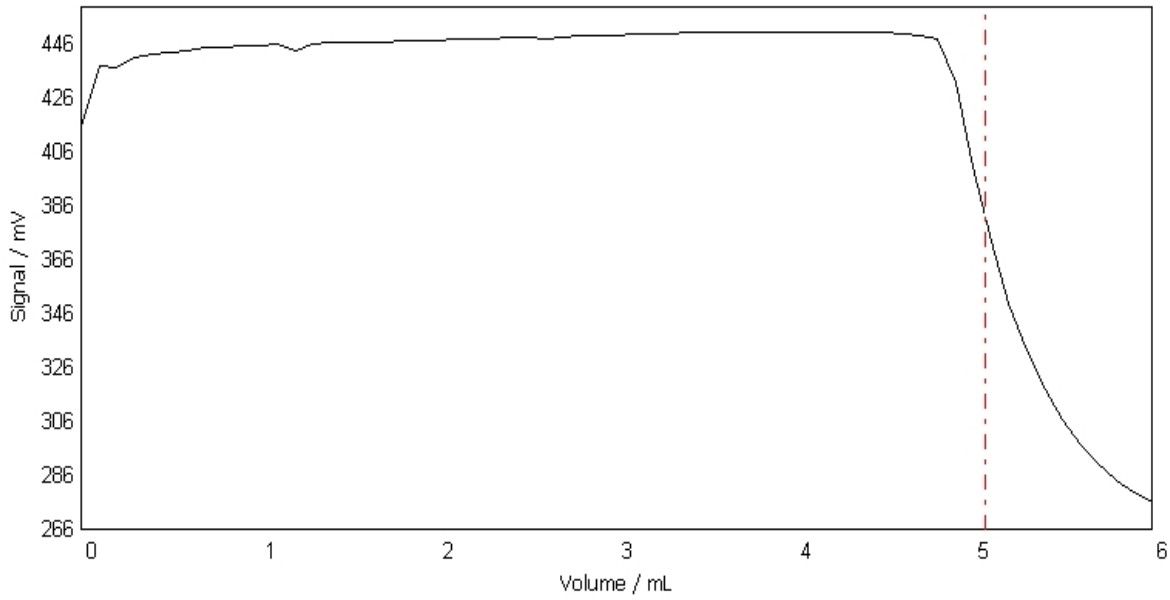
Titrant EGTA c = 0.1 mol/L TITER = 1.23202
Sensor DP5
Sample 2/6

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.0000	NaN	415.4	NaN	NaN	0	25.0
	0.1000	0.1000	437.9	22.5	NaN	3	25.0
	0.2000	0.1000	437.4	-0.5	NaN	6	25.0
	0.3000	0.1000	441.3	3.9	NaN	9	25.0
	0.4000	0.1000	442.4	1.1	NaN	12	25.0
	0.5000	0.1000	443.4	1.0	-1.55	16	25.0
	0.6000	0.1000	443.8	0.4	7.51	18	25.0
	0.7000	0.1000	444.8	1.0	5.31	22	25.0
	0.8000	0.1000	444.7	-0.1	2.86	25	25.0
	0.9000	0.1000	445.6	0.9	1.02	28	25.0
	1.0000	0.1000	445.8	0.2	0.59	31	25.0
	1.1000	0.1000	446.1	0.3	0.91	34	25.0
	1.2000	0.1000	443.6	-2.5	2.17	37	25.0
	1.3000	0.1000	446.5	2.9	2.83	40	25.0
	1.4000	0.1000	446.6	0.1	4.30	43	25.0
	1.5000	0.1000	446.8	0.2	4.32	46	25.0
	1.6000	0.1000	446.9	0.1	3.18	49	25.0
	1.7000	0.1000	447.1	0.2	0.19	52	25.0
	1.8000	0.1000	447.4	0.3	1.90	55	25.0
	1.9000	0.1000	447.4	0.0	1.94	58	25.0
	2.0000	0.1000	447.7	0.3	1.96	61	25.0
	2.1000	0.1000	447.9	0.2	2.34	64	25.0
	2.2000	0.1000	448.1	0.2	1.92	67	25.0
	2.3000	0.1000	448.3	0.2	1.64	70	25.0
	2.4000	0.1000	448.5	0.2	1.47	73	25.0
	2.5000	0.1000	448.8	0.3	1.62	76	25.0
	2.6000	0.1000	448.4	-0.4	1.78	80	25.0
	2.7000	0.1000	449.0	0.6	1.99	83	25.0
	2.8000	0.1000	449.3	0.3	2.24	86	25.0
	2.9000	0.1000	449.4	0.1	2.30	89	25.0
	3.0000	0.1000	449.6	0.2	2.20	92	25.0
	3.1000	0.1000	449.8	0.2	1.52	95	25.0
	3.2000	0.1000	450.0	0.2	1.64	98	25.0
	3.3000	0.1000	450.1	0.1	1.62	101	25.0
	3.4000	0.1000	450.3	0.2	1.30	104	25.0
	3.5000	0.1000	450.4	0.1	1.10	107	25.0
	3.6000	0.1000	450.5	0.1	0.85	110	25.0
	3.7000	0.1000	450.6	0.1	0.76	113	25.0
	3.8000	0.1000	450.6	0.0	0.60	116	25.0
	3.9000	0.1000	450.7	0.1	0.46	119	25.0
	4.0000	0.1000	450.7	0.0	0.21	122	25.0
	4.1000	0.1000	450.8	0.1	-0.14	125	25.0
	4.2000	0.1000	450.7	-0.1	-0.43	128	25.0
	4.3000	0.1000	450.6	-0.1	-0.57	131	25.0
	4.4000	0.1000	450.5	-0.1	7.76	134	25.0
	4.5000	0.1000	450.3	-0.2	14.59	137	25.0
	4.6000	0.1000	450.1	-0.2	-5.03	140	25.0
	4.7000	0.1000	449.6	-0.5	-56.26	143	25.0
	4.8000	0.1000	448.4	-1.2	-126.95	147	25.0
	4.9000	0.1000	431.7	-16.7	-195.97	150	25.0
	5.0000	0.1000	400.8	-30.9	-243.21	153	25.0
EQP1	5.066875	NaN	382.1	NaN	-251.17	NaN	NaN
	5.1000	0.1000	372.8	-28.0	-254.13	157	25.0

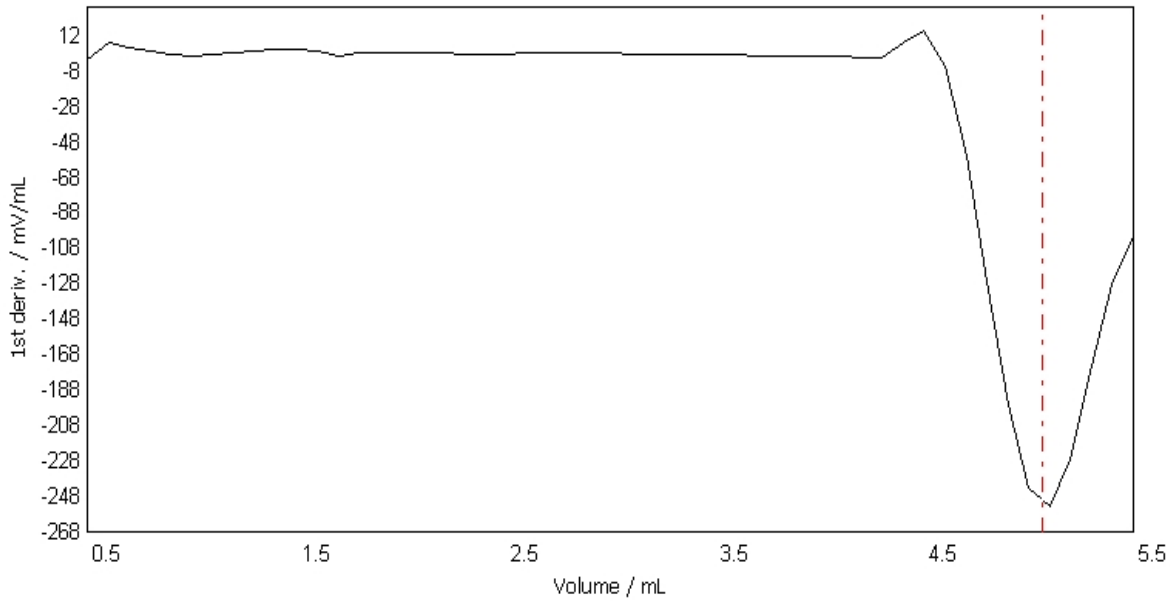
Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
5.2000	0.1000	350.0	-22.8	-226.97	160	25.0
5.3000	0.1000	332.2	-17.8	-174.81	164	25.0
5.4000	0.1000	317.8	-14.4	-128.91	167	25.0
5.5000	0.1000	306.7	-11.1	-100.79	170	25.0
5.6000	0.1000	297.6	-9.1	NaN	174	25.0
5.7000	0.1000	290.4	-7.2	NaN	177	25.0
5.8000	0.1000	284.3	-6.1	NaN	180	25.0
5.9000	0.1000	279.6	-4.7	NaN	183	25.0
6.0000	0.1000	275.9	-3.7	NaN	186	25.0

E - V curve **EQP titration [1]**
Sample 2/6



dE/dV - V curve **EQP titration [1]**
Sample 2/6



Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

Raw data

Sample

No.	3/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 12:06:55 PM
Sample end	7/30/2012 12:12:01 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:13 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 390.9 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.061729 mL
		Q1 = 0.623615 mmol
		EEQ1 = 374.3 mV
		EHNV1 = 439.2 mV
Excess		VEX = 0.938271 mL
		QEX = 0.115597 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	
Time	t = 3:21 min	

Calculation

Result	R1 = 0.99472 -- Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 9.930487
Molar mass	M[Calcium carbonate] = 100.09 g/mol
Equivalent number	z[Calcium carbonate] = 1
Duration	tUSE = 04:31 min

Measured values EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202
Sensor	DP5
Sample	3/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	390.9	NaN	NaN	0	25.0
0.1000	0.1000	424.4	33.5	NaN	4	25.0
0.2000	0.1000	428.2	3.8	NaN	7	25.0
0.3000	0.1000	430.9	2.7	NaN	10	25.0
0.4000	0.1000	431.0	0.1	NaN	13	25.0
0.5000	0.1000	433.5	2.5	-7.87	16	25.0
0.6000	0.1000	433.2	-0.3	6.72	19	25.0

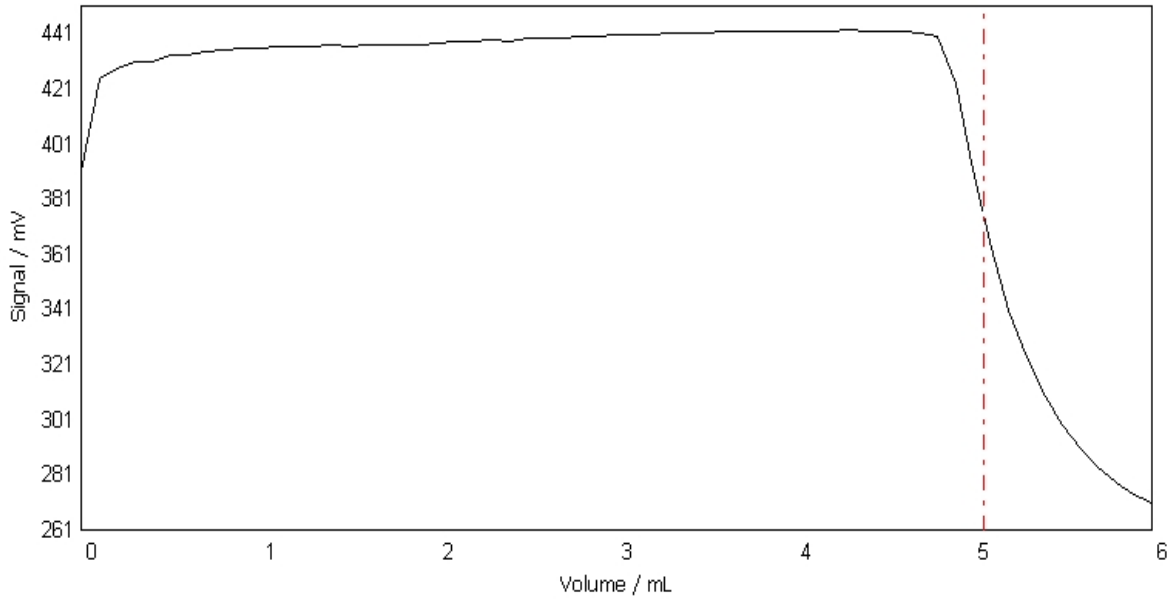
Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.7000	0.1000	434.7	1.5	6.15	22	25.0
	0.8000	0.1000	434.9	0.2	5.30	25	25.0
	0.9000	0.1000	435.5	0.6	3.16	28	25.0
	1.0000	0.1000	435.7	0.2	3.82	31	25.0
	1.1000	0.1000	436.1	0.4	1.67	34	25.0
	1.2000	0.1000	436.1	0.0	1.24	37	25.0
	1.3000	0.1000	436.4	0.3	1.03	40	25.0
	1.4000	0.1000	436.7	0.3	1.42	43	25.0
	1.5000	0.1000	436.0	-0.7	0.94	46	25.0
	1.6000	0.1000	436.7	0.7	1.36	49	25.0
	1.7000	0.1000	437.2	0.5	1.76	52	25.0
	1.8000	0.1000	437.0	-0.2	2.66	55	25.0
	1.9000	0.1000	436.9	-0.1	3.73	58	25.0
	2.0000	0.1000	437.8	0.9	2.38	62	25.0
	2.1000	0.1000	438.0	0.2	2.55	64	25.0
	2.2000	0.1000	438.4	0.4	2.79	68	25.0
	2.3000	0.1000	438.6	0.2	2.35	71	25.0
	2.4000	0.1000	438.0	-0.6	2.31	74	25.0
	2.5000	0.1000	439.1	1.1	3.02	77	25.0
	2.6000	0.1000	439.4	0.3	3.16	80	25.0
	2.7000	0.1000	439.6	0.2	3.29	83	25.0
	2.8000	0.1000	439.9	0.3	2.86	86	25.0
	2.9000	0.1000	440.0	0.1	1.87	89	25.0
	3.0000	0.1000	440.3	0.3	2.36	92	25.0
	3.1000	0.1000	440.6	0.3	2.35	95	25.0
	3.2000	0.1000	440.8	0.2	2.24	98	25.0
	3.3000	0.1000	441.0	0.2	2.22	101	25.0
	3.4000	0.1000	441.2	0.2	2.00	104	25.0
	3.5000	0.1000	441.4	0.2	1.96	107	25.0
	3.6000	0.1000	441.6	0.2	1.76	110	25.0
	3.7000	0.1000	441.8	0.2	1.46	113	25.0
	3.8000	0.1000	441.9	0.1	1.04	116	25.0
	3.9000	0.1000	442.0	0.1	0.80	119	25.0
	4.0000	0.1000	442.0	0.0	0.60	122	25.0
	4.1000	0.1000	442.1	0.1	0.46	125	25.0
	4.2000	0.1000	442.1	0.0	0.33	128	25.0
	4.3000	0.1000	442.2	0.1	0.46	131	25.0
	4.4000	0.1000	442.1	-0.1	8.97	134	25.0
	4.5000	0.1000	442.0	-0.1	15.23	138	25.0
	4.6000	0.1000	441.8	-0.2	-5.70	141	25.0
	4.7000	0.1000	441.4	-0.4	-58.10	144	25.0
	4.8000	0.1000	440.0	-1.4	-129.48	147	25.0
	4.9000	0.1000	422.7	-17.3	-198.69	150	25.0
	5.0000	0.1000	391.5	-31.2	-244.92	153	25.0
EQP1	5.061729	NaN	374.3	NaN	-252.00	NaN	NaN
	5.1000	0.1000	363.6	-27.9	-254.03	157	25.0
	5.2000	0.1000	340.9	-22.7	-224.33	160	25.0
	5.3000	0.1000	323.4	-17.5	-170.58	164	25.0
	5.4000	0.1000	309.6	-13.8	-124.16	167	25.0
	5.5000	0.1000	299.0	-10.6	-95.86	170	25.0
	5.6000	0.1000	290.5	-8.5	NaN	173	25.0
	5.7000	0.1000	283.5	-7.0	NaN	176	25.0
	5.8000	0.1000	278.0	-5.5	NaN	179	25.0
	5.9000	0.1000	273.9	-4.1	NaN	182	25.0
	6.0000	0.1000	270.8	-3.1	NaN	185	25.0

Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

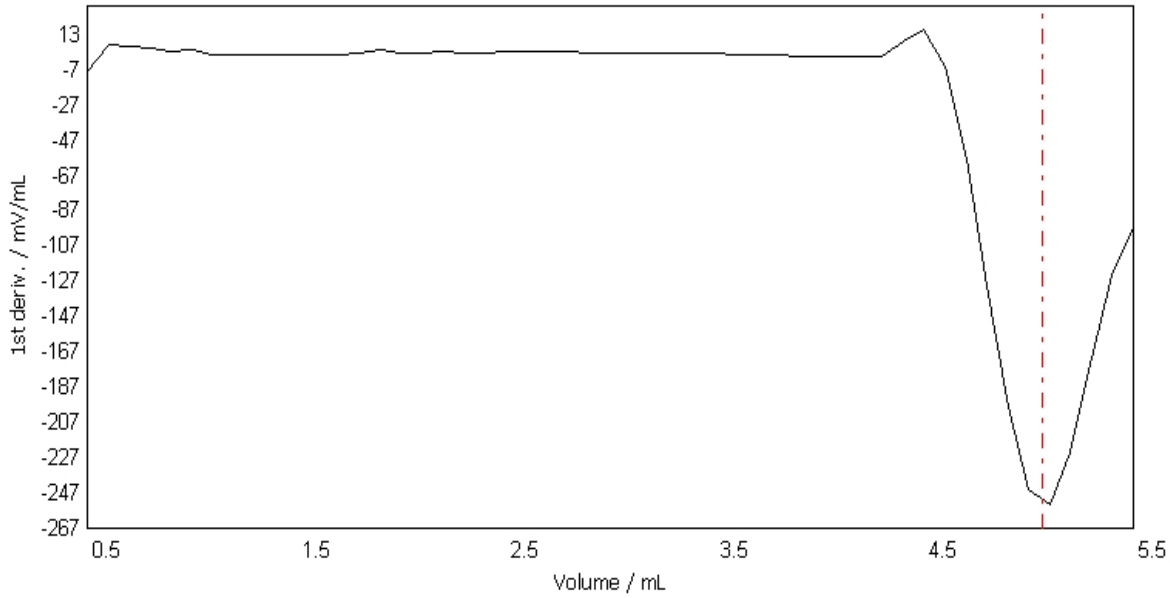
E - V curve EQP titration [1]

Sample 3/6



dE/dV - V curve EQP titration [1]

Sample 3/6



Raw data

Sample

No.	4/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0

Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 12:12:02 PM
Sample end	7/30/2012 12:17:09 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:13 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 387.4 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.084691 mL
		Q1 = 0.626444 mmol
		EEQ1 = 370.7 mV
		EHNV1 = 441.8 mV
Excess		VEX = 0.915309 mL
		QEX = 0.112768 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	
Time	t = 3:21 min	

Calculation

Result	R1 = 0.99023 -- Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 9.930487
Molar mass	M[Calcium carbonate] = 100.09 g/mol
Equivalent number	z[Calcium carbonate] = 1
Duration	tUSE = 04:32 min

Measured values EQP titration [1]

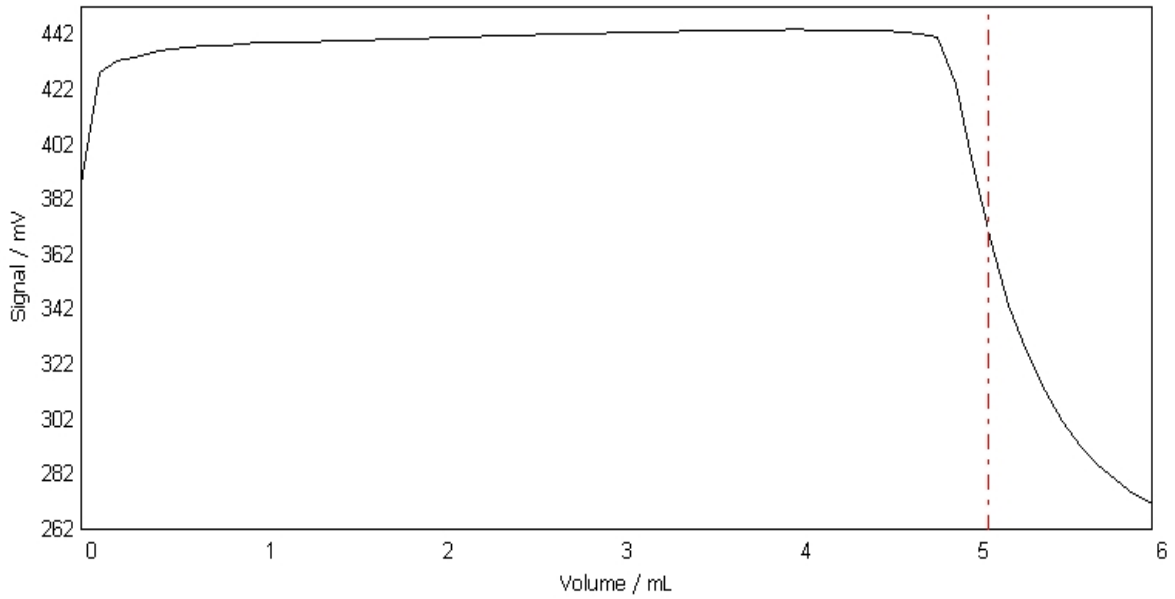
Titrant	EGTA c = 0.1 mol/L TITER = 1.23202
Sensor	DP5
Sample	4/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	387.4	NaN	NaN	0	25.0
0.1000	0.1000	428.4	41.0	NaN	3	25.0
0.2000	0.1000	432.4	4.0	NaN	7	25.0
0.3000	0.1000	433.8	1.4	NaN	10	25.0
0.4000	0.1000	435.6	1.8	NaN	13	25.0
0.5000	0.1000	436.5	0.9	-13.36	16	25.0
0.6000	0.1000	437.4	0.9	5.65	19	25.0
0.7000	0.1000	437.9	0.5	4.99	22	25.0
0.8000	0.1000	438.0	0.1	3.13	25	25.0
0.9000	0.1000	438.6	0.6	2.41	28	25.0
1.0000	0.1000	438.9	0.3	1.89	31	25.0
1.1000	0.1000	439.0	0.1	1.91	34	25.0
1.2000	0.1000	438.9	-0.1	1.90	37	25.0
1.3000	0.1000	439.3	0.4	1.84	40	25.0
1.4000	0.1000	439.6	0.3	2.35	43	25.0
1.5000	0.1000	439.8	0.2	2.47	46	25.0
1.6000	0.1000	440.0	0.2	2.17	49	25.0
1.7000	0.1000	440.2	0.2	1.74	52	25.0
1.8000	0.1000	440.4	0.2	1.63	55	25.0
1.9000	0.1000	440.5	0.1	1.64	58	25.0
2.0000	0.1000	440.7	0.2	1.70	62	25.0

Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	2.1000	0.1000	440.9	0.2	1.84	64	25.0
	2.2000	0.1000	441.0	0.1	2.06	68	25.0
	2.3000	0.1000	441.3	0.3	2.06	71	25.0
	2.4000	0.1000	441.5	0.2	2.05	74	25.0
	2.5000	0.1000	441.7	0.2	2.01	77	25.0
	2.6000	0.1000	441.9	0.2	1.90	80	25.0
	2.7000	0.1000	442.0	0.1	1.80	83	25.0
	2.8000	0.1000	442.3	0.3	1.86	86	25.0
	2.9000	0.1000	442.4	0.1	1.68	89	25.0
	3.0000	0.1000	442.6	0.2	1.60	92	25.0
	3.1000	0.1000	442.8	0.2	1.72	95	25.0
	3.2000	0.1000	442.9	0.1	1.69	98	25.0
	3.3000	0.1000	443.0	0.1	1.71	101	25.0
	3.4000	0.1000	443.3	0.3	1.57	104	25.0
	3.5000	0.1000	443.5	0.2	1.34	107	25.0
	3.6000	0.1000	443.5	0.0	1.16	110	25.0
	3.7000	0.1000	443.6	0.1	0.76	113	25.0
	3.8000	0.1000	443.7	0.1	0.44	116	25.0
	3.9000	0.1000	443.7	0.0	0.30	119	25.0
	4.0000	0.1000	443.8	0.1	0.06	122	25.0
	4.1000	0.1000	443.7	-0.1	-0.18	125	25.0
	4.2000	0.1000	443.7	0.0	-0.42	128	25.0
	4.3000	0.1000	443.6	-0.1	-0.46	132	25.0
	4.4000	0.1000	443.5	-0.1	7.90	134	25.0
	4.5000	0.1000	443.4	-0.1	13.65	138	25.0
	4.6000	0.1000	443.0	-0.4	-6.02	141	25.0
	4.7000	0.1000	442.5	-0.5	-56.50	144	25.0
	4.8000	0.1000	441.2	-1.3	-126.10	147	25.0
	4.9000	0.1000	424.1	-17.1	-194.25	150	25.0
	5.0000	0.1000	394.4	-29.7	-240.35	153	25.0
EQP1	5.084691	NaN	370.7	NaN	-251.20	NaN	NaN
	5.1000	0.1000	366.4	-28.0	-251.15	156	25.0
	5.2000	0.1000	343.8	-22.6	-224.13	160	25.0
	5.3000	0.1000	326.1	-17.7	-172.62	164	25.0
	5.4000	0.1000	312.2	-13.9	-127.18	167	25.0
	5.5000	0.1000	301.0	-11.2	-98.39	170	25.0
	5.6000	0.1000	292.3	-8.7	NaN	174	25.0
	5.7000	0.1000	285.3	-7.0	NaN	177	25.0
	5.8000	0.1000	279.5	-5.8	NaN	180	25.0
	5.9000	0.1000	274.8	-4.7	NaN	183	25.0
	6.0000	0.1000	271.4	-3.4	NaN	186	25.0

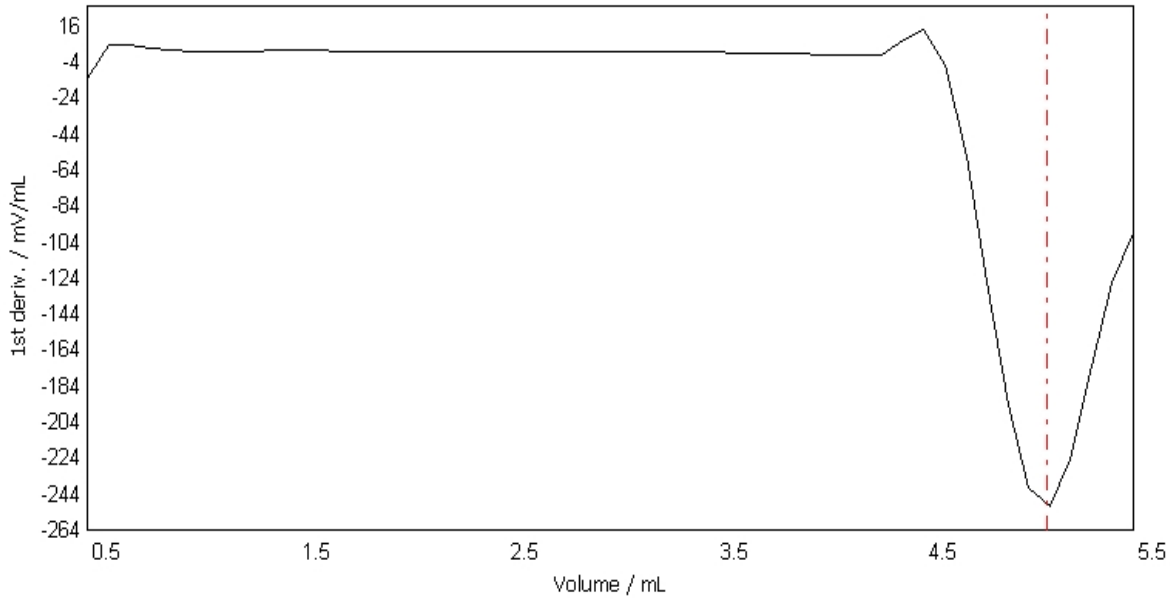
E - V curve **EQP titration [1]**
Sample 4/6



Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

dE/dV - V curve EQP titration [1]

Sample 4/6



Raw data

Sample

No.	5/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 12:17:09 PM
Sample end	7/30/2012 12:22:18 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:13 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 394.4 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.055273 mL
		Q1 = 0.622820 mmol
		EEQ1 = 346.1 mV
		EHNV1 = 416.1 mV
Excess		VEX = 0.944727 mL
		QEX = 0.116392 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	

Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

Time t = 3:21 min

Calculation

Result R1 = 0.99599 -- Titer
Formula R1=m/(VEQ*c*C)
Constant 1/(cst*z)
C = 9.930487
Molar mass M[Calcium carbonate] = 100.09 g/mol
Equivalent number z[Calcium carbonate] = 1
Duration tUSE = 04:32 min

Measured values EQP titration [1]

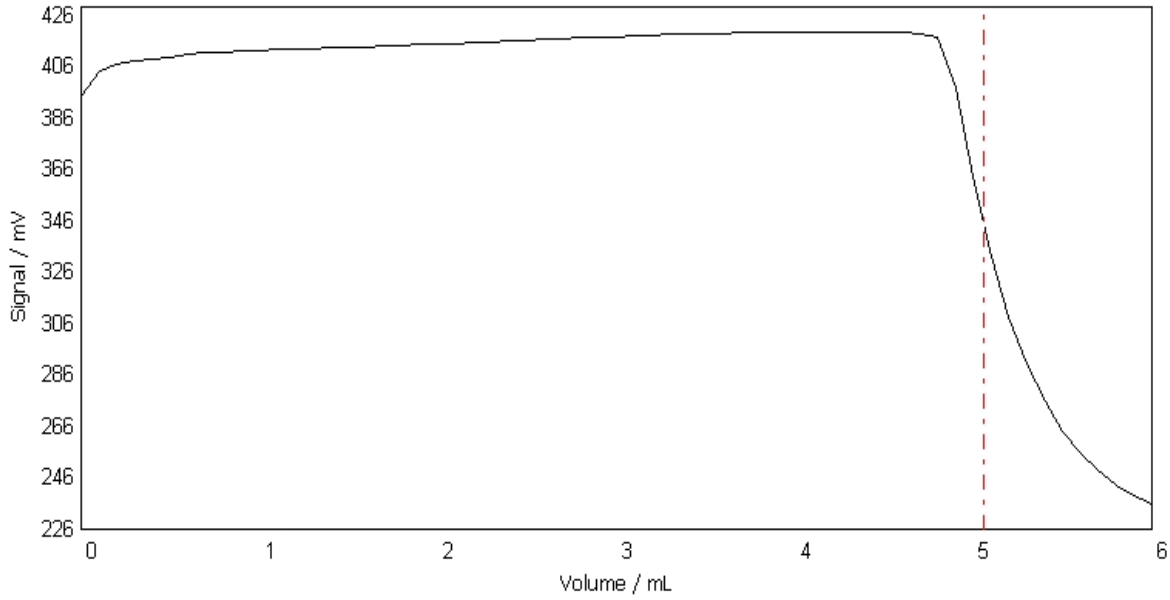
Titrant EGTA c = 0.1 mol/L TITER = 1.23202
Sensor DP5
Sample 5/6

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.0000	NaN	394.4	NaN	NaN	0	25.0
	0.1000	0.1000	403.8	9.4	NaN	3	25.0
	0.2000	0.1000	406.5	2.7	NaN	6	25.0
	0.3000	0.1000	407.8	1.3	NaN	9	25.0
	0.4000	0.1000	408.9	1.1	NaN	12	25.0
	0.5000	0.1000	409.4	0.5	3.15	15	25.0
	0.6000	0.1000	410.4	1.0	5.48	18	25.0
	0.7000	0.1000	411.0	0.6	5.20	21	25.0
	0.8000	0.1000	411.3	0.3	4.31	24	25.0
	0.9000	0.1000	411.7	0.4	3.49	27	25.0
	1.0000	0.1000	412.1	0.4	2.70	30	25.0
	1.1000	0.1000	412.4	0.3	2.67	34	25.0
	1.2000	0.1000	412.5	0.1	2.49	37	25.0
	1.3000	0.1000	412.8	0.3	2.24	40	25.0
	1.4000	0.1000	413.1	0.3	2.34	43	25.0
	1.5000	0.1000	413.3	0.2	2.49	46	25.0
	1.6000	0.1000	413.5	0.2	2.56	49	25.0
	1.7000	0.1000	413.8	0.3	2.50	52	25.0
	1.8000	0.1000	414.1	0.3	2.70	55	25.0
	1.9000	0.1000	414.3	0.2	2.74	58	25.0
	2.0000	0.1000	414.6	0.3	2.81	61	25.0
	2.1000	0.1000	414.9	0.3	2.74	64	25.0
	2.2000	0.1000	415.2	0.3	2.90	67	25.0
	2.3000	0.1000	415.4	0.2	2.90	70	25.0
	2.4000	0.1000	415.8	0.4	2.95	73	25.0
	2.5000	0.1000	416.0	0.2	3.00	76	25.0
	2.6000	0.1000	416.4	0.4	3.06	79	25.0
	2.7000	0.1000	416.6	0.2	3.01	82	25.0
	2.8000	0.1000	417.0	0.4	2.74	85	25.0
	2.9000	0.1000	417.2	0.2	2.65	88	25.0
	3.0000	0.1000	417.5	0.3	2.39	91	25.0
	3.1000	0.1000	417.7	0.2	2.45	94	25.0
	3.2000	0.1000	417.9	0.2	2.35	97	25.0
	3.3000	0.1000	418.2	0.3	2.41	100	25.0
	3.4000	0.1000	418.4	0.2	2.20	104	25.0
	3.5000	0.1000	418.7	0.3	2.06	106	25.0
	3.6000	0.1000	418.8	0.1	1.80	110	25.0
	3.7000	0.1000	419.0	0.2	1.60	113	25.0
	3.8000	0.1000	419.1	0.1	1.51	116	25.0
	3.9000	0.1000	419.3	0.2	1.20	119	25.0
	4.0000	0.1000	419.4	0.1	0.91	122	25.0
	4.1000	0.1000	419.5	0.1	0.52	125	25.0
	4.2000	0.1000	419.5	0.0	0.24	128	25.0
	4.3000	0.1000	419.4	-0.1	0.04	131	25.0
	4.4000	0.1000	419.4	0.0	9.65	134	25.0
	4.5000	0.1000	419.3	-0.1	16.51	137	25.0
	4.6000	0.1000	419.0	-0.3	-7.00	140	25.0
	4.7000	0.1000	418.4	-0.6	-65.68	143	25.0
	4.8000	0.1000	417.0	-1.4	-144.52	146	25.0
	4.9000	0.1000	397.5	-19.5	-219.42	149	25.0
	5.0000	0.1000	363.0	-34.5	-267.80	153	25.0
EQP1	5.055273	NaN	346.1	NaN	-274.50	NaN	NaN
	5.1000	0.1000	332.4	-30.6	-275.40	156	25.0

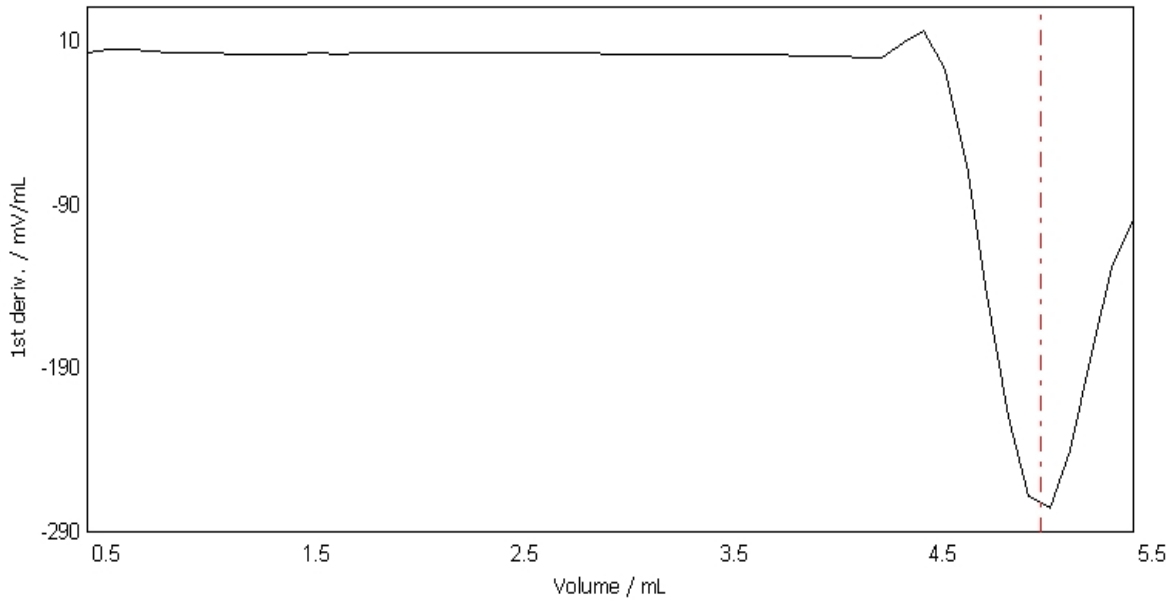
Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
5.2000	0.1000	308.4	-24.0	-240.71	160	25.0
5.3000	0.1000	290.0	-18.4	-179.86	164	25.0
5.4000	0.1000	275.6	-14.4	-128.77	167	25.0
5.5000	0.1000	264.3	-11.3	-98.39	170	25.0
5.6000	0.1000	255.7	-8.6	NaN	174	25.0
5.7000	0.1000	248.8	-6.9	NaN	176	25.0
5.8000	0.1000	243.1	-5.7	NaN	180	25.0
5.9000	0.1000	239.0	-4.1	NaN	183	25.0
6.0000	0.1000	235.8	-3.2	NaN	186	25.0

E - V curve **EQP titration [1]**
Sample 5/6



dE/dV - V curve **EQP titration [1]**
Sample 5/6



Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

Raw data

Sample

No.	6/6
Standard	CaCO3
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5.0 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.10070 mol/L
Temperature	T = 25.0 oC
Sample start	7/30/2012 12:22:19 PM
Sample end	7/30/2012 12:27:29 PM

Dispense (normal) [1]

Titrant	CaCO3 cDi = 0.1 mol/L TITERDi = 0.98776
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.493880 mmol
Time	0:13 min

EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202	
Sensor	DP5	
Start potential		EST = 386.1 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.056342 mL
		Q1 = 0.622951 mmol
		EEQ1 = 343.2 mV
		EHNV1 = 416.7 mV
Excess		VEX = 0.943658 mL
		QEX = 0.116261 mmol
End		VEND = 6.0000 mL
		QEND = 0.739212 mmol
Termination at	EQPs	
Time	t = 3:22 min	

Calculation

Result	R1 = 0.99578 -- Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 9.930487
Molar mass	M[Calcium carbonate] = 100.09 g/mol
Equivalent number	z[Calcium carbonate] = 1
Duration	tUSE = 04:35 min

Measured values EQP titration [1]

Titrant	EGTA c = 0.1 mol/L TITER = 1.23202
Sensor	DP5
Sample	6/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	386.1	NaN	NaN	0	25.0
0.1000	0.1000	405.0	18.9	NaN	3	25.0
0.2000	0.1000	407.2	2.2	NaN	6	25.0
0.3000	0.1000	408.2	1.0	NaN	9	25.0
0.4000	0.1000	409.8	1.6	NaN	12	25.0
0.5000	0.1000	409.3	-0.5	-1.70	16	25.0
0.6000	0.1000	411.0	1.7	7.10	19	25.0

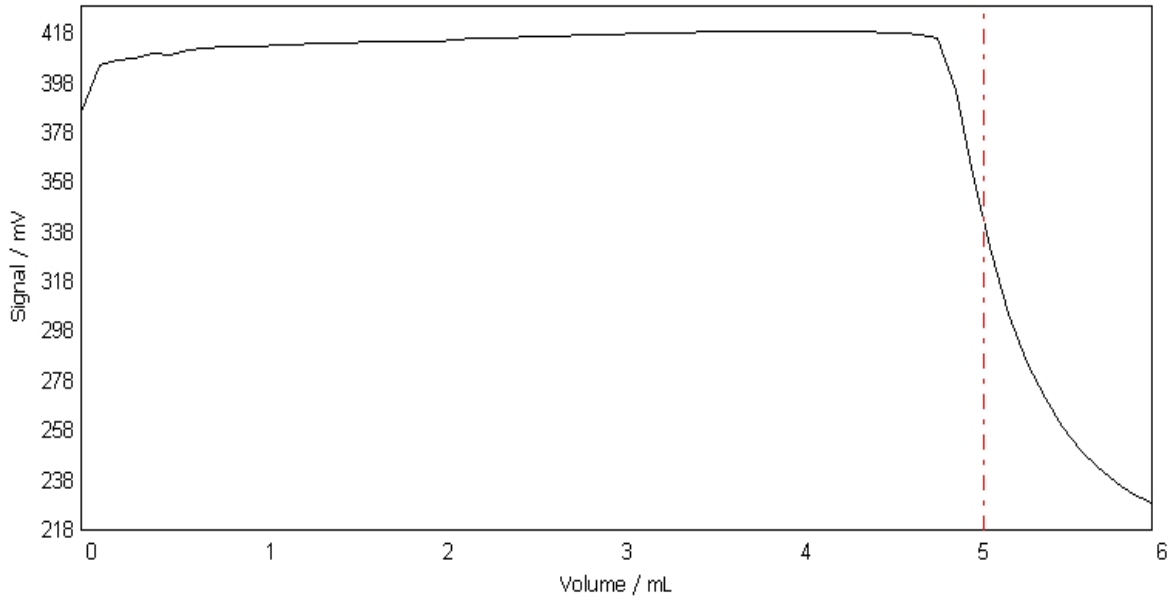
Method: **TiterofEGTA** **Titer of 0.1 mol/L EGTA** **7/30/2012 11:44:31 AM**
Start time: **7/30/2012 11:56:44 AM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.7000	0.1000	411.8	0.8	6.73	22	25.0
	0.8000	0.1000	412.4	0.6	5.46	25	25.0
	0.9000	0.1000	412.7	0.3	4.36	28	25.0
	1.0000	0.1000	413.0	0.3	2.20	31	25.0
	1.1000	0.1000	413.3	0.3	2.19	34	25.0
	1.2000	0.1000	413.4	0.1	2.28	37	25.0
	1.3000	0.1000	413.7	0.3	2.15	40	25.0
	1.4000	0.1000	414.0	0.3	2.03	43	25.0
	1.5000	0.1000	414.1	0.1	2.17	46	25.0
	1.6000	0.1000	414.4	0.3	1.87	49	25.0
	1.7000	0.1000	414.4	0.0	1.83	52	25.0
	1.8000	0.1000	414.8	0.4	2.17	55	25.0
	1.9000	0.1000	415.0	0.2	2.48	58	25.0
	2.0000	0.1000	415.0	0.0	2.60	61	25.0
	2.1000	0.1000	415.6	0.6	2.84	64	25.0
	2.2000	0.1000	415.8	0.2	2.78	67	25.0
	2.3000	0.1000	416.0	0.2	2.81	70	25.0
	2.4000	0.1000	416.3	0.3	2.63	73	25.0
	2.5000	0.1000	416.6	0.3	2.33	76	25.0
	2.6000	0.1000	416.8	0.2	2.50	79	25.0
	2.7000	0.1000	417.0	0.2	2.36	82	25.0
	2.8000	0.1000	417.3	0.3	2.20	86	25.0
	2.9000	0.1000	417.5	0.2	2.20	88	25.0
	3.0000	0.1000	417.7	0.2	2.10	92	25.0
	3.1000	0.1000	417.9	0.2	2.01	95	25.0
	3.2000	0.1000	418.1	0.2	1.74	98	25.0
	3.3000	0.1000	418.3	0.2	1.65	101	25.0
	3.4000	0.1000	418.4	0.1	1.35	104	25.0
	3.5000	0.1000	418.6	0.2	1.31	107	25.0
	3.6000	0.1000	418.6	0.0	1.05	110	25.0
	3.7000	0.1000	418.8	0.2	0.85	113	25.0
	3.8000	0.1000	418.8	0.0	0.56	116	25.0
	3.9000	0.1000	419.0	0.2	0.30	119	25.0
	4.0000	0.1000	418.8	-0.2	0.12	122	25.0
	4.1000	0.1000	418.9	0.1	-0.34	125	25.0
	4.2000	0.1000	418.8	-0.1	-0.56	128	25.0
	4.3000	0.1000	418.8	0.0	-0.81	131	25.0
	4.4000	0.1000	418.6	-0.2	9.67	134	25.0
	4.5000	0.1000	418.3	-0.3	15.23	137	25.0
	4.6000	0.1000	418.0	-0.3	-8.82	140	25.0
	4.7000	0.1000	417.3	-0.7	-68.38	143	25.0
	4.8000	0.1000	415.9	-1.4	-147.85	146	25.0
	4.9000	0.1000	394.9	-21.0	-224.27	150	25.0
	5.0000	0.1000	360.9	-34.0	-273.45	153	25.0
EQP1	5.056342	NaN	343.2	NaN	-280.32	NaN	NaN
	5.1000	0.1000	329.4	-31.5	-280.98	157	25.0
	5.2000	0.1000	304.9	-24.5	-245.97	161	25.0
	5.3000	0.1000	285.6	-19.3	-184.57	164	25.0
	5.4000	0.1000	271.2	-14.4	-133.50	168	25.0
	5.5000	0.1000	259.4	-11.8	-101.82	171	25.0
	5.6000	0.1000	250.3	-9.1	NaN	175	25.0
	5.7000	0.1000	243.2	-7.1	NaN	178	25.0
	5.8000	0.1000	237.2	-6.0	NaN	181	25.0
	5.9000	0.1000	232.5	-4.7	NaN	184	25.0
	6.0000	0.1000	228.9	-3.6	NaN	187	25.0

Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

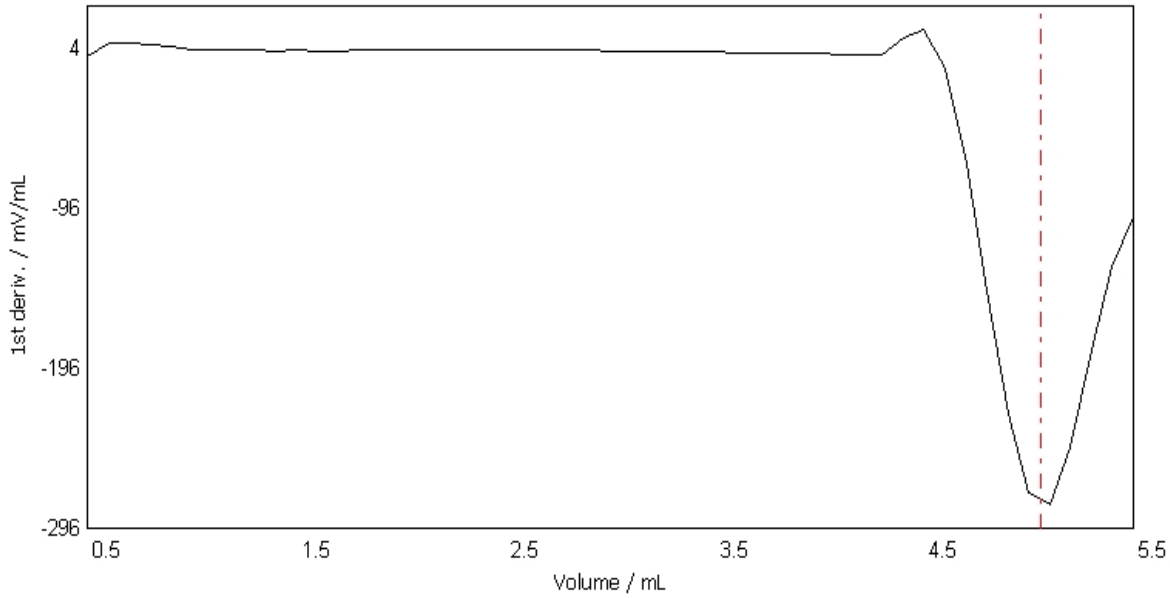
E - V curve **EQP titration [1]**

Sample 6/6



dE/dV - V curve **EQP titration [1]**

Sample 6/6



Raw data

Calculation

Result	R2 = 0.994 -- Mean Titer
Formula	R2=Mean[R1]
Constant	1
	C = 1
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1

Method:	**TiterofEGTA**	**Titer of 0.1 mol/L EGTA**	**7/30/2012 11:44:31 AM**
Start time:	**7/30/2012 11:56:44 AM**		

Titer

Titrant	EGTA c = 0.1 mol/L
Titer	0.99415

(1) Modified
(2) Excluded
(3) Outside limits
(4) Resource expired
(5) srel above max srel
(6) srel above max srel for multiple determination
(7) Value outside limits, not saved in setup
(8) Sample data outside limits
(9) Standard evaluation used
(10) Result from buffer

Created: **- (Administrator), 7/30/2012 12:01:52 PM**