

Special instruction

14.02.2023, MHa, V1

Determination of phosphonates with NANOCOLOR[®] NanOx Metal and VISOCOLOR[®] ECO Phosphate

Instruction	
Method	Determination of phosphonates as phosphorus-molybdenum blue after oxidation with NANOCOLOR [®] NanOx Metal at 100–120 °C
Range	0.2–5.0 mg/L P
Test kits	VISOCOLOR [®] ECO Phosphate (REF 931084) NANOCOLOR [®] NanOx Metal (REF 918978)
Required accessories	<ul style="list-style-type: none"> NANOCOLOR[®] heating block Piston pipettes with disposable tips Reaction tubes 16 mm OD (REF 91680)
Interferences	<p>If larger amounts of peroxides are present after the decomposition step, they have to be destroyed by a second heating prior to determination of phosphonate.</p> <p>Phosphates (ortho-, di- or poly-) interfere at any level.</p> <p>H₂S interferes from 2 mg/L on. It can be removed by pumping air through the acidified solution. Heavy metals interfere from 10 mg/L on by a light decrease of color intensity, vanadium increases the color intensity. Silica contents over 20 mg/L interfere.</p>
Procedure	<ol style="list-style-type: none"> Switch on heating block at 100 °C for 1 hour or 120 °C for 30 min. Open empty reaction tube, add <ul style="list-style-type: none"> 5.0 mL test sample and 1 microspoon NanOx metal decomposition reagent, close and shake vigorously. Put the test tube into a heating block and press START. After 30/60 min remove the test tube from heating block and allow to cool to room temperature. Add <ul style="list-style-type: none"> 6 drops PO₄-1, close test tube and mix. Add 6 drops PO₄-2, close test tube and mix. Reaction time: 10:00 min
Measurement	<ol style="list-style-type: none"> Photometric Determination with photometer PF-12 or PF-12^{Plus} Select method 5-841 VISOCOLOR[®] ECO Phosphate with range PO₄-P. Perform measurement. Visual determination via color comparison card Pour the content of the test tube into a VISOCOLOR[®] ECO tube, fill the second tube with 5 mL distilled water and place both tubes into the comparator. Place the comparator on the color comparison card and shift until the color matches in the inspection hole on top. Check the measurement reading in the recess on the comparator reed. Mid-values can be estimated.

Calculation of results For determining the result in mg/L Phosphonate-P (mg/L P) multiply with the conversion factor given in the table below.

mg/L P x	Conversion factor =	mg/L Phosphonate
	7.24	Diethyl ethoxycarbonylmethane phosphonate
	3.33	Hydroxyethylidendiphosphonic acid [Dequest 2010 = HEDP(A)]

Contact

If you have any further questions, please do not hesitate to contact us.

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