

Results of Alkalinity Calculator

Date: Tuesday, 22-May-2012, 16:45 UTC

Version: 2.21 // [22-Mar-2009] <[version history](#)>

Site Name: MW01 - Sample 1 Acid Neutralizing Capacity Replicate

Site ID: 431525108371901

Collection Date: 4/24/12

Collection Time: 1331

Sample Temperature: 20.50 °C

Sample Conductance: 1642.0 µS/cm

Analyst: Peter McMahon

Analysis Date: 4/24/12

Analysis Time:

Sample Volume: 100 mL

Filtered?: yes

Acid Concentration: 1.60 eq/L

Acid Lot Number: A0321

Acid Correction Factor: 1.010 [[help](#)]

Acid Expiration Date: July 2012

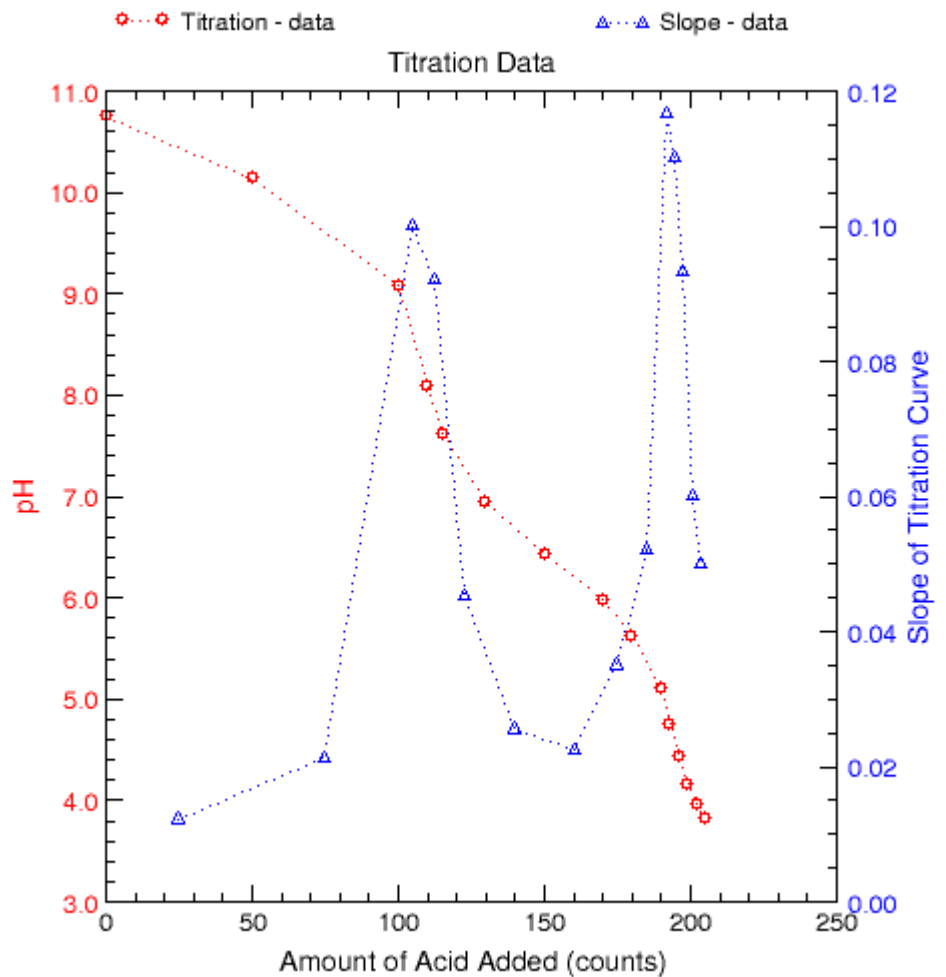
Stirring Method: magnetic

Titration Type: digital titration

Comments: Whole water sample

Titration Data:

pH	-d(pH)	Counts	d(Counts)	-d(pH)/d(Counts)
10.75		0		
10.14	0.61	50	50.0	0.012200
9.08	1.06	100	50.0	0.021200
8.08	1.00	110	10.0	0.100000
7.62	0.46	115	5.0	0.092000
6.94	0.68	130	15.0	0.045333
6.43	0.51	150	20.0	0.025500
5.98	0.45	170	20.0	0.022500
5.63	0.35	180	10.0	0.035000
5.11	0.52	190	10.0	0.052000
4.76	0.35	193	3.0	0.116667
4.43	0.33	196	3.0	0.110000
4.15	0.28	199	3.0	0.093333
3.97	0.18	202	3.0	0.060000
3.82	0.15	205	3.0	0.050000



Mon Jun 25 14:45:16 2012

This is a PNG image. [\[help\]](#)

**Results from
Inflection
Point
Method:**

Inflection Point Method

The [inflection point method](#) determines endpoints by finding the greatest change in the measured pH per unit volume of acid added. [\[reporting tips\]](#)

Carbonate endpoint:	pH 8.58	105.0 counts
Bicarbonate endpoint:	pH 4.94	191.5 counts
Alkalinity:	3.87 meq/L	193.6 mg/L as CaCO ₃
<i>Advanced Speciation (from alkalinity and sample pH)</i>		
Hydroxide:	0.46 meq/L	7.8 mg/L as OH ⁻
Carbonate:	3.00 meq/L	90.0 mg/L as CO ₃ ²⁻
Bicarbonate:	0.41 meq/L	25.1 mg/L as HCO ₃ ⁻

**Equilibrium
Dissociation
Constants:**

Constituent	Symbol	$\log_{10}(K)$
Water	K_w'	-14.09
Carbonic acid	K_1'	-6.32
Bicarbonate	K_2'	-10.19

These mixed acid dissociation constants have been corrected for both temperature effects and activity corrections, using the following data as the basis for those corrections:

Temperature:	20.50 °C
Specific conductance:	1642.0 $\mu\text{S}/\text{cm}$
Estimated ionic strength:	2.42e-02 eq/L

If you don't think the inflection point method, either of the theoretical carbonate titration curve methods, or the Gran method found the correct endpoints, hit the **Back** button on your browser and try again with one or more user-specified fixed endpoints.

Confused about the methods used? See the [methods](#) page.

Thanks for using the **Alkalinity Calculator!**