Nittoseiko Analytech



Sheet No.

AQF WA 018E Reference Materials

Determination of chlorine and sulfur in standard solution for controlling the diagnostic method of the habitat of aquatic organisms

Instruments : AQF-2100H System,HF-210,GA-210,ABC-210/ASC240S

Method : Combustion-ion chromatography

Related standard:

It is critically important to know the halogen content out of consideration to the environment. Concentrations of fluorine, chlorine, bromine, iodine, and sulfur can be determined and accurately by using a combustion ion chromatography (CIC) system combining an Automatic Quick Furnace Model AQF-2100H which safely combusts samples with an ion chromatograph.

AOD (Aquatic Organisms Environment Diagnostics)

Sample name	IKA-Control standard AOD 1.11						
Sample status							
Measuring items	Chlorine (CI), Sulfur (S)						
Measurement	Sample is thermally decomposed in argon (Ar) atmosphere, then combusted in oxygen						
principle	(O2) atmosphere. Halogens in the sample are converted to hydrogen halide and						
	halogen gas and sulfur turns into sulfur oxide. These components are collected into absorbing solution and converted to halide ion and sulfate ion. The resulting solution is						
	analyzed by injecting into an ion chromatograph (IC).						
	Analyzing flow						
	[Sample weighing]→[Combustion]→[Collection of combustion gas]→[IC analysis]						
Parameters	1. AQF-2100H						
	Sample size : 10mg						
		Sample boat	: Ceramic sample boat, SXSMBS				
		Additive	: None				
		•	: Quartz tube filled with quartz wool				
			: Hydrogen peroxide / water				
		Mode	: Constant volume mode				
	HF-210	Heater Temp. Inlet	: 900degC				
		•	: 1000degC				
		Gas flow Ar	: 200 ml/min				
		O_2	: 400 ml/min				
	GA-210	Absorbent volume	: 10ml				
		Sampling loop	: 100 ul				
		Absorption tube					
	Water supply : 2						
	Ar f	low for water supply	: 100 ml/min				

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2. Ion chromatograph

Ion chromatograph : DIONEX ICS-1500

Column : DIONEX Ion Pack AG12A / Ion Pack AS12A

Eluent : 2.7mM Na₂CO₃ / 0.3mM NaHCO₃

Eluent flow : 1.50ml / min

Detector : Conductivity

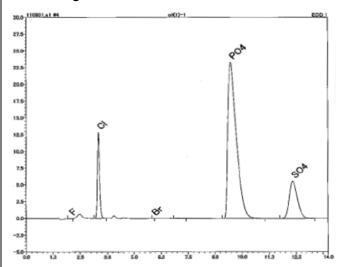
Suppressor : ASRS-4-mm

Measuring time : 15min

Sampling loop : 100 ul using GA-210 sampling loop

Calibration : F Cl Br S:0.1ppm to 5.0ppm

Results Chromatogram



Results

11004110								
	Measurement							
	CI (m	g/kg)	S (mg/kg)					
CERTIFY	9500	+/-50	6500	+/-40				
1	81	56	6043					
2	81	16	6172					
3	78	42	6224					
Avg.	80	38	6147					
RSD(%)	2.	13	1.51					

Remarks

*Handling of reagents: Confirm labels and safety data sheets of reagents and handle them with enough care.

*Automation is possible by using an Automatic Sample Changer, ASC-240S. When ASC-240S is used, the boat to be used will be a ceramic boat, TX3SCX.

*Use an internal standard material other than phosphate ion (PO4 3-) when analysis is performed by the internal standard method.

^{*}This application sheet is provided as reference, and does not assure the measurement results. Please consider analysis environment, external factors and sample nature for optimal conditions before the measurement.