Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Sample data

No.	Comment / ID	Start time	Sample size	Corr. f	Density
1/6	Zinc sulphate	7/18/2012 1:43:41 PM	5 mL	1.0	1 g/mL
2/6	Zinc sulphate	7/18/2012 1:56:58 PM	5 mL	1.0	1 g/mL
3/6	Zinc sulphate	7/18/2012 2:10:07 PM	5 mL	1.0	1 g/mL
4/6	Zinc sulphate	7/18/2012 2:23:11 PM	5 mL	1.0	1 g/mL
5/6	Zinc sulphate	7/18/2012 2:36:28 PM	5 mL	1.0	1 g/mL
6/6	Zinc sulphate	7/18/2012 2:49:31 PM	5 mL	1.0	1 g/mL

Results

No.	Comment / ID	Start time	Sample size and results		
1/6	Zinc sulphate	7/18/2012 1:43:41 PM	5	mL	
			R1 = 0.99367		Titer
2/6	Zinc sulphate	7/18/2012 1:56:58 PM	5	mL	
			R1 = 0.99217		Titer
3/6	Zinc sulphate	7/18/2012 2:10:07 PM	5	mL	
			R1 = 0.99255		Titer
4/6	Zinc sulphate	7/18/2012 2:23:11 PM	5	mL	
			R1 = 0.99235		Titer
5/6	Zinc sulphate	7/18/2012 2:36:28 PM	5	mL	
			R1 = 0.99225		Titer
6/6	Zinc sulphate	7/18/2012 2:49:31 PM	5	mL	
			R1 = 0.99215		Titer
-/-			R2 = 0.993	--	Mean Titer

Titer

Titer	0.99252

Series comment

Statistics

Rx	Name	n	Mean value	Unit	s	srel [%]
R1	Titer	6	0.99252		0.00058	0.058
R2	Mean Titer	1	0.993	--	NaN	NaN

Raw data

Sample

No.	1/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Correction factor	f = 1.0
Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 1:43:41 PM
Sample end	7/18/2012 1:56:58 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:12 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 568.5 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.031853 mL
		Q1 = 0.503185 mmol
		EEQ1 = 265.2 mV
		EHNV1 = 613.3 mV
Excess		VEX = 1.968147 mL
		QEX = 0.196815 mmol
End		VEND = 7.0000 mL
		QEND = 0.700000 mmol
Termination at	Max vol	
Time	t = 9:55 min	

Calculation

Result	R1 = 0.99367 Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 10
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1
Duration	tUSE = 11:33 min

Measured values EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000
Sensor	DP5
Sample	1/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	568.5	NaN	NaN	0	25.0
0.0100	0.0100	571.5	3.0	NaN	6	25.0
0.0200	0.0100	573.3	1.8	NaN	12	25.0
0.0450	0.0250	575.2	1.9	NaN	19	25.0
0.1075	0.0625	577.1	1.9	NaN	25	25.0
0.2075	0.1000	579.1	2.0	24.83	31	25.0
0.3075	0.1000	581.0	1.9	18.11	37	25.0
0.4075	0.1000	582.7	1.7	16.38	43	25.0
0.5075	0.1000	584.4	1.7	16.13	49	25.0
0.6075	0.1000	586.0	1.6	16.24	55	25.0
0.7075	0.1000	587.6	1.6	15.75	61	25.0
0.8075	0.1000	589.2	1.6	15.69	67	25.0

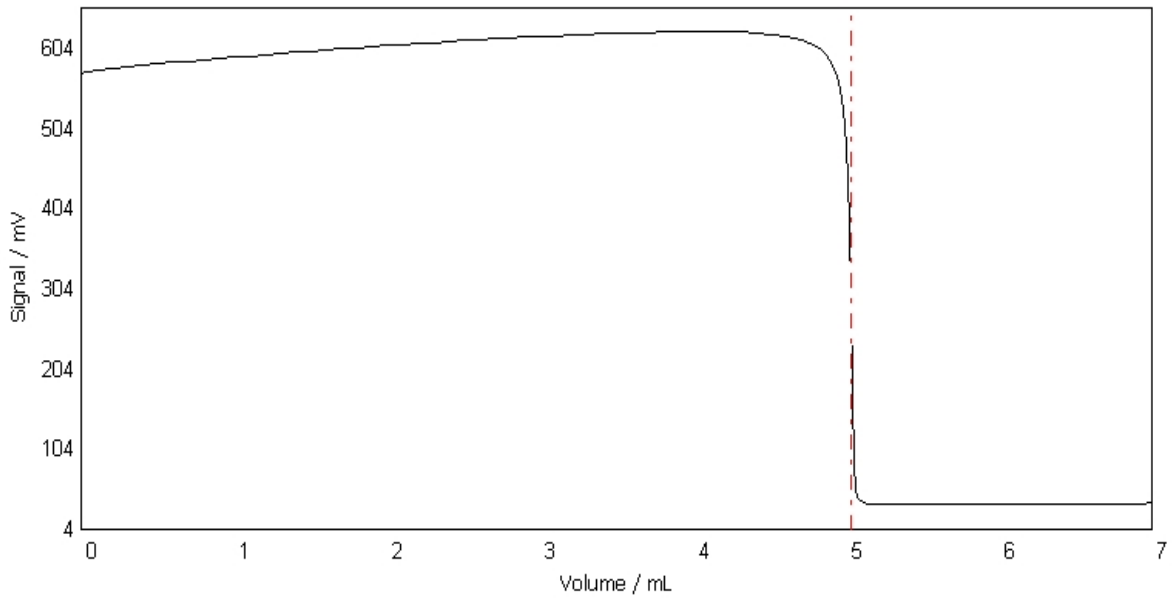
Method: STDEDTA **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: 7/18/2012 1:43:41 PM

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.9075	0.1000	590.8	1.6	15.71	73	25.0
	1.0075	0.1000	592.4	1.6	15.78	79	25.0
	1.1075	0.1000	593.7	1.3	15.82	86	25.0
	1.2075	0.1000	595.6	1.9	15.62	92	25.0
	1.3075	0.1000	597.1	1.5	15.49	98	25.0
	1.4075	0.1000	598.6	1.5	15.26	104	25.0
	1.5075	0.1000	600.1	1.5	15.07	110	25.0
	1.6075	0.1000	601.5	1.4	14.69	116	25.0
	1.7075	0.1000	603.1	1.6	14.77	122	25.0
	1.8075	0.1000	604.5	1.4	14.41	128	25.0
	1.9075	0.1000	606.0	1.5	13.92	134	25.0
	2.0075	0.1000	607.3	1.3	13.26	140	25.0
	2.1075	0.1000	608.6	1.3	12.49	146	25.0
	2.2075	0.1000	609.8	1.2	12.00	152	25.0
	2.3075	0.1000	611.0	1.2	11.43	158	25.0
	2.4075	0.1000	612.1	1.1	11.14	165	25.0
	2.5075	0.1000	613.2	1.1	10.96	171	25.0
	2.6075	0.1000	614.3	1.1	10.64	177	25.0
	2.7075	0.1000	615.3	1.0	10.30	183	25.0
	2.8075	0.1000	616.4	1.1	10.02	189	25.0
	2.9075	0.1000	617.4	1.0	9.70	195	25.0
	3.0075	0.1000	618.2	0.8	9.42	201	25.0
	3.1075	0.1000	619.2	1.0	8.82	207	25.0
	3.2075	0.1000	620.1	0.9	8.15	213	25.0
	3.3075	0.1000	620.9	0.8	7.51	219	25.0
	3.4075	0.1000	621.6	0.7	6.86	226	25.0
	3.5075	0.1000	622.1	0.5	6.10	232	25.0
	3.6075	0.1000	622.8	0.7	5.46	238	25.0
	3.7075	0.1000	623.3	0.5	4.87	244	25.0
	3.8075	0.1000	623.8	0.5	4.26	250	25.0
	3.9075	0.1000	624.1	0.3	3.38	256	25.0
	4.0075	0.1000	624.3	0.2	1.96	262	25.0
	4.1075	0.1000	624.5	0.2	0.35	268	25.0
	4.2075	0.1000	624.4	-0.1	-2.15	274	25.0
	4.3075	0.1000	623.9	-0.5	-4.95	280	25.0
	4.4075	0.1000	622.9	-1.0	-11.37	286	25.0
	4.5075	0.1000	621.3	-1.6	-22.28	292	25.0
	4.6075	0.1000	618.4	-2.9	-41.92	298	25.0
	4.7075	0.1000	613.8	-4.6	-78.75	305	25.0
	4.8075	0.1000	604.9	-8.9	-157.08	311	25.0
	4.8520	0.0445	598.5	-6.4	-225.50	317	25.0
	4.8785	0.0265	592.4	-6.1	-296.95	323	25.0
	4.8945	0.0160	588.6	-3.8	-363.21	329	25.0
	4.9195	0.0250	579.0	-9.6	-510.41	335	25.0
	4.9295	0.0100	574.1	-4.9	-592.39	341	25.0
	4.9395	0.0100	568.3	-5.8	-692.39	347	25.0
	4.9495	0.0100	560.7	-7.6	-821.80	353	25.0
	4.9595	0.0100	552.2	-8.5	-1018.55	360	25.0
	4.9695	0.0100	540.8	-11.4	-1219.82	366	25.0
	4.9795	0.0100	525.7	-15.1	-1565.00	373	25.0
	4.9895	0.0100	506.2	-19.5	-2210.19	379	25.0
	4.9995	0.0100	479.4	-26.8	-3716.64	388	25.0
	5.0095	0.0100	441.4	-38.0	-5971.74	396	25.0
	5.0195	0.0100	383.1	-58.3	-7990.08	407	25.0
	5.0295	0.0100	293.4	-89.7	-8493.08	417	25.0
EQP1	5.031853	NaN	265.2	NaN	-8501.94	NaN	NaN
	5.0395	0.0100	173.4	-120.0	-6132.90	427	25.0
	5.0495	0.0100	85.5	-87.9	-4775.17	437	25.0
	5.0595	0.0100	54.2	-31.3	-4310.16	443	25.0
	5.0695	0.0100	44.7	-9.5	-3096.03	450	25.0
	5.0905	0.0210	39.4	-5.3	-1498.85	456	25.0
	5.1430	0.0525	36.3	-3.1	-396.40	462	25.0
	5.2430	0.1000	35.2	-1.1	-47.11	469	25.0
	5.3430	0.1000	34.9	-0.3	-4.20	475	25.0
	5.4430	0.1000	34.8	-0.1	1.82	481	25.0
	5.5430	0.1000	34.8	0.0	1.98	487	25.0
	5.6430	0.1000	34.9	0.1	1.30	493	25.0
	5.7430	0.1000	35.0	0.1	1.07	499	25.0
	5.8430	0.1000	35.1	0.1	1.12	505	25.0
	5.9430	0.1000	35.2	0.1	1.16	511	25.0
	6.0430	0.1000	35.3	0.1	1.14	517	25.0
	6.1430	0.1000	35.4	0.1	1.26	523	25.0
	6.2430	0.1000	35.6	0.2	1.30	530	25.0
	6.3430	0.1000	35.7	0.1	1.40	536	25.0

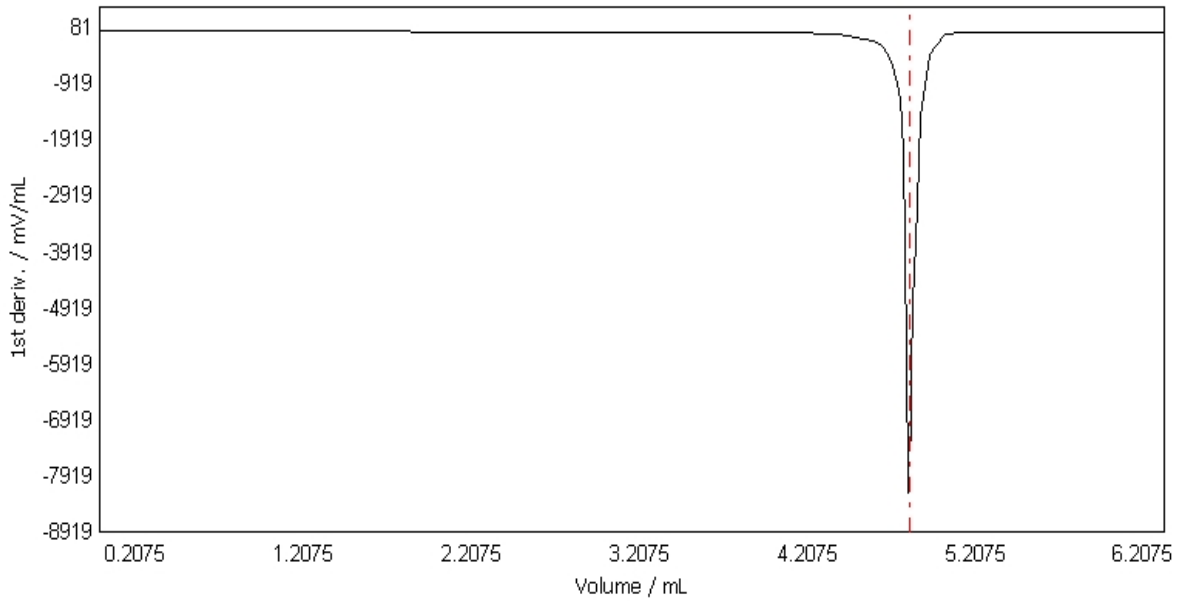
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
6.4430	0.1000	35.8	0.1	1.46	542	25.0
6.5430	0.1000	36.0	0.2	1.43	548	25.0
6.6430	0.1000	36.1	0.1	NaN	554	25.0
6.7430	0.1000	36.3	0.2	NaN	560	25.0
6.8430	0.1000	36.4	0.1	NaN	566	25.0
6.9430	0.1000	36.5	0.1	NaN	572	25.0
7.0000	0.0570	36.6	0.1	NaN	578	25.0

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



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



Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

Raw data

Sample

No.	2/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 1:56:58 PM
Sample end	7/18/2012 2:10:07 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:12 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 606.3 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.039443 mL
		Q1 = 0.503944 mmol
		EEQ1 = 321.3 mV
		EHNV1 = 665.1 mV
Excess		VEX = 1.960557 mL
		QEX = 0.196056 mmol
End		VEND = 7.0000 mL
		QEND = 0.700000 mmol
Termination at	Max vol	
Time	t = 9:46 min	

Calculation

Result	R1 = 0.99217 Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 10
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1
Duration	tUSE = 11:25 min

Measured values EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000
Sensor	DP5
Sample	2/6

Volume	Increment	Signal	Change	1st deriv.	Time	Temperature

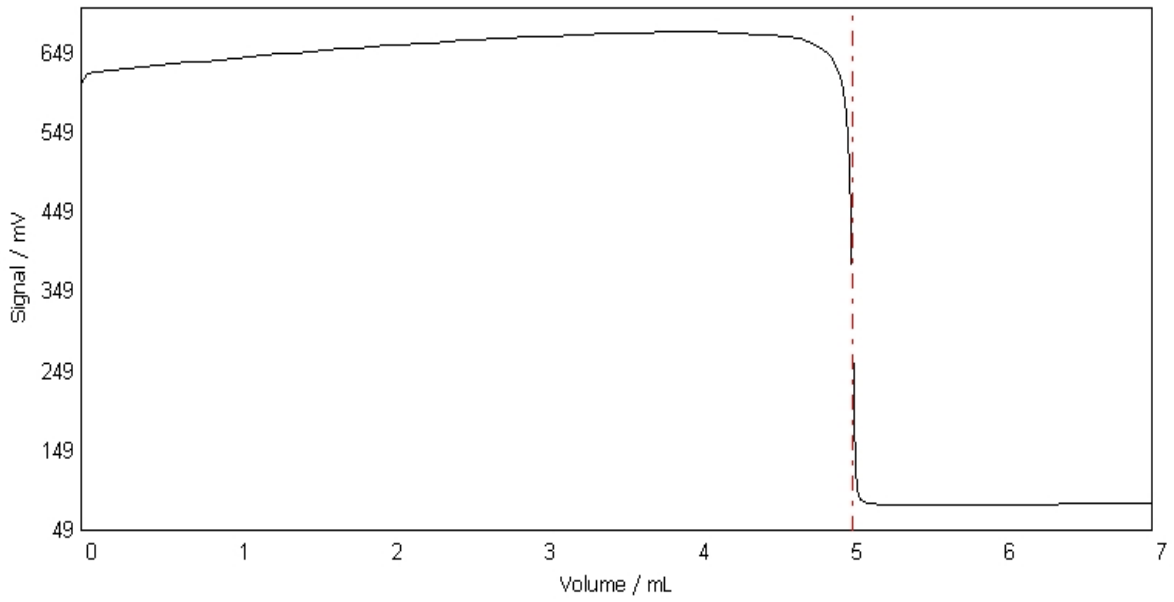
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	mL	mL	mV	mV	mV/mL	s	oC
	0.0000	NaN	606.3	NaN	NaN	0	25.0
	0.0100	0.0100	614.5	8.2	NaN	16	25.0
	0.0200	0.0100	617.9	3.4	NaN	23	25.0
	0.0450	0.0250	622.5	4.6	NaN	34	25.0
	0.1040	0.0590	626.0	3.5	NaN	43	25.0
	0.2040	0.1000	628.0	2.0	37.80	49	25.0
	0.3040	0.1000	629.8	1.8	20.96	55	25.0
	0.4040	0.1000	632.3	2.5	17.07	61	25.0
	0.5040	0.1000	634.0	1.7	17.35	67	25.0
	0.6040	0.1000	635.7	1.7	17.94	73	25.0
	0.7040	0.1000	637.5	1.8	17.37	80	25.0
	0.8040	0.1000	639.2	1.7	17.35	86	25.0
	0.9040	0.1000	641.0	1.8	18.08	92	25.0
	1.0040	0.1000	642.8	1.8	18.01	98	25.0
	1.1040	0.1000	644.6	1.8	17.95	104	25.0
	1.2040	0.1000	646.5	1.9	17.42	110	25.0
	1.3040	0.1000	648.1	1.6	16.64	116	25.0
	1.4040	0.1000	649.7	1.6	15.96	122	25.0
	1.5040	0.1000	651.4	1.7	15.38	128	25.0
	1.6040	0.1000	652.7	1.3	14.97	134	25.0
	1.7040	0.1000	654.3	1.6	14.76	140	25.0
	1.8040	0.1000	655.8	1.5	14.67	146	25.0
	1.9040	0.1000	657.2	1.4	14.29	153	25.0
	2.0040	0.1000	658.6	1.4	13.87	159	25.0
	2.1040	0.1000	660.0	1.4	13.22	165	25.0
	2.2040	0.1000	661.4	1.4	12.75	171	25.0
	2.3040	0.1000	662.4	1.0	12.03	177	25.0
	2.4040	0.1000	663.7	1.3	11.51	183	25.0
	2.5040	0.1000	664.9	1.2	11.14	189	25.0
	2.6040	0.1000	665.9	1.0	10.83	195	25.0
	2.7040	0.1000	666.9	1.0	10.65	201	25.0
	2.8040	0.1000	668.1	1.2	9.78	207	25.0
	2.9040	0.1000	669.0	0.9	9.28	213	25.0
	3.0040	0.1000	669.9	0.9	8.98	220	25.0
	3.1040	0.1000	670.8	0.9	8.21	226	25.0
	3.2040	0.1000	671.4	0.6	7.99	232	25.0
	3.3040	0.1000	672.4	1.0	7.88	238	25.0
	3.4040	0.1000	673.2	0.8	7.65	244	25.0
	3.5040	0.1000	673.7	0.5	7.24	250	25.0
	3.6040	0.1000	674.7	1.0	6.62	256	25.0
	3.7040	0.1000	675.1	0.4	6.87	262	25.0
	3.8040	0.1000	675.7	0.6	3.99	268	25.0
	3.9040	0.1000	676.0	0.3	-0.13	274	25.0
	4.0040	0.1000	676.2	0.2	-3.81	280	25.0
	4.1040	0.1000	676.1	-0.1	-6.14	286	25.0
	4.2040	0.1000	673.4	-2.7	-7.61	292	25.0
	4.3040	0.1000	673.4	0.0	-6.79	299	25.0
	4.4040	0.1000	673.0	-0.4	-6.03	305	25.0
	4.5040	0.1000	671.8	-1.2	-11.58	311	25.0
	4.6040	0.1000	670.1	-1.7	-25.86	317	25.0
	4.7040	0.1000	667.2	-2.9	-60.90	324	25.0
	4.8040	0.1000	660.3	-6.9	-128.62	330	25.0
	4.8810	0.0770	649.5	-10.8	-241.28	336	25.0
	4.9020	0.0210	645.2	-4.3	-315.82	342	25.0
	4.9215	0.0195	638.8	-6.4	-420.12	348	25.0
	4.9330	0.0115	634.7	-4.1	-514.25	354	25.0
	4.9490	0.0160	626.5	-8.2	-659.50	361	25.0
	4.9590	0.0100	620.3	-6.2	-755.23	367	25.0
	4.9690	0.0100	612.6	-7.7	-924.07	373	25.0
	4.9790	0.0100	601.9	-10.7	-1117.19	379	25.0
	4.9890	0.0100	588.6	-13.3	-1448.25	385	25.0
	4.9990	0.0100	569.7	-18.9	-2155.81	391	25.0
	5.0090	0.0100	543.7	-26.0	-4169.69	397	25.0
	5.0190	0.0100	504.2	-39.5	-6796.49	404	25.0
	5.0290	0.0100	439.6	-64.6	-8851.89	410	25.0
	5.0390	0.0100	327.2	-112.4	-9016.68	417	25.0
EQP1	5.039443	NaN	321.3	NaN	-9016.68	NaN	NaN
	5.0490	0.0100	194.3	-132.9	-6428.85	423	25.0
	5.0590	0.0100	124.3	-70.0	-4849.34	429	25.0
	5.0690	0.0100	102.3	-22.0	-4395.62	435	25.0
	5.0790	0.0100	94.0	-8.3	-3093.49	442	25.0
	5.0980	0.0190	87.6	-6.4	-1430.45	448	25.0
	5.1430	0.0450	83.0	-4.6	-381.31	454	25.0

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
5.2430	0.1000	80.7	-2.3	-56.93	460	25.0
5.3430	0.1000	80.0	-0.7	-9.10	466	25.0
5.4430	0.1000	79.8	-0.2	1.26	472	25.0
5.5430	0.1000	79.8	0.0	3.06	478	25.0
5.6430	0.1000	80.0	0.2	2.70	484	25.0
5.7430	0.1000	80.2	0.2	2.47	490	25.0
5.8430	0.1000	80.4	0.2	2.54	496	25.0
5.9430	0.1000	80.7	0.3	2.62	502	25.0
6.0430	0.1000	80.9	0.2	2.70	508	25.0
6.1430	0.1000	81.2	0.3	2.86	514	25.0
6.2430	0.1000	81.5	0.3	2.90	521	25.0
6.3430	0.1000	81.8	0.3	3.06	527	25.0
6.4430	0.1000	82.1	0.3	3.10	533	25.0
6.5430	0.1000	82.4	0.3	3.07	539	25.0
6.6430	0.1000	82.7	0.3	NaN	545	25.0
6.7430	0.1000	83.1	0.4	NaN	551	25.0
6.8430	0.1000	83.3	0.2	NaN	557	25.0
6.9430	0.1000	83.7	0.4	NaN	563	25.0
7.0000	0.0570	83.9	0.2	NaN	569	25.0

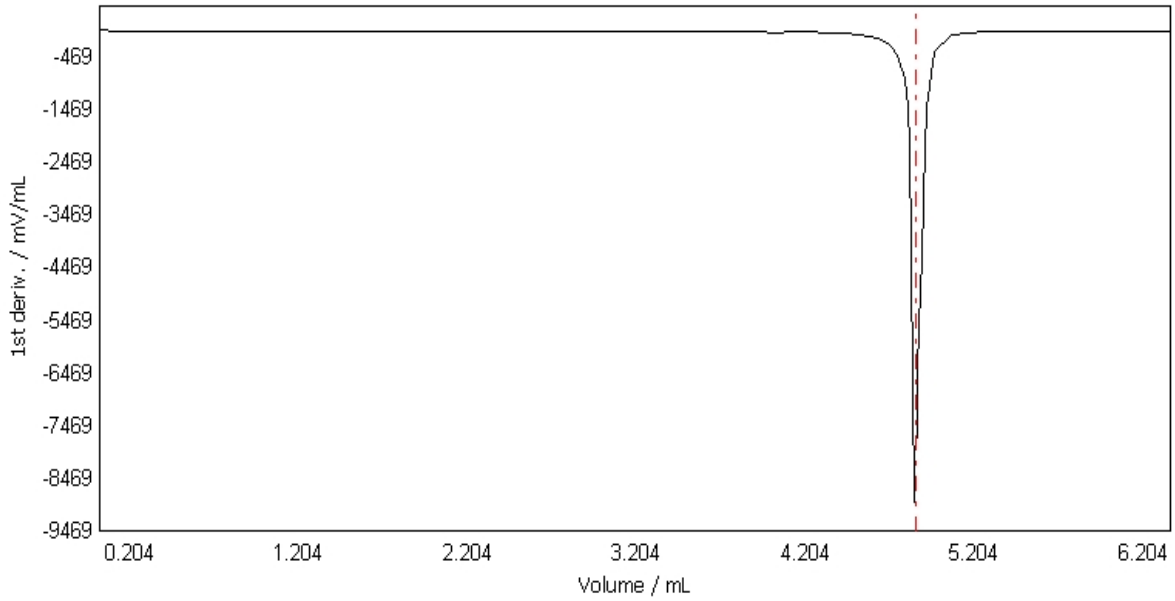
E - V curve **EQP titration [1]**
Sample 2/6



Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

dE/dV - V curve EQP titration [1]

Sample 2/6



Raw data

Sample

No.	3/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 2:10:07 PM
Sample end	7/18/2012 2:23:11 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:13 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 639.1 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.037530 mL
		Q1 = 0.503753 mmol

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

EEQ1 = 350.9 mV
EHNV1 = 684.7 mV

Excess
VEX = 1.962470 mL
QEX = 0.196247 mmol

End
VEND = 7.0000 mL
QEND = 0.700000 mmol

Termination at: Max vol
Time: t = 9:40 min

Calculation

Result: R1 = 0.99255 Titer
Formula: R1=m/(VEQ*c*C)
Constant: 1/(cst*z)
C = 10
Molar mass: M[None] = 1 g/mol
Equivalent number: z[None] = 1
Duration: tUSE = 11:20 min

Measured values **EQP titration [1]**

Titrant: EDTA c = 0.1 mol/L TITER = 1.000
Sensor: DP5
Sample: 3/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	639.1	NaN	NaN	0	25.0
0.0100	0.0100	643.0	3.9	NaN	6	25.0
0.0200	0.0100	644.9	1.9	NaN	12	25.0
0.0450	0.0250	648.5	3.6	NaN	21	25.0
0.1020	0.0570	651.2	2.7	NaN	28	25.0
0.2020	0.1000	653.2	2.0	30.71	34	25.0
0.3020	0.1000	655.1	1.9	19.41	40	25.0
0.4020	0.1000	657.0	1.9	16.50	47	25.0
0.5020	0.1000	658.7	1.7	17.04	53	25.0
0.6020	0.1000	660.5	1.8	17.35	59	25.0
0.7020	0.1000	662.2	1.7	16.89	65	25.0
0.8020	0.1000	663.9	1.7	16.40	71	25.0
0.9020	0.1000	665.6	1.7	16.00	77	25.0
1.0020	0.1000	667.0	1.4	15.60	83	25.0
1.1020	0.1000	668.6	1.6	15.16	89	25.0
1.2020	0.1000	670.1	1.5	14.65	95	25.0
1.3020	0.1000	671.6	1.5	14.10	101	25.0
1.4020	0.1000	673.0	1.4	13.62	107	25.0
1.5020	0.1000	674.2	1.2	12.79	114	25.0
1.6020	0.1000	675.5	1.3	12.26	120	25.0
1.7020	0.1000	676.7	1.2	11.64	126	25.0
1.8020	0.1000	677.9	1.2	11.20	132	25.0
1.9020	0.1000	678.9	1.0	10.54	138	25.0
2.0020	0.1000	680.0	1.1	9.88	144	25.0
2.1020	0.1000	680.9	0.9	9.54	150	25.0
2.2020	0.1000	681.9	1.0	9.29	156	25.0
2.3020	0.1000	682.7	0.8	9.04	162	25.0
2.4020	0.1000	683.7	1.0	8.80	168	25.0
2.5020	0.1000	684.6	0.9	8.64	174	25.0
2.6020	0.1000	685.4	0.8	8.54	180	25.0
2.7020	0.1000	686.2	0.8	8.52	186	25.0
2.8020	0.1000	687.1	0.9	8.30	193	25.0
2.9020	0.1000	687.9	0.8	8.21	199	25.0
3.0020	0.1000	688.8	0.9	7.98	205	25.0
3.1020	0.1000	689.5	0.7	7.40	211	25.0
3.2020	0.1000	690.2	0.7	6.86	217	25.0
3.3020	0.1000	690.9	0.7	6.30	223	25.0
3.4020	0.1000	691.5	0.6	5.84	229	25.0
3.5020	0.1000	692.0	0.5	5.46	235	25.0
3.6020	0.1000	692.6	0.6	5.07	241	25.0
3.7020	0.1000	693.0	0.4	4.52	247	25.0
3.8020	0.1000	693.5	0.5	3.95	254	25.0
3.9020	0.1000	693.8	0.3	3.01	260	25.0
4.0020	0.1000	694.1	0.3	1.77	266	25.0

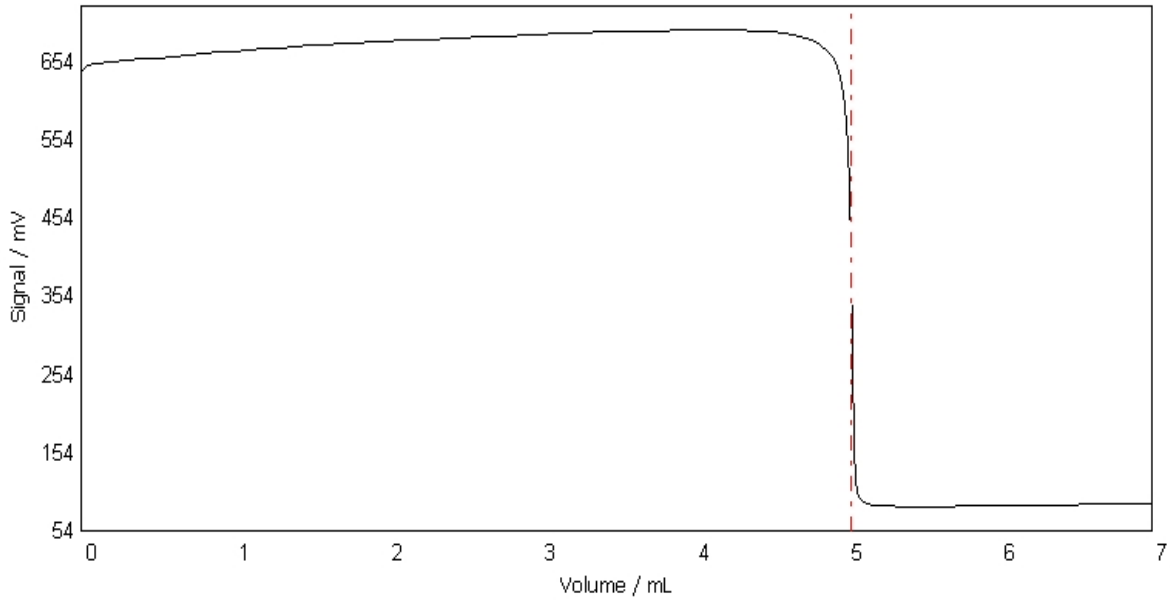
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	4.1020	0.1000	694.1	0.0	0.55	272	25.0
	4.2020	0.1000	694.1	0.0	-1.39	278	25.0
	4.3020	0.1000	693.7	-0.4	-3.08	284	25.0
	4.4020	0.1000	693.1	-0.6	-5.88	290	25.0
	4.5020	0.1000	692.0	-1.1	-14.74	296	25.0
	4.6020	0.1000	689.8	-2.2	-31.02	302	25.0
	4.7020	0.1000	686.5	-3.3	-63.37	308	25.0
	4.8020	0.1000	679.5	-7.0	-129.90	315	25.0
	4.8745	0.0725	669.4	-10.1	-230.92	322	25.0
	4.8965	0.0220	665.0	-4.4	-303.56	328	25.0
	4.9175	0.0210	658.2	-6.8	-403.96	335	25.0
	4.9290	0.0115	653.7	-4.5	-491.60	341	25.0
	4.9410	0.0120	648.3	-5.4	-579.15	347	25.0
	4.9530	0.0120	641.5	-6.8	-687.25	353	25.0
	4.9630	0.0100	634.0	-7.5	-829.58	359	25.0
	4.9730	0.0100	624.9	-9.1	-993.79	365	25.0
	4.9830	0.0100	613.0	-11.9	-1259.54	371	25.0
	4.9930	0.0100	597.2	-15.8	-1663.04	378	25.0
	5.0030	0.0100	575.2	-22.0	-2913.99	384	25.0
	5.0130	0.0100	543.8	-31.4	-5396.23	390	25.0
	5.0230	0.0100	493.4	-50.4	-7966.82	397	25.0
	5.0330	0.0100	411.6	-81.8	-9467.24	403	25.0
EQP1	5.037530	NaN	350.9	NaN	-9506.25	NaN	NaN
	5.0430	0.0100	277.6	-134.0	-8388.41	409	25.0
	5.0530	0.0100	160.8	-116.8	-5513.06	417	25.0
	5.0630	0.0100	118.5	-42.3	-4818.12	423	25.0
	5.0730	0.0100	104.1	-14.4	-3989.41	429	25.0
	5.0855	0.0125	96.7	-7.4	-2415.92	435	25.0
	5.1100	0.0245	91.1	-5.6	-927.61	441	25.0
	5.1710	0.0610	87.2	-3.9	-200.74	447	25.0
	5.2710	0.1000	85.5	-1.7	-34.41	453	25.0
	5.3710	0.1000	85.1	-0.4	-4.60	459	25.0
	5.4710	0.1000	85.0	-0.1	2.11	466	25.0
	5.5710	0.1000	85.0	0.0	2.91	472	25.0
	5.6710	0.1000	85.2	0.2	2.45	478	25.0
	5.7710	0.1000	85.4	0.2	2.39	484	25.0
	5.8710	0.1000	85.6	0.2	2.68	490	25.0
	5.9710	0.1000	85.9	0.3	2.87	496	25.0
	6.0710	0.1000	86.2	0.3	2.96	502	25.0
	6.1710	0.1000	86.5	0.3	3.06	508	25.0
	6.2710	0.1000	86.8	0.3	3.00	514	25.0
	6.3710	0.1000	87.1	0.3	3.00	520	25.0
	6.4710	0.1000	87.4	0.3	3.04	526	25.0
	6.5710	0.1000	87.7	0.3	3.14	532	25.0
	6.6710	0.1000	88.0	0.3	NaN	538	25.0
	6.7710	0.1000	88.4	0.4	NaN	545	25.0
	6.8710	0.1000	88.7	0.3	NaN	551	25.0
	6.9710	0.1000	89.1	0.4	NaN	557	25.0
	7.0000	0.0290	89.2	0.1	NaN	563	25.0

Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

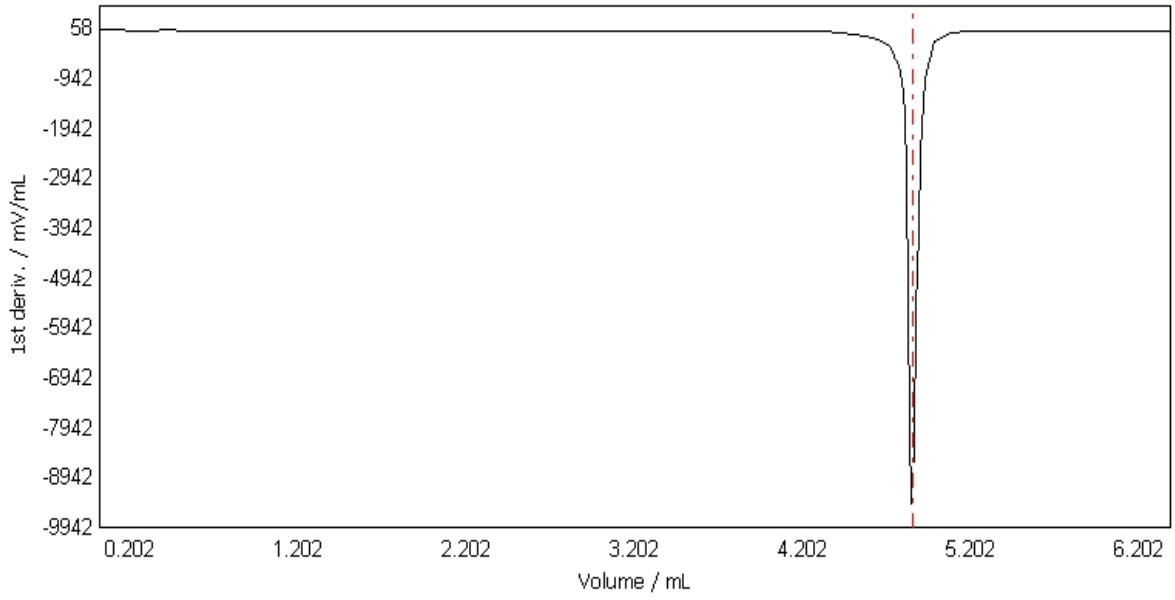
E - V curve EQP titration [1]

Sample 3/6



dE/dV - V curve EQP titration [1]

Sample 3/6



Raw data

Sample

No.	4/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Correction factor	f = 1.0
Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 2:23:11 PM
Sample end	7/18/2012 2:36:28 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:13 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 635.7 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.038559 mL
		Q1 = 0.503856 mmol
		EEQ1 = 353.9 mV
		EHNV1 = 679.9 mV
Excess		VEX = 1.961441 mL
		QEX = 0.196144 mmol
End		VEND = 7.0000 mL
		QEND = 0.700000 mmol
Termination at	Max vol	
Time	t = 9:52 min	

Calculation

Result	R1 = 0.99235 Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 10
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1
Duration	tUSE = 11:31 min

Measured values EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000
Sensor	DP5
Sample	4/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	635.7	NaN	NaN	0	25.0
0.0100	0.0100	638.6	2.9	NaN	6	25.0
0.0200	0.0100	640.9	2.3	NaN	12	25.0
0.0450	0.0250	644.9	4.0	NaN	23	25.0
0.1000	0.0550	646.9	2.0	NaN	29	25.0
0.2000	0.1000	649.0	2.1	29.82	35	25.0
0.3000	0.1000	651.1	2.1	17.65	41	25.0
0.4000	0.1000	652.7	1.6	14.47	48	25.0
0.5000	0.1000	654.0	1.3	14.87	54	25.0
0.6000	0.1000	655.5	1.5	14.86	60	25.0
0.7000	0.1000	657.2	1.7	14.97	66	25.0
0.8000	0.1000	658.7	1.5	15.26	72	25.0

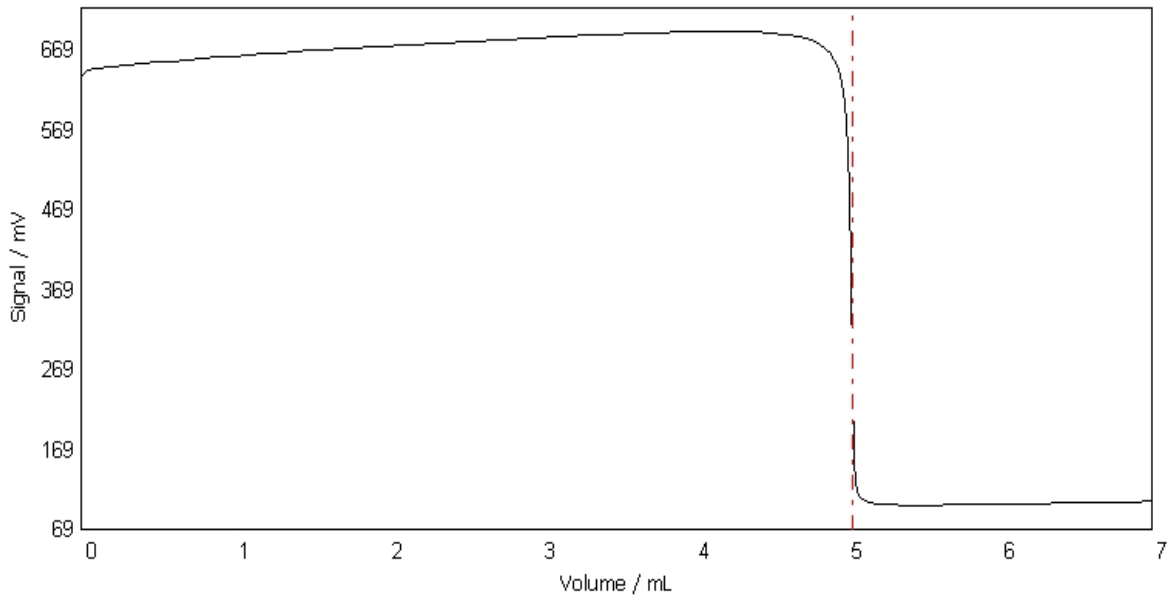
Method: STDEDTA **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: 7/18/2012 1:43:41 PM

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	0.9000	0.1000	660.2	1.5	14.98	78	25.0
	1.0000	0.1000	661.6	1.4	14.26	84	25.0
	1.1000	0.1000	663.1	1.5	13.74	90	25.0
	1.2000	0.1000	664.4	1.3	13.50	96	25.0
	1.3000	0.1000	665.7	1.3	12.99	102	25.0
	1.4000	0.1000	667.0	1.3	12.59	108	25.0
	1.5000	0.1000	668.3	1.3	12.29	114	25.0
	1.6000	0.1000	669.5	1.2	12.19	120	25.0
	1.7000	0.1000	670.6	1.1	12.16	127	25.0
	1.8000	0.1000	671.9	1.3	12.00	133	25.0
	1.9000	0.1000	673.1	1.2	11.95	139	25.0
	2.0000	0.1000	674.3	1.2	11.82	145	25.0
	2.1000	0.1000	675.5	1.2	11.40	151	25.0
	2.2000	0.1000	676.5	1.0	10.88	157	25.0
	2.3000	0.1000	677.7	1.2	10.70	163	25.0
	2.4000	0.1000	678.7	1.0	10.64	169	25.0
	2.5000	0.1000	679.7	1.0	10.55	175	25.0
	2.6000	0.1000	680.8	1.1	10.47	181	25.0
	2.7000	0.1000	681.9	1.1	10.20	187	25.0
	2.8000	0.1000	682.9	1.0	10.12	194	25.0
	2.9000	0.1000	683.8	0.9	9.60	200	25.0
	3.0000	0.1000	684.8	1.0	9.09	206	25.0
	3.1000	0.1000	685.7	0.9	8.80	212	25.0
	3.2000	0.1000	686.6	0.9	8.60	218	25.0
	3.3000	0.1000	687.3	0.7	8.26	224	25.0
	3.4000	0.1000	688.2	0.9	7.76	230	25.0
	3.5000	0.1000	689.0	0.8	7.47	236	25.0
	3.6000	0.1000	689.7	0.7	6.97	242	25.0
	3.7000	0.1000	690.3	0.6	6.33	248	25.0
	3.8000	0.1000	690.9	0.6	5.43	254	25.0
	3.9000	0.1000	691.5	0.6	4.59	260	25.0
	4.0000	0.1000	691.8	0.3	3.51	267	25.0
	4.1000	0.1000	692.1	0.3	2.28	273	25.0
	4.2000	0.1000	692.2	0.1	0.70	279	25.0
	4.3000	0.1000	692.1	-0.1	-1.00	285	25.0
	4.4000	0.1000	691.7	-0.4	-1.19	291	25.0
	4.5000	0.1000	690.9	-0.8	-9.72	297	25.0
	4.6000	0.1000	689.2	-1.7	-26.65	303	25.0
	4.7000	0.1000	686.2	-3.0	-57.98	309	25.0
	4.8000	0.1000	680.3	-5.9	-122.96	316	25.0
	4.9000	0.1000	665.6	-14.7	-272.20	322	25.0
	4.9165	0.0165	660.8	-4.8	-361.70	328	25.0
	4.9270	0.0105	657.4	-3.4	-455.15	334	25.0
	4.9435	0.0165	650.8	-6.6	-602.93	340	25.0
	4.9555	0.0120	643.8	-7.0	-715.04	346	25.0
	4.9655	0.0100	637.2	-6.6	-792.84	352	25.0
	4.9755	0.0100	628.0	-9.2	-959.78	359	25.0
	4.9855	0.0100	616.7	-11.3	-1258.81	366	25.0
	4.9955	0.0100	601.2	-15.5	-1666.20	373	25.0
	5.0055	0.0100	578.9	-22.3	-3279.43	380	25.0
	5.0155	0.0100	545.8	-33.1	-5958.76	388	25.0
	5.0255	0.0100	491.3	-54.5	-8424.80	396	25.0
	5.0355	0.0100	398.2	-93.1	-9426.15	403	25.0
EQP1	5.038559	NaN	353.9	NaN	-9442.57	NaN	NaN
	5.0455	0.0100	253.3	-144.9	-7686.95	418	25.0
	5.0555	0.0100	157.9	-95.4	-5083.18	426	25.0
	5.0655	0.0100	127.8	-30.1	-4686.45	433	25.0
	5.0755	0.0100	116.9	-10.9	-3650.78	440	25.0
	5.0910	0.0155	109.5	-7.4	-1967.19	447	25.0
	5.1195	0.0285	104.6	-4.9	-663.44	453	25.0
	5.1905	0.0710	101.2	-3.4	-133.44	459	25.0
	5.2905	0.1000	99.8	-1.4	-24.83	465	25.0
	5.3905	0.1000	99.4	-0.4	-2.75	471	25.0
	5.4905	0.1000	99.3	-0.1	2.17	477	25.0
	5.5905	0.1000	99.4	0.1	2.92	483	25.0
	5.6905	0.1000	99.6	0.2	2.62	489	25.0
	5.7905	0.1000	99.8	0.2	2.75	495	25.0
	5.8905	0.1000	100.1	0.3	2.98	501	25.0
	5.9905	0.1000	100.4	0.3	3.21	508	25.0
	6.0905	0.1000	100.7	0.3	3.36	514	25.0
	6.1905	0.1000	101.1	0.4	3.46	520	25.0
	6.2905	0.1000	101.4	0.3	3.56	526	25.0
	6.3905	0.1000	101.8	0.4	3.60	532	25.0
	6.4905	0.1000	102.1	0.3	3.60	538	25.0

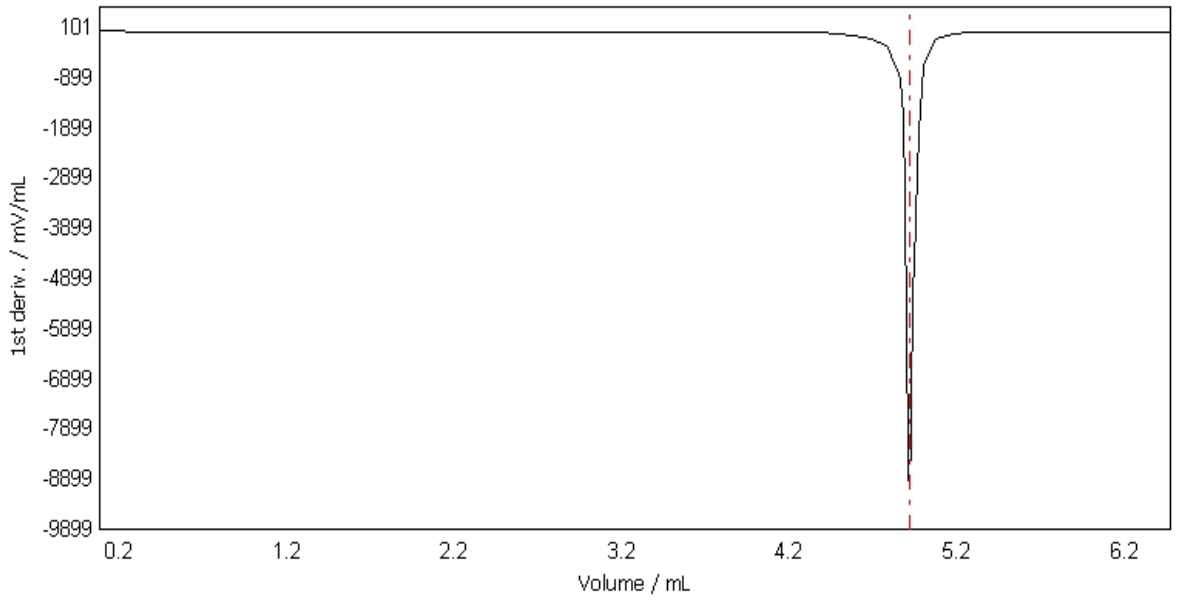
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
6.5905	0.1000	102.5	0.4	3.61	544	25.0
6.6905	0.1000	102.9	0.4	NaN	550	25.0
6.7905	0.1000	103.2	0.3	NaN	556	25.0
6.8905	0.1000	103.6	0.4	NaN	562	25.0
6.9905	0.1000	104.0	0.4	NaN	568	25.0
7.0000	0.0095	104.0	0.0	NaN	574	25.0

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



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



Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

Raw data

Sample

No.	5/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL
Correction factor	f = 1.0
Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 2:36:28 PM
Sample end	7/18/2012 2:49:30 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:12 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 661.1 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.039065 mL
		Q1 = 0.503906 mmol
		EEQ1 = 373.2 mV
		EHNV1 = 696.8 mV
Excess		VEX = 1.960935 mL
		QEX = 0.196094 mmol
End		VEND = 7.0000 mL
		QEND = 0.700000 mmol
Termination at	Max vol	
Time	t = 9:35 min	

Calculation

Result	R1 = 0.99225 Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 10
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1
Duration	tUSE = 11:16 min

Measured values EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000
Sensor	DP5
Sample	5/6

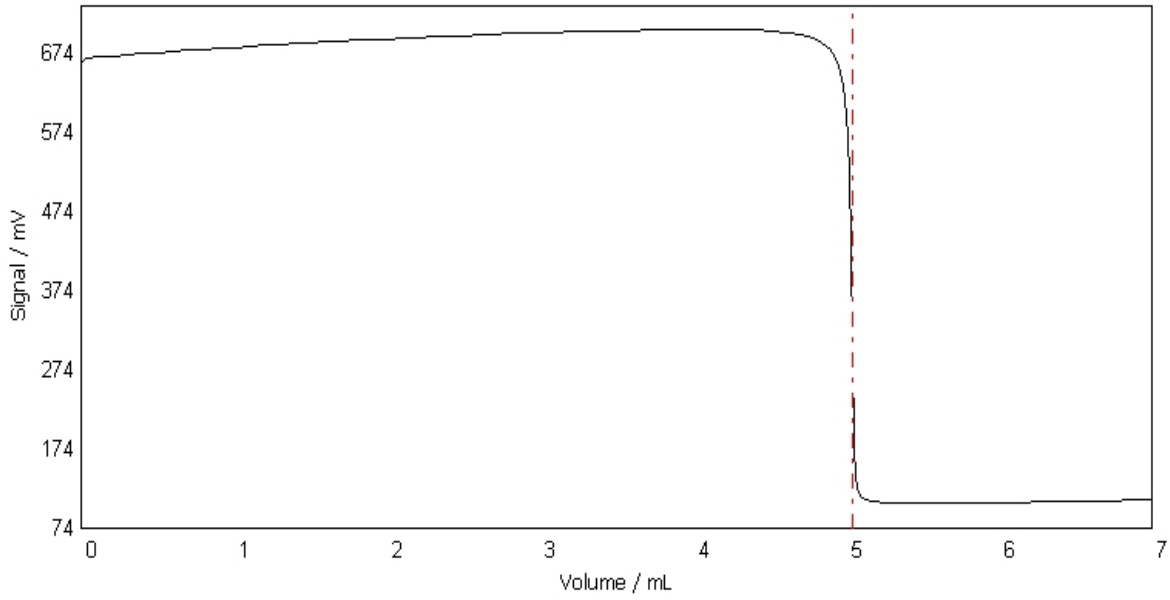
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	Volume mL	**Increment mL**	**Signal mV**	**Change mV**	**1st deriv. mV/mL**	**Time s**	**Temperature oC**
	0.0000	NaN	661.1	NaN	NaN	0	25.0
	0.0100	0.0100	663.8	2.7	NaN	7	25.0
	0.0200	0.0100	665.7	1.9	NaN	13	25.0
	0.0450	0.0250	667.4	1.7	NaN	19	25.0
	0.1075	0.0625	669.3	1.9	NaN	25	25.0
	0.2075	0.1000	671.0	1.7	21.51	31	25.0
	0.3075	0.1000	672.5	1.5	14.63	38	25.0
	0.4075	0.1000	673.8	1.3	12.85	44	25.0
	0.5075	0.1000	675.2	1.4	12.75	50	25.0
	0.6075	0.1000	676.5	1.3	13.12	56	25.0
	0.7075	0.1000	677.8	1.3	13.24	62	25.0
	0.8075	0.1000	679.1	1.3	13.27	68	25.0
	0.9075	0.1000	680.5	1.4	13.02	74	25.0
	1.0075	0.1000	681.8	1.3	12.72	80	25.0
	1.1075	0.1000	683.0	1.2	12.10	86	25.0
	1.2075	0.1000	684.2	1.2	11.50	92	25.0
	1.3075	0.1000	685.3	1.1	11.04	98	25.0
	1.4075	0.1000	686.4	1.1	10.74	104	25.0
	1.5075	0.1000	687.4	1.0	10.34	111	25.0
	1.6075	0.1000	688.5	1.1	9.94	117	25.0
	1.7075	0.1000	689.5	1.0	9.74	123	25.0
	1.8075	0.1000	690.4	0.9	9.65	129	25.0
	1.9075	0.1000	691.3	0.9	9.56	135	25.0
	2.0075	0.1000	692.3	1.0	9.30	141	25.0
	2.1075	0.1000	693.3	1.0	9.16	147	25.0
	2.2075	0.1000	694.2	0.9	8.90	153	25.0
	2.3075	0.1000	695.0	0.8	8.66	159	25.0
	2.4075	0.1000	695.8	0.8	8.53	165	25.0
	2.5075	0.1000	696.7	0.9	8.06	171	25.0
	2.6075	0.1000	697.5	0.8	7.29	178	25.0
	2.7075	0.1000	698.3	0.8	6.44	184	25.0
	2.8075	0.1000	698.9	0.6	5.93	190	25.0
	2.9075	0.1000	699.2	0.3	5.56	196	25.0
	3.0075	0.1000	699.8	0.6	5.53	202	25.0
	3.1075	0.1000	700.5	0.7	5.87	208	25.0
	3.2075	0.1000	701.2	0.7	6.01	214	25.0
	3.3075	0.1000	701.6	0.4	5.77	220	25.0
	3.4075	0.1000	702.2	0.6	5.18	226	25.0
	3.5075	0.1000	702.8	0.6	4.80	232	25.0
	3.6075	0.1000	703.1	0.3	4.56	238	25.0
	3.7075	0.1000	703.6	0.5	4.15	244	25.0
	3.8075	0.1000	704.0	0.4	3.33	251	25.0
	3.9075	0.1000	704.3	0.3	2.38	257	25.0
	4.0075	0.1000	704.5	0.2	1.42	263	25.0
	4.1075	0.1000	704.5	0.0	0.21	269	25.0
	4.2075	0.1000	704.4	-0.1	-1.00	275	25.0
	4.3075	0.1000	704.1	-0.3	-2.31	281	25.0
	4.4075	0.1000	703.7	-0.4	-2.88	287	25.0
	4.5075	0.1000	702.7	-1.0	-11.42	293	25.0
	4.6075	0.1000	700.9	-1.8	-28.39	299	25.0
	4.7075	0.1000	697.7	-3.2	-60.99	306	25.0
	4.8075	0.1000	691.4	-6.3	-127.51	313	25.0
	4.8985	0.0910	677.8	-13.6	-263.90	320	25.0
	4.9155	0.0170	673.5	-4.3	-347.13	326	25.0
	4.9290	0.0135	668.7	-4.8	-447.67	332	25.0
	4.9415	0.0125	663.3	-5.4	-563.32	339	25.0
	4.9530	0.0115	657.8	-5.5	-649.56	345	25.0
	4.9645	0.0115	650.3	-7.5	-751.20	351	25.0
	4.9745	0.0100	642.2	-8.1	-918.84	357	25.0
	4.9845	0.0100	631.2	-11.0	-1126.88	363	25.0
	4.9945	0.0100	616.6	-14.6	-1495.80	370	25.0
	5.0045	0.0100	596.3	-20.3	-2746.90	376	25.0
	5.0145	0.0100	566.9	-29.4	-5312.72	384	25.0
	5.0245	0.0100	519.8	-47.1	-7976.26	391	25.0
	5.0345	0.0100	435.1	-84.7	-9578.17	398	25.0
EQP1	5.039065	NaN	373.2	NaN	-9618.21	NaN	NaN
	5.0445	0.0100	299.6	-135.5	-8628.19	406	25.0
	5.0545	0.0100	178.7	-120.9	-5710.39	412	25.0
	5.0645	0.0100	139.9	-38.8	-4763.84	418	25.0
	5.0745	0.0100	125.4	-14.5	-4045.70	424	25.0
	5.0855	0.0110	118.7	-6.7	-2526.26	431	25.0
	5.1085	0.0230	112.5	-6.2	-978.81	437	25.0

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
5.1605	0.0520	108.3	-4.2	-228.22	443	25.0
5.2605	0.1000	106.2	-2.1	-42.51	449	25.0
5.3605	0.1000	105.5	-0.7	-7.35	455	25.0
5.4605	0.1000	105.4	-0.1	1.62	461	25.0
5.5605	0.1000	105.4	0.0	3.00	467	25.0
5.6605	0.1000	105.5	0.1	2.73	473	25.0
5.7605	0.1000	105.8	0.3	2.68	479	25.0
5.8605	0.1000	106.1	0.3	2.82	485	25.0
5.9605	0.1000	106.3	0.2	3.12	492	25.0
6.0605	0.1000	106.6	0.3	3.22	498	25.0
6.1605	0.1000	107.0	0.4	3.35	504	25.0
6.2605	0.1000	107.3	0.3	3.50	510	25.0
6.3605	0.1000	107.7	0.4	3.56	516	25.0
6.4605	0.1000	108.0	0.3	3.56	522	25.0
6.5605	0.1000	108.4	0.4	3.53	528	25.0
6.6605	0.1000	108.7	0.3	NaN	534	25.0
6.7605	0.1000	109.1	0.4	NaN	540	25.0
6.8605	0.1000	109.5	0.4	NaN	546	25.0
6.9605	0.1000	109.8	0.3	NaN	552	25.0
7.0000	0.0395	110.0	0.2	NaN	558	25.0

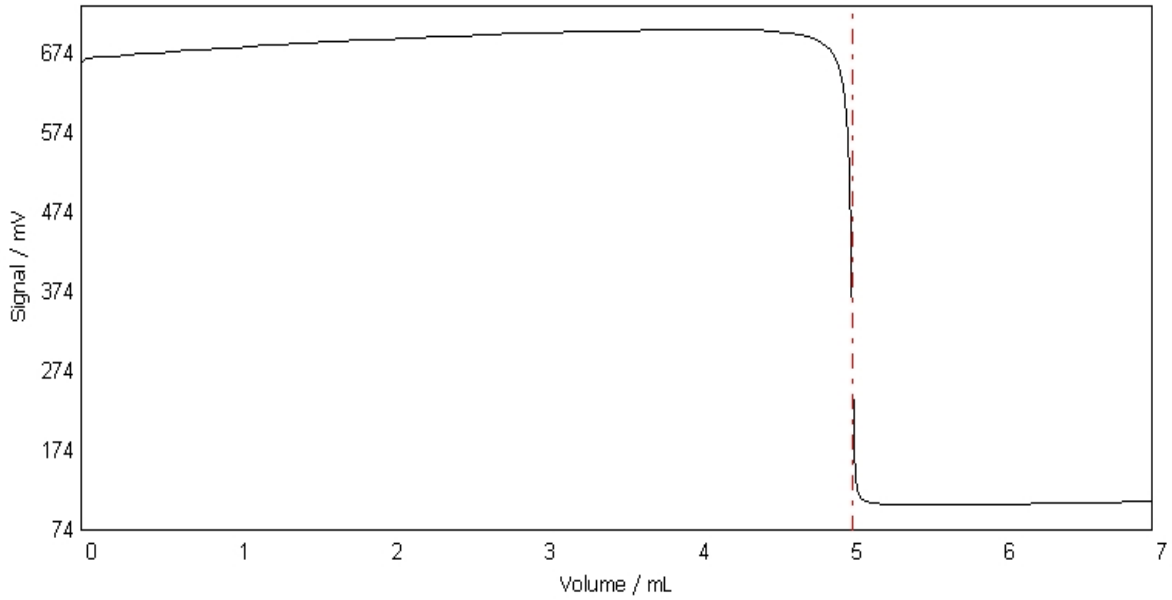
E - V curve **EQP titration [1]**
Sample 5/6



Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

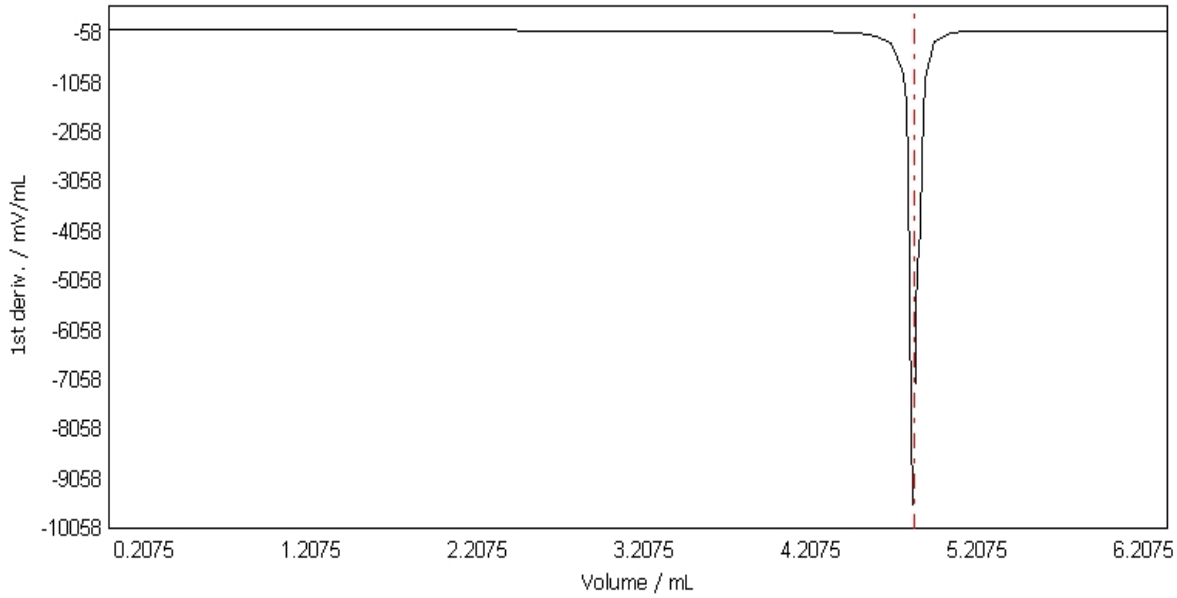
E - V curve EQP titration [1]

Sample 5/6



dE/dV - V curve EQP titration [1]

Sample 5/6



Raw data

Sample

No.	6/6
Standard	Zinc sulphate
Type of standard	liquid
Comment	
Titration stand	Rondo60/1A
Fixed volume	m = 5 mL
Density	d = 1 g/mL
Correction factor	f = 1.0

Method: STDEDTA **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: 7/18/2012 1:43:41 PM

Concentration	c = 0.1 mol/L
Temperature	T = 25.0 oC
Sample start	7/18/2012 2:49:31 PM
Sample end	7/18/2012 3:02:41 PM

Dispense (normal) [1]

Titrant	Zinc sulphate cDi = 0.1 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 5.0 mL
Disp. amount	QENDDi = 0.500 mmol
Time	0:13 min

Dispense (normal) [2]

Titrant	EBT cDi = 0.5 mol/L TITERDi = 1.0
Disp. volume	VENDDi = 0.1 mL
Disp. amount	QENDDi = 0.050 mmol
Time	0:03 min

EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000	
Sensor	DP5	
Start potential		EST = 636.1 mV
No. of EQPs and cand.		nEQ = 1
Consumption	EQP1	VEQ1 = 5.039537 mL
		Q1 = 0.503954 mmol
		EEQ1 = 391.4 mV
		EHNV1 = 692.7 mV
Excess		VEX = 1.960463 mL
		QEX = 0.196046 mmol
End		VEND = 7.0000 mL
		QEND = 0.700000 mmol
Termination at	Max vol	
Time	t = 9:43 min	

Calculation

Result	R1 = 0.99215 Titer
Formula	R1=m/(VEQ*c*C)
Constant	1/(cst*z)
	C = 10
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1
Duration	tUSE = 11:23 min

Measured values EQP titration [1]

Titrant	EDTA c = 0.1 mol/L TITER = 1.000
Sensor	DP5
Sample	6/6

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
0.0000	NaN	636.1	NaN	NaN	0	25.0
0.0100	0.0100	640.3	4.2	NaN	8	25.0
0.0200	0.0100	643.0	2.7	NaN	14	25.0
0.0450	0.0250	645.4	2.4	NaN	21	25.0
0.1075	0.0625	647.9	2.5	NaN	28	25.0
0.2075	0.1000	651.0	3.1	34.32	35	25.0
0.3075	0.1000	653.3	2.3	24.81	41	25.0
0.4075	0.1000	655.8	2.5	22.40	48	25.0
0.5075	0.1000	658.1	2.3	21.78	54	25.0
0.6075	0.1000	660.2	2.1	21.38	60	25.0
0.7075	0.1000	662.3	2.1	21.04	66	25.0
0.8075	0.1000	664.5	2.2	20.58	72	25.0
0.9075	0.1000	666.5	2.0	20.49	78	25.0

Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
1.0075	0.1000	668.5	2.0	20.36	84	25.0
1.1075	0.1000	670.5	2.0	20.07	90	25.0
1.2075	0.1000	672.6	2.1	19.72	97	25.0
1.3075	0.1000	674.5	1.9	19.22	103	25.0
1.4075	0.1000	676.4	1.9	18.42	109	25.0
1.5075	0.1000	678.2	1.8	17.73	115	25.0
1.6075	0.1000	679.9	1.7	16.57	121	25.0
1.7075	0.1000	681.5	1.6	15.69	127	25.0
1.8075	0.1000	683.1	1.6	14.79	133	25.0
1.9075	0.1000	684.6	1.5	14.15	140	25.0
2.0075	0.1000	685.7	1.1	13.94	146	25.0
2.1075	0.1000	687.3	1.6	13.64	152	25.0
2.2075	0.1000	688.6	1.3	13.53	158	25.0
2.3075	0.1000	690.0	1.4	13.53	164	25.0
2.4075	0.1000	691.4	1.4	13.39	170	25.0
2.5075	0.1000	692.5	1.1	12.59	176	25.0
2.6075	0.1000	693.9	1.4	12.01	182	25.0
2.7075	0.1000	695.1	1.2	11.28	188	25.0
2.8075	0.1000	696.2	1.1	10.99	194	25.0
2.9075	0.1000	697.1	0.9	10.82	201	25.0
3.0075	0.1000	698.2	1.1	10.24	207	25.0
3.1075	0.1000	699.3	1.1	9.96	213	25.0
3.2075	0.1000	700.4	1.1	9.46	219	25.0
3.3075	0.1000	701.2	0.8	8.74	225	25.0
3.4075	0.1000	701.9	0.7	7.94	231	25.0
3.5075	0.1000	702.8	0.9	7.50	237	25.0
3.6075	0.1000	703.5	0.7	7.24	243	25.0
3.7075	0.1000	704.2	0.7	7.09	249	25.0
3.8075	0.1000	704.9	0.7	6.51	256	25.0
3.9075	0.1000	705.5	0.6	5.49	262	25.0
4.0075	0.1000	706.0	0.5	4.50	268	25.0
4.1075	0.1000	706.4	0.4	2.75	274	25.0
4.2075	0.1000	706.5	0.1	0.98	280	25.0
4.3075	0.1000	706.4	-0.1	-1.45	286	25.0
4.4075	0.1000	706.1	-0.3	-0.97	292	25.0
4.5075	0.1000	705.1	-1.0	-8.38	298	25.0
4.6075	0.1000	703.8	-1.3	-23.12	304	25.0
4.7075	0.1000	700.9	-2.9	-52.60	310	25.0
4.8075	0.1000	696.4	-4.5	-114.66	317	25.0
4.9075	0.1000	682.2	-14.2	-264.96	325	25.0
4.9255	0.0180	677.7	-4.5	-364.66	331	25.0
4.9390	0.0135	672.6	-5.1	-487.48	337	25.0
4.9495	0.0105	668.2	-4.4	-612.80	343	25.0
4.9625	0.0130	661.5	-6.7	-738.94	350	25.0
4.9725	0.0100	653.9	-7.6	-812.08	356	25.0
4.9825	0.0100	644.7	-9.2	-965.55	362	25.0
4.9925	0.0100	632.6	-12.1	-1179.78	369	25.0
5.0025	0.0100	616.1	-16.5	-2121.40	375	25.0
5.0125	0.0100	591.0	-25.1	-4455.97	381	25.0

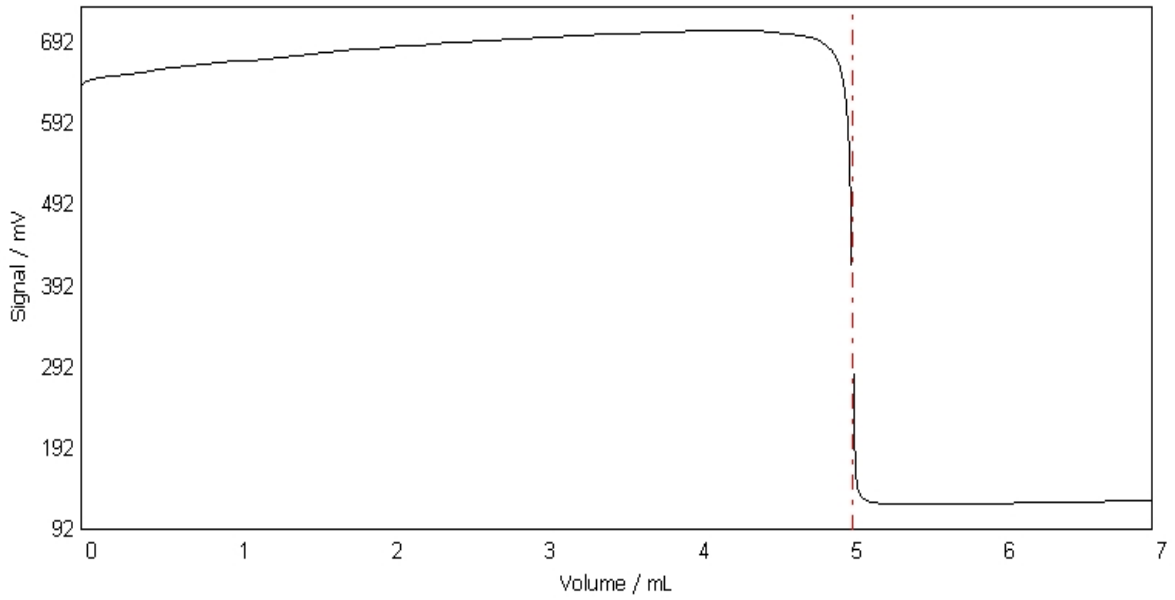
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

	Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
	5.0225	0.0100	551.5	-39.5	-7308.29	389	25.0
	5.0325	0.0100	480.9	-70.6	-9339.46	398	25.0
EQP1	5.039537	NaN	391.4	NaN	-9464.51	NaN	NaN
	5.0425	0.0100	353.7	-127.2	-9049.59	406	25.0
	5.0525	0.0100	214.7	-139.0	-6206.29	412	25.0
	5.0625	0.0100	161.6	-53.1	-4871.21	420	25.0
	5.0725	0.0100	144.9	-16.7	-4331.64	426	25.0
	5.0840	0.0115	136.7	-8.2	-2872.18	432	25.0
	5.1040	0.0200	130.6	-6.1	-1238.38	438	25.0
	5.1500	0.0460	125.9	-4.7	-306.78	444	25.0
	5.2500	0.1000	123.5	-2.4	-52.06	450	25.0
	5.3500	0.1000	122.7	-0.8	-8.96	456	25.0
	5.4500	0.1000	122.5	-0.2	1.34	462	25.0
	5.5500	0.1000	122.6	0.1	3.30	468	25.0
	5.6500	0.1000	122.8	0.2	3.16	474	25.0
	5.7500	0.1000	123.0	0.2	3.09	480	25.0
	5.8500	0.1000	123.3	0.3	3.07	486	25.0
	5.9500	0.1000	123.6	0.3	3.27	492	25.0
	6.0500	0.1000	124.0	0.4	3.40	499	25.0
	6.1500	0.1000	124.3	0.3	3.66	505	25.0
	6.2500	0.1000	124.6	0.3	3.70	511	25.0
	6.3500	0.1000	125.1	0.5	3.85	517	25.0

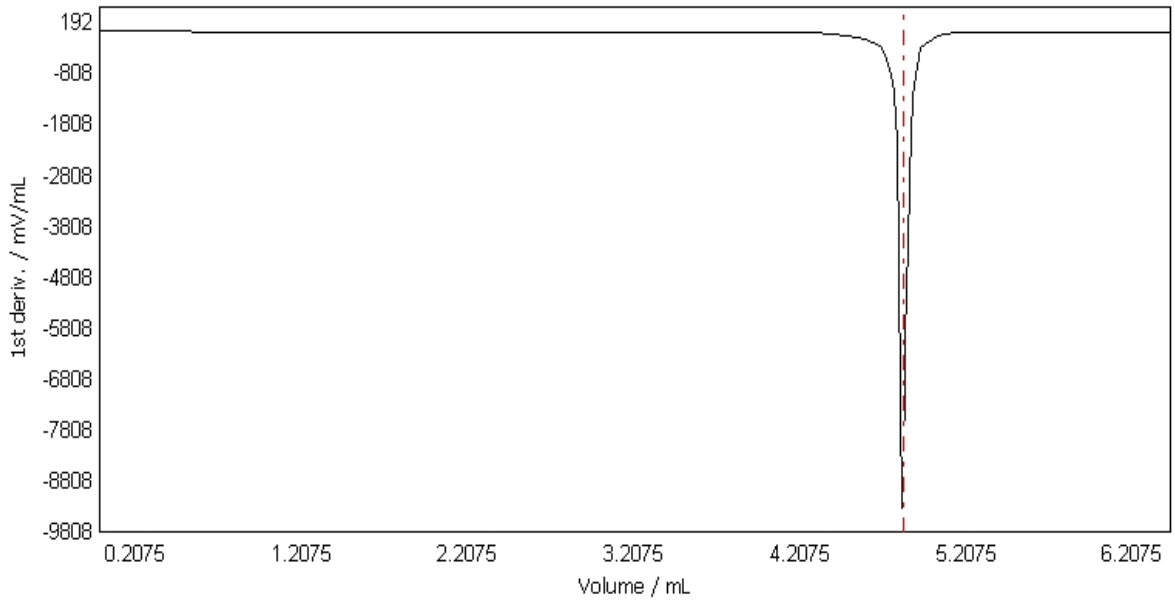
Method: **STDEDTA** **Titer with EQP** **7/18/2012 1:43:21 PM**
Start time: **7/18/2012 1:43:41 PM**

Volume mL	Increment mL	Signal mV	Change mV	1st deriv. mV/mL	Time s	Temperature oC
6.4500	0.1000	125.4	0.3	4.00	523	25.0
6.5500	0.1000	125.9	0.5	4.17	529	25.0
6.6500	0.1000	126.2	0.3	4.16	535	25.0
6.7500	0.1000	126.7	0.5	NaN	541	25.0
6.8500	0.1000	127.1	0.4	NaN	547	25.0
6.9500	0.1000	127.5	0.4	NaN	553	25.0
7.0000	0.0500	127.7	0.2	NaN	559	25.0
7.0000	0.0000	127.7	0.0	NaN	566	25.0

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



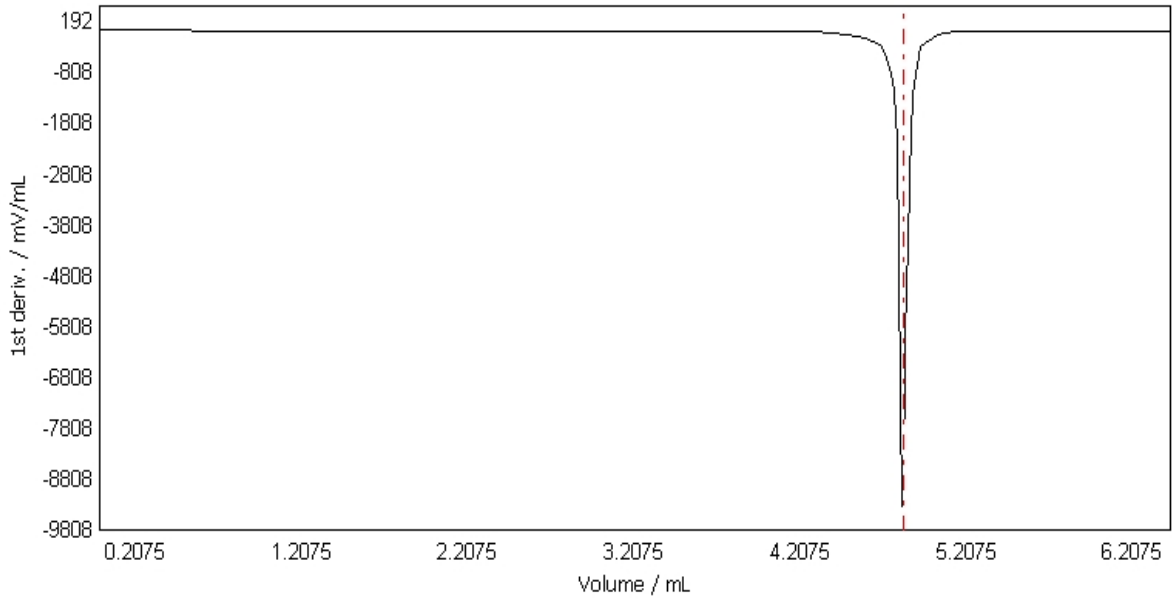
dE/dV - V curve **EQP titration [1]**
Sample 6/6



Method:	**STDEDTA**	**Titer with EQP**	**7/18/2012 1:43:21 PM**
Start time:	**7/18/2012 1:43:41 PM**		

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

Sample 6/6



Raw data

Calculation

Result	R2 = 0.993 -- Mean Titer
Formula	R2=Mean[R1]
Constant	1
	C = 1
Molar mass	M[None] = 1 g/mol
Equivalent number	z[None] = 1

Titer

Titrant	EDTA c = 0.1 mol/L
Titer	0.99252

(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: **Development Administrator (admin), 7/18/2012 1:57:03 PM**