FIELD ID MW02 - Riverton

17

ALKALINITY/ANC CALCULATIONS

BEGINNING H_2O TEMP. 11.9 °C

pH	ΔpH	Vol acid DC or mL	ΔVol acid DC or mL	ΔpH / ΔVol acid
8.99		0		
8.84		20		
8.51		40		
8.28		50		
8.01		64		
7.49		105		
7.03		200		
6.70		300		
6.47		400		
6.23		500		
6.00		600		
5.64		700		
4.99		777		
4.92		782		
4.81		787		
4.69		792		
4.59		797		
4.47		802		
4.36 / 4.26		807 / 812		
4.17 / 4.06		817 / 822		

END H_2O TEMP. 16.9 °C

BEGINNING H_2O TEMP. 15.0 °C

pH	ΔpH	Vol acid DC or mL	ΔVol acid DC or mL	ΔpH / ΔVol acid
9.01		0		
8.18		50		
7.93		60		
7.47		100		
6.99		200		
6.67		300		
6.46		400		
6.24		500		
5.44		600		
5.63		700		
4.97		780		
4.89		785		
4.79		790		
4.68		795		
4.53		800		
4.40		805		
4.25		810		
4.15		815		
4.08		820		

END H_2O TEMP. 17.5 °C

CALCULATIONS

ALKALINITY OR ANC (meq/L) = 1000 (B) (C_a) (CF) / V_s

ALKALINITY (mg/L AS $CaCO_3$) = 50044 (B) (C_a) (CF) / V_s

where:

B = volume of acid titrant added from the initial pH to the bicarbonate equivalence point (near pH 4.5), in milliliters. To convert from digital counts to milliliters, divide by 800 (1.00 mL = 800 counts)

C_a = concentration of acid titrant, in milliequivalents per milliliter (same as equivalents per liter, or *N*)

CF = Hach cartridge correction factor (default value is 1.01) [see OWQ WaQI Note 2005.02 for info]

V_s = volume of sample, in milliliters

For samples with pH ≤ 9.2:

BICARBONATE (meq/L) = 1000 (B-2A) (C_a) (CF) / V_s

BICARBONATE (mg/L) = 61017 (B-2A) (C_a) (CF) / V_s

CARBONATE (meq/L) = 2000 (A) (C_a) (CF) / V_s

CARBONATE (mg/L) = 60009 (A) (C_a) (CF) / V_s

where:

A = volume of acid titrant added from the initial pH to the carbonate equivalence point (near pH 8.3), in milliliters. To convert from digital counts to milliliters, divide by 800 (1.00 mL = 800 counts)

NOTE: For samples with pH > 9.2, these equations for bicarbonate and carbonate will fail to give accurate results.

Use the Alkalinity Calculator at http://oregon.usgs.gov/alk or PCFF [http://water.usgs.gov/usgs/owq/pcff.html]

FIRST TITRATION RESULTS

DATE 5/1/12

BEGIN TIME 1310 END TIME 1342

ALKALINITY/ANC _____ meq/L

ALKALINITY/ANC _____ mg/L AS $CaCO_3$

BICARBONATE _____ mg/L _____ meq/L AS HCO_3^-

CARBONATE _____ mg/L _____ meq /L AS CO_3^{2-}

ACID: 1.6N (0.16N) 0.01639N

OTHER: _____

ACID LOT NO. A1273

ACID EXPIRATION DATE MAR 13

SAMPLE VOLUME: 50 mL

FILTERED (UNFILTERED)

METHOD: (INFLECTION POINT) GRAN FIXED ENDPOINT

STIRRING METHOD: (MAGNETIC) MANUAL

SECOND TITRATION RESULTS

DATE 5/1/12

BEGIN TIME 1348 END TIME _____

ALKALINITY/ANC _____ meq/L

ALKALINITY/ANC _____ mg/L AS $CaCO_3$

BICARBONATE _____ mg/L _____ meq/L AS HCO_3^-

CARBONATE _____ mg/L _____ meq /L AS CO_3^{2-}

ACID: 1.6N (0.16N) 0.01639N

OTHER: _____

ACID LOT NO. A1273

ACID EXPIRATION DATE Mar 13

SAMPLE VOLUME: 50 mL

FILTERED (UNFILTERED)

METHOD: (INFLECTION POINT) GRAN FIXED ENDPOINT

STIRRING METHOD: (MAGNETIC) MANUAL

pH meter calibration	Meter make/model: Orion 230A	S/N 010761	
Calibration Location:			
Electrode No.		Slope	Millivolts
Type: (gel) liquid other _____	pH 7		
	pH 4.0	100.5	

pH buffer	Buffer temp	Theoretical pH from table	pH before adj.	pH After adj.
pH 7	17.5		7.21	7.02
pH 4.0	17.6		4.14	4.0
Check pH ___				

Comments/Calculations:

Field titration by: CSE Checked by: PRW

GW Form version 8.0

Peter R. Wright 5/1/12

DISCLOSED TO AND UNDERSTOOD BY	DATE	WITNESS	DATE

B 200 P ©