

USDA/ARS Methods Catalog

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|----------------------|--|---------------------|-----------|
| 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 Concetration Used: 0.10 mg P/L
