

USDA/ARS Methods Catalog

MethodID	NSTL WO3		
Method Name	Determination of Total Phosphorus by Flow Injection Analysis Colorimetry (Acid Persulfate Digestion Method)		
Media	water		
Method Type	Laboratory	Method Subcategory	Inorganic
Method Source	Lachat Instruments		
Source Citation	Lachat Instruments, QuikChem method 10-115-01-1-F (Revision 8 Nov. 2001)		
Method Summary	Polyphosphates and organic phosphates are converted to orthophosphate by acid persulfate digestion. The phosphate ion (PO ₄ ³⁻) under acid conditions in the presence of ammonium molybdate plus potassium antimony tartrate form a complex that is reduced with ascorbic acid. This results in a blue complex that absorbs at 880 nm; as described in QuikChem method 10-115-01-1-F. The sample loop used is smaller than the method describes to accommodate the different concentration range.		
Instrument	Automated Spectrophotometer		
Detection Limit Type	RL		
DLNote			
Scope - Application	This method is applicable to total phosphorus determination in drinking, ground and surface water.		
Concentration Range	.02-1 mg P/L	Concentration Units	
Interferences	High silicate concentrations can produce a positive interference and high ferric iron can yield a negative interference; glassware is a source of contamination and is acid rinsed in 1:1 HCl:water and triple rinsed in Milli-Q water.		
Precision Notes	Precision and accuracy values were calculated using certified external standard, the data was collected from the same sample ran on 5 separate days in a 30 day time period.		
QA Requirements	daily calibration; external certified reference standard (ERA); check standard every 15 samples; matrix spikes (90-110% recovery); duplicates within 10% RPD		
Sampling Handling	Samples are collected in glass or plastic acid rinsed bottles and stored at 4 degrees C.		
Max Holding Time	30 days		
Sample Prep Methods			
Link To Full Method	This method is proprietary. www.lachatinsruments.com		
Method Contact	USDA/ARS A. Morrow, amy.morrow@ars.usda.gov		

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Analytes using this Method:

Analyte: Phosphate

MethodID: NSTL_WQ3

Detection level: 0.02 mg/L

	Instrument	Matrix
Accuracy	103.5	103
Precision	3.26	3.9

False Positive Value: False Positive Value:

Accuracy/Precision Concentration Used: 0.10 mg P/L
