Fluoride in Stack Samples

Distill Date: 2/12/20 Distilled by: JS/AP Curve Date: 2/12/20 Analyzed by: JS/AP

Standards

Abs.	µg of F per 50 ml	fit
0.000	0	-0.22419
0.000	10	-0.22419
-0.070	20	19.81327
-0.108	30	30.69074
-0.142	40	40.42322
-0.173	50	49.29695

Linear Regression	
-286.2494	slope
-0.2242	intercept
-0.9996	correlation (*R)

Enter 1st run number: 1

Enter date of run 1: 2/4/20

Enter date of run 2:

Enter lowest number of flasks: 1

Sample Identification	Date	Abs.	Curve Aliquots (ml)	µg of F per 50 ml	ALIQUOTS AND CONVERSIONS Starting Volume (ml)	Distill. Aliquot (ml)	To Volume (ml)	Conversion	Fluoride (grams)	Average
Distillation Blank	2/12/20	-0.020	25	5.5	1000	50	250	2.00E-04	0.00110	
ERA Fluoride S274-698	2/12/20	-0.116	25	33.0	1000	50	250	2.00E-04	0.00660	in spec
Actual Value 6.21 mg	0.00621	g ± 10% (Acceptable Range)			(0.00559 - 0.00683)					
M 14 L1 run 1 A gas	2/4/2020	-0.129	10	36.7	1000	50	250	5.00E-04	0.01835	
Dist. Dup run 1 B Within 2	2/4/2020	-0.124	10	35.3	1000	50	250	5.00E-04	0.01764	0.01800
M 14 L1 run 1 part	2/4/2020	-0.128	10	36.4	100	10	250	2.50E-04	0.00910	
M 14 L2 run 1 gas	2/4/2020	-0.145	15	41.3	1000	50	250	3.33E-04	0.01376	
M 14 L2 run 1 part	2/4/2020	-0.116	9	33.0	100	10	250	2.78E-04	0.00916	
M 14 L2 run 2 gas	2/5/2020	-0.142	9	40.4	1000	50	250	5.56E-04	0.02246	
M 14 L2 run 2 part	2/5/2020	-0.139	9	39.6	100	10	250	2.78E-04	0.01099	
M 14 L2 run 2 dup gas	2/5/2020	-0.140	9	39.9	1000	50	250	5.56E-04	0.02214	

* R Value must be ³ 0.9996. No more than one standard may be dropped.

** Samples below 20 µg/50 ml must have a 25 ml aliquot.

*** Spadns on the same distilled sample must read ± 1.0 µg (same chemist) or ± 1.5 µg (between chemists).

**** Separate distillations of the same sample must be ± 2.0 µg.

***** Recovery checks on pipeted standards must be 96%-102% for an individual run or 98%-102% for an average of 5 or more runs.

Filename: F-2020-0212

Fluoride in Stack Samples

Area _____

Spectrophotometer Used: V-1200

Date Distilled: 2/12/20

Distilled by: JS/AP

Date 0.05 mg/ml F std made: _____

Date Curve Read: 2/12/20

Spadns by: JS/AP

Date 1.0 mg/ml F std made: _____

Room Temp: _____

25 °C Bath Temp.

Make fresh every 3 mo.

Make fresh every 6 mo.

µg F per 50 ml	Absorbance @ 570 nm Read until two in a row are within .001 First Run / Second Run	
Absorbance on RB1 before zeroing.	1.241	
Reagent Blk 1	0.000 0.000	
Reagent Blk 2	0.000 0.000	
10	-.032 -.033	-.032, -0.031
20	-.085 -.084	-.070, -.070
30	-.108 -.108	
40	-.142 -.142	
50	-.174 -.173	
Reagent Blk 1	0.000 0.000	

	Orig.Vol. (ml)	Dist. Aliq. (ml)	Sample Identification	Date	Absorbance First Run / Second Run	Curve Aliquot (ml)
Dist Blk	1000	50	Distillation Blank	2/12/20	-.020 -.020	25
Std	1000	50	ERA Fluoride S274-698	2/12/20	~~-.116~~ -.115 -.116	25
11G	1000	50	M 14 L1 run 1 A gas	2/4/20	-.128, -.129	10
Dup	1000	50	Dist. Dup run 1 B gas	2/4/20	-.123, -.124	10
11P	100	10	M 14 L1 run 1 part	2/4/20	(5) -.058, -.057 / ~~-.122~~ -.127	10 -.128
21G	1000	50	M 14 L2 run 1 gas	2/4/20	-.146, -.145	15
21P	100	10	M 14 L2 run 1 part	2/4/20	-.115, -.116	9
21P	1000	50	M 14 L2 run 2 gas	2/5/20	-.141 -.142	9
21P	100	10	M 14 L2 run 2 part	2/5/20	-.139, -.139	9
21P	1000	50	M 14 L2 run 2 dup gas	2/5/20	-.139, -.140	9
Reagent Blank 1						

* Zero abs. before and after reading standards and samples. If abs.is off by more than 0.003, rezero and read the stds or samples again. If abs. is with 0.003, rezero and continue.

** Samples below 20 µg/50 ml must have a 25 ml aliquot.

*** Spadns on the same distilled sample must read ± 1.0 µg (same chemist) or ± 1.5 µg (between chemists).

**** Notify supervisor if abs. of distillation blank is less than -0.020.

***** Separate distillations of the same sample must be ± 2.0 µg.

Filename: F-2020-0212

Fluoride in Stack Samples

Distill Date: 3/18/20 Distilled by: JS/AP Curve Date: 3/20/20 Analyzed by: JS/AP

Standards

Abs.	µg of F per 50 ml	fit
0.000	0	-0.32682
-0.037	10	9.84055
-0.076	20	20.55750
-0.111	30	30.17528
-0.148	40	40.34265
-0.181	50	49.41084

Linear Regression	
-274.7937	slope
-0.3268	intercept
-0.9997	correlation (*R)

Enter 1st run number: 3

Enter date of run 3: 2/18/20

Enter date of run 4: 2/19/20

Enter lowest number of flasks: 1

Sample Identification	Date	Abs.	Curve Aliquots (ml)	µg of F per 50 ml	ALIQUOTS AND CONVERSIONS: Starting Volume (ml)	Distill. Aliquot (ml)	To Volume (ml)	Conversion	Fluoride (grams)	Average
Distillation Blank	3/18/20	-0.006	25	1.3	1000	50	250	2.00E-04	0.00026	
ERA Fluoride S274-698	3/18/20	-0.109	25	29.6	1000	50	250	2.00E-04	0.00593	In spec
Actual Value 6.21 mg	0.00621	g ± 10% (Acceptable Range)			(0.00559 - 0.00683)					
M 14 L1 run 3 A gas	2/18/2020	-0.149	10	40.6	1000	50	250	5.00E-04	0.02031	
Dist. Dup run 3 B Within 2	2/18/2020	-0.149	10	40.6	1000	50	250	5.00E-04	0.02031	0.02031
M 14 L1 run 3 part	2/18/2020	-0.075	5	20.3	100	10	250	5.00E-04	0.01014	
M 14 L2 run 3 gas	2/18/2020	-0.142	6	38.7	1000	50	250	8.33E-04	0.03224	
M 14 L2 run 3 part	2/18/2020	-0.152	9	41.4	100	10	250	2.78E-04	0.01151	
M 14 L1 run 4 gas	2/19/2020	-0.135	10	36.8	1000	50	250	5.00E-04	0.01839	
M 14 L1 run 4 part	2/19/2020	-0.103	5	28.0	100	10	250	5.00E-04	0.01399	
CB 3 run 1 gas	2/26/2020	-0.025	25	6.5	1000	50	250	2.00E-04	0.00131	
CB 3 run 1 part	2/26/2020	-0.063	25	17.0	100	50	250	2.00E-05	0.00034	
CB 3 run 2 gas	2/27/2020	-0.038	25	10.1	1000	50	250	2.00E-04	0.00202	
CB 3 run 2 part	2/27/2020	-0.041	25	10.9	100	50	250	2.00E-05	0.00022	
CB 3 run 3 gas	3/3/2020	-0.178	20	48.6	1000	50	250	2.50E-04	0.01215	
CB 3 run 3 part	3/3/2020	-0.058	25	15.6	100	50	250	2.00E-05	0.00031	

* R Value must be ³ 0.9996. No more than one standard may be dropped.

** Samples below 20 µg/50 ml must have a 25 ml aliquot.

*** Spadns on the same distilled sample must read ± 1.0 µg (same chemist) or ± 1.5 µg (between chemists).

**** Separate distillations of the same sample must be ± 2.0 µg.

***** Recovery checks on pipeted standards must be 96%-102% for an individual run or 98%-102% for an average of 5 or more runs.

Filename: F-2020-0318.xlsm

Fluoride in Stack Samples

Area

_____ Spectrophotometer Used

Date Distilled: V-1200

3/18/20

Distilled by: JS/AP Date 0.05 mg/ml F std made:

Date Curve Read: _____

3/19/20 Make fresh every 3 mo.

Spadns by: JS/AP Date 1.0 mg/ml F std made:

Room Temp: _____ _____

25 °C Bath Temp. Make fresh every 6 mo.

µg F per 50 ml	Absorbance @ 570 nm Read until two in a row are within .001 First Run / Second Run
Absorbance on RB1 before zeroing.	1.251
Reagent Blk 1	0.000 / 0.000
Reagent Blk 2	0.000 / 0.000
10	-.038 / -.037
20	-.077 / -.076
30	-.112 / -.111
40	-.148 / -.148
50	-.180 / -.181
Reagent Blk 1	0.000 / 0.000

	Orig.Vol. (ml)	Dist. Aliq. (ml)	Sample Identification	Date	Absorbance First Run / Second Run	Curve Aliquot (ml)
Dist Blk	1000	50	Distillation Blank	3/18/20	-.006 / -.006	25
Std	1000	50	ERA Fluoride S274-698	3/18/20	-.107 / -.109 -.109	25
	1000	50	M 14 L1 run 3 A gas	2/18/20	-.148 -.150 -.149	10
Dup	1000	50	Dist. Dup run 3 B gas	2/18/20	-.149 -.149	10
	100	10	M 14 L1 run 3 part	2/18/20	-.075 -.075	5
	1000	50	M 14 L2 run 3 gas	2/18/20	-.142 -.142	6
	100	10	M 14 L2 run 3 part	2/18/20	-.152 -.152	9
	1000	50	M 14 L1 run 4 gas	2/19/20	-.136 -.134 -.135	10
	100	10	M 14 L1 run 4 part	2/19/20	-.104 -.103	5
	1000	50	CB 3 run 1 gas	2/26/20	-.024 -.025	25
	100	50	CB 3 run 1 part	2/26/20	-.062 -.063	25
	1000	50	CB 3 run 2 gas	2/27/20	-.038 -.038	25
	100	50	CB 3 run 2 part	2/27/20	-.041 -.041	25
	1000	50	CB 3 run 3 gas	3/3/20	-.178 -.178	20
	100	50	CB 3 run 3 part	3/3/20	-.058 -.058	25
Reagent Blank 1					0.000 0.000	

* Zero abs. before and after reading standards and samples. If abs.is off by more than 0.003, rezero and read the stds or samples again. If abs. is with 0.003, rezero and continue.

** Samples below 20 µg/50 ml must have a 25 ml aliquot.

*** Spadns on the same distilled sample must read ± 1.0 µg (same chemist) or ± 1.5 µg (between chemists).

**** Notify supervisor if abs. of distillation blank is less than -0.020.

***** Separate distillations of the same sample must be ± 2.0 µg.

Filename: F-2020-0318