DOC312.53.94345

Principle

Phosphate ions react with molybdate and antimony ions in an acidic solution to from an antimonyl phosphomolybdate complex, which is reduced by ascorbic acid to phosphormolybdenum blue

Range of Application

Waste water, drinking water, boiler water, surface water, process analysis

Interferences					
TI					
20 g/l: SO42-	100 mg/l: J ⁻				
10 g/l: Cl ⁻	50 mg/l: SiO ₂				
4 g/l: K⁺, Na⁺	40 mg/l: Hg ²⁺				
1 g/l: Ca ²⁺	20 mg/l: Pb2+				
500 mg/l: NO ₅ ⁻	10 mg/l: Ag*, Sn**				
400 mg/l: Mg ²⁺	5 mg/l: Cr ^{≥+}				
200 mg/l: Co ²⁺ , Fe ²⁺ ,	1 mg/l: Cr ⁵⁺				
Fe ³⁺ , Zn ²⁺ , Cu ²⁺ , Ni ²⁺ ,					
NO2 ⁻ , Cd ²⁺ , NH4 ⁺ , Mh ²⁺ ,					
Al ³⁺ , CO ₃ ²⁻					

The ions listed in T1 have been individually checked up to the given concentrations and do not cause interference. We have not determined cumulative effects and the influence of other ions. The measurement results must be subjected to plausibility checks (dilute and/or spike the sample).

Sample Volume	0,5 mL
Reagent B Volume	0,2 mL
Reagent C Volume	0,2 mL
Reagent B Filling	60 mL
Reagent C Filling	30 mL
Reagent D Filling	12 g
Digestion Temperature/Time	120°C/30 min. or 110°C/60 min.
Temperature Sample/sample cuvette	15 – 25°C
pH sample	2 – 10

AP3900 multi with HT-Module can also use: Digestion Temperature/Time 170°C/15 min.

Please note:

With AP3900 Software Version 1.0.7.5 or higher a digestion temperature of 120°C is possible to be chosen.

So the tests for TP (APC348 / APC349 / APC350) can be run at 120°C/30 min. to save time and to have identical time and temperature as manual handling with LCK348 / LCK349 / LCK350.

There is no change in the quality of the results by switching from 110°C/60 min. to 120°C/30min. procedure. There is no calibration update needed.

Method Library:

APC348 is pre-programmed in the method library. Please check under Settings/Software/Application/Methods **Phosphate** and Tests **APC348**.

Settings	<u>a</u>					
General Methods/Tests QC/Blanks Reagents trays Colors Remote messaging Other parameters						
Sample profiles Methods Tests Other parameters	<u>o</u> k					
Methods definitions:						
Ammonium Reading 1 (Concentration):	Cancel					
Chloride Low-range test: APC349 Underrange: 0.050 Overrange: 1.500						
COD high Formaldehyde I so cop						
LCA722 High range test: APC350 Vunderrange: 2.000 Overrange: 20.000						
Nitrate Tedo samples with underrange error if possible.						
Nitrite Redo samples with overange error if possible.						
Orthophosphate> High-range cuvette overrange dilution factor: 2						
Phosphate Use default samplevolume if sample is diluted for the test before using lower range test.						
Reagent Volume C supply Volume T Redo samples with other error (barcode/absorbtion error).						
TAB TAB						
Method priority levet 5						
Stir sample in samplecup by default.						
Add Method						
U Waiting time after start processing quiet before starting processing part quiet of test						
Delete Method Valuary and a take processing curve colors and up processing new curve a reacting and a reacting						

Example: Setting 120°C / 30 min.

pic profiles Methods ests definitions: ************************************	Tests Other parameters 1. Add sample to cuvette Volume (µl): 500 Speed (µl/s): 500 Sompling Z-offset (mm): 1 2. Rotate cap of cuvette 3. Shake cuvette vertical Time (sec): 5 Speed (½): 40 4. Heat cuvette in heater Time (min): 30 Temperature: 120 °C Priority: Normal 5. (Cooling) delay cuvette Time (min): 20 6. Add reagent to cuvette Volume (µl): 200 Speed (µl/s): 400 400 Reagent: B 348/349/350	Canc
ests definitions: APC114 APC138 APC238 APC303 APC304 APC314 APC314 APC314 APC314 APC339 APC340 APC340 APC341 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC346 APC	 Add sample to cuvette Volume (µl): 500 Speed (µl/s): 500 Sampling Z-offset (mm): 1 Rotate cap of cuvette Shake cuvette vertical Time (sec): 5 Speed (%): 40 Heat cuvette in heater Time (min): 30 Temperature: 120 °C Priority: Normal Priority: Normal Add reagent to cuvette Volume (µl): 200 Speed (µl/s): 400 Reagent: B 348/349/350 	Can
APC114 , APC138 , APC303 , APC304 , APC304 , APC304 , APC304 , APC304 , APC314 , APC338 , APC339 , APC340 , APC341 , APC342 , APC346 II , APC346 II , , , APC346 II ,	 1. Add sample to cuvette Volume (µl): 500 Speed (µl/s): 500 Sampling Z-offset (mm): 1 2. Rotate cap of cuvette 3. Shake cuvette vertical 4. Heat cuvette in heater 5. (Cooling) delay cuvette 6. Add reagent to cuvette Volume (µl): 200 Speed (µl/s): 400 Reagent: B 348/349/350	
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PC3048 PC314 PC339 PC339 PC340 PC341 PC342 PC346 I PC346 II PC346 II PC348	3. Shake cuvette vertical Time (sec): 5 Speed (%): 40 4. Heat cuvette in heater Time (min): 30 Temperature: 120 °C <	
PC338 PC339 PC340 PC341 PC342 PC346 I PC346 II PC346 II PC348	4. Heat cuvette in heater Time (min): 30 Temperature: 120 °C Priority: Normal 5. (Cooling) delay cuvette Time (min): 20 Priority: Normal 6. Add reagent to cuvette Volume (µl): 200 Speed (µl/s): 400 Reagent: B 348/349/350	
PC340 PC341 PC342 PC346 I PC346 II PC348	5. [Cooling] delay cuvette Time (min): 20 Priority: Normal V 6. Add reagent to cuvette Volume (µl): 200 Speed (µl/s): 400 Reagent: B 348/349/350 V	
PC342 PC346 I PC346 II PC348	6. Add reagent to cuvette ν Volume (μl): 200 Speed (μl/s): 400 400 Reagent: B 348/349/350 ν	
PC346 II PC348		
	7. Add reagent to cuvette ✓ Volume (μl): 200 Speed (μl/s): 400 400 Reagent: C 348/349/350 ✓	
PC348o PC349	8. Shake cuvette by invertion V Time (sec): 10 Speed inv. (%): 50 Speed rot. (%): 50	
PC349o PC350	9. [Cooling] delay cuvette 🗸 Time (min): 10 Priority: Normal 🗸	
PC3506 PC394	10. Measure cuvette V	
PC400 PC500 PC014	11. None V	
CA722_0.5	12. None V	
A722_R_0.5	13. None V	
CK014 CK049	14. None V	
CK1014 CK1414 CK1714	15. None 🗸	
CK1814 CK1914	Blank measurement needed for test. Only measure blank. Final capping overload (0-99%): 40	
Add test	Unerclicate biainte in emicrosoviennen is meeded up it test.	
Delete test	Blank exctinction: 0 mE. Use nominal blank absorbance if out of range.	

Note

The APC348 needs a preparation of Reagent C:

Use the delivered spoon and take 2 spoonful of Reagent D into Solution C. Invert it for approximately 30 seconds (until it's solved). This solution is stable for 5 days at room temperature.

Alternative with AP3900 Multi with HT-Module:

Settings								
General Methods/Tests	QC/Blani	s/Second-IDs Reagents trays	Colors Remote mes	ssaging Other parameters				
Sample profiles Methods	Tests	Other parameters						<u>0</u> K
Tests definitions:								Cancel
APC114 / APC138 APC238	1 .	Add sample to cuvette	 Volume (μl): 	500 Speed (μl/s)	500 500	Sampling Z-offset (mm):	·1	Cancor
APC303	2.	Rotate cap of cuvette	1					
APC304 APC304B APC314	3.	Shake cuvette vertical	 Time (sec): 	5 Speed (%)	40			
APC338 APC339	4.	Heat cuvette in HT-Unit	 Time (min): 	15 HT Temperature	170	Priority:	Normal \sim	
APC340 APC341	5.	(Cooling) delay cuvette	 Time (min): 	20		Priority:	Normal ~	
APC342 APC3461	6.	Add reagent to cuvette	 Volume (μl): 	200 Speed (µl/s)	400 400	Reagent:	B 348/349/350 🗸	
APC346 II APC348	7.	Add reagent to cuvette	ν Volume (μl):	200 Speed (µl/s)	400 400	Reagent:	C 348/349/350 🗸	
APC348o APC349	8.	Shake cuvette by invertion	 Time (sec): 	10 Speed inv. (%)	50	Speed rot. (%):	50	
APC3490 APC350	9.	(Cooling) delay cuvette	 Time (min): 	10		Priority:	Normal ~	
APC394 APC400	10.	Measure cuvette	1					
APC500 APC814	11.	None	1					
LCA722_0.5 LCA722_2.0	12.	None	1					
LCA722_R_0.5 LCA722_R_2.0	13.	None	1					
LCK014 LCK049	14.	None	1					
LCK1014 LCK1414	15.	None	1					
LCK1714 LCK1814								
LCK1914		Re-create blank if re-measuremen	nt is needed for test.	only measure blank.	Final of	capping overload (0-99%):	40	
Add test	DIA	ale austinations 0 arE		lauli abaadhanaa if and af sanaa	U	se reaction-cuvette:		
Delete test	Bla	nk tolerance: 0 mE.	Nominal absorba	ance factor:	00			
				L				

Run the APC348 Phosphorous total method

Create a Run like described in the QUICK GUIDE

- Place the APC348 cuvettes according to the settings in the Software in the cuvette racks.
- Place the samples according to the settings in the Software in the sample racks
- Place the Reagent B and C according to the settings in the Reagent trays

Settings	
General Methods/Tests AQC/Blancs Reagens tray:	s
Name: Volume: Position 1: A 339 50.00 Position 2: A 340 5.20 Position 3: 0.00 Position 4: 0.00 Position 5: B 348/349/350 27.00 Position 6: C 348/349/350 29.60	Refilled
Volume in reagens cup: Volume in filled reagens cup: 50 ml. Warning level reagens cup: 5 ml.	Other liquid level settings: dZ Tray definition> Max. Liquid level: 300 dZ 10th of mm> ml.: 12

- Check if fresh and enough pipette tips are available
- Check if enough Rinsing/Dilution water is available
- Initialize the AP 3900 multi and the Dispenser

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