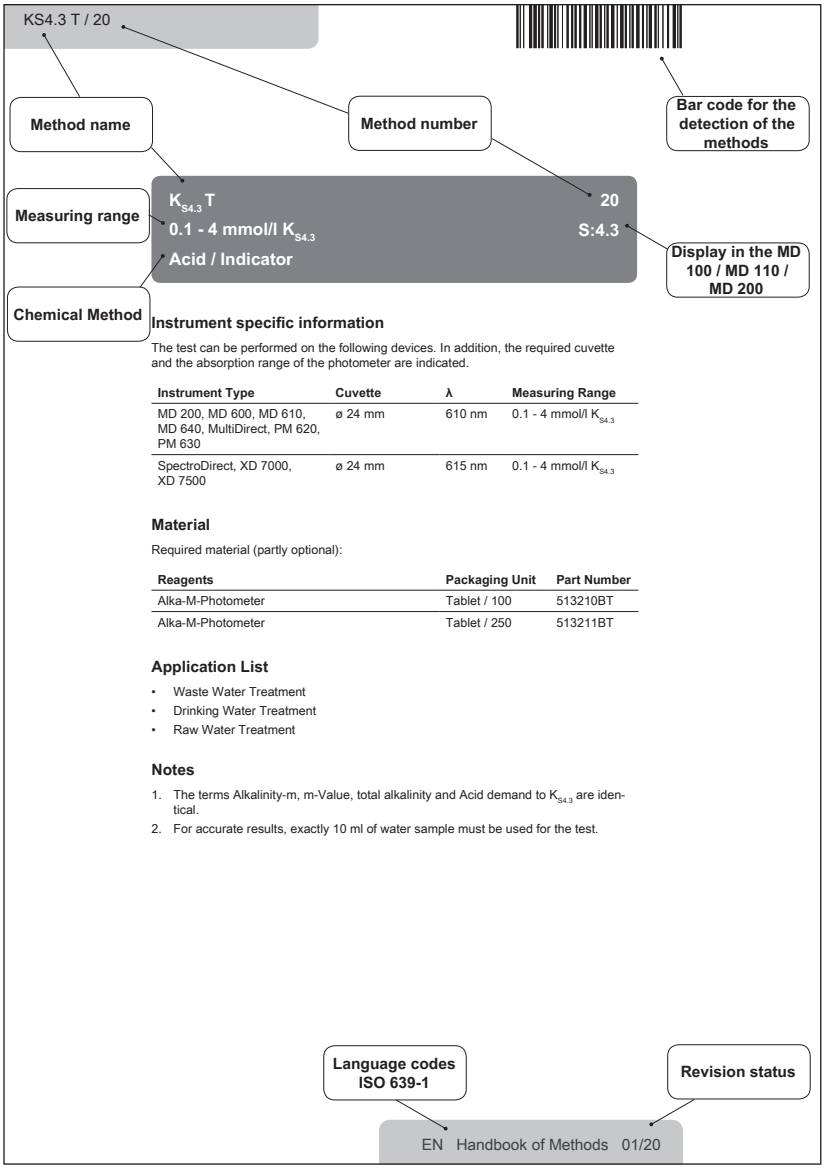
Lovibond® Water Testing

Tintometer® Group

Manual of Methods

MD50 • MD150

Phosphate



Instrument specific information

The test can be performed on the following devices. In addition, the required cuvette and the absorption range of the photometer are indicated.

Instrument Type	Cuvette	λ	Measuring Range
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Alka-M-Photometer	Tablet / 100	513210BT
Alka-M-Photometer	Tablet / 250	513211BT

Application List

- Waste Water Treatment
- Drinking Water Treatment
- Raw Water Treatment

Notes

1. The terms Alkalinity-m, m-Value, total alkalinity and Acid demand to $K_{S4.3}$ are identical.
2. For accurate results, exactly 10 ml of water sample must be used for the test.

Performing test procedure

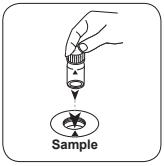
Implementation of the provision Acid capacity $K_{S4.3}$ with Tablet

Select the method on the device

For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500

Fill 24 mm vial with **10 ml sample**.

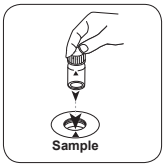
Close vial(s).



Place **sample vial** in the sample chamber. • Pay attention to the positioning.

• • •

Dissolve tablet(s) by inverting.



Place **sample vial** in the sample chamber. • Pay attention to the positioning.

Press the **TEST** (XD: **START**) button.

The result in Acid Capacity $K_{S4.3}$ appears on the display.

Phosphate LR T M320

0.02 - 1.3 mg/L P PO4

Phosphomolybdenum Blue

EN

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Phosphate No. 1 LR	Tablet / 100	513040BT
Phosphate No. 2 LR	Tablet / 100	513050BT
Phosphate No. 2 LR	Tablet / 250	513051BT
Set Phosphate No. 1 LR/No. 2 LR 100 Pc. #	100 each	517651BT

Preparation

1. Strongly buffered samples or samples with extreme pH values should be adjusted to between pH 6 and pH 7 before the analysis (use 1 mol/l Sulphuric acid or 1 mol/l Sodium hydroxide).
2. Ortho-Phosphate ions react with the reagent to form an intense blue colour. Phosphate, which is found in organic and condensed, inorganic (meta-, pyro- and polyphosphate) forms, must therefore be converted into ortho-phosphate ions prior to analysis. The pretreatment of the sample with acid and heat creates the conditions for the hydrolysis of the condensed, inorganic forms. Organically bound phosphate can be converted into ortho-phosphate ions by heating with acid and Persulphate.
   The amount of organically bound phosphate can be calculated:
   mg/L organic Phosphate = mg/L Phosphate, total - mg/L Phosphate, can be hydrolysed in acid.

Notes

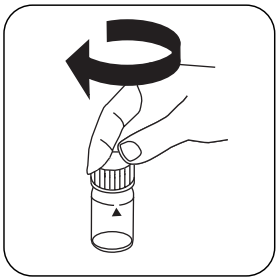
1. Only ortho-phosphate ions react.
2. The tablets must be added in the correct sequence.

Determination of Phosphate, ortho LR with Tablet

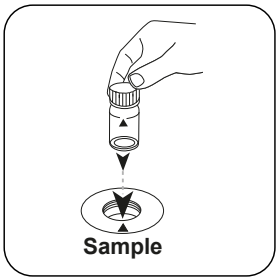
Select the method on the device.

For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500

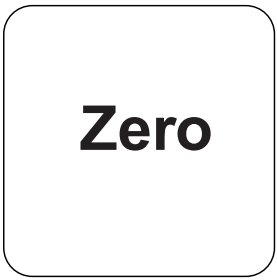
Fill 24 mm vial with **10 mL sample**.



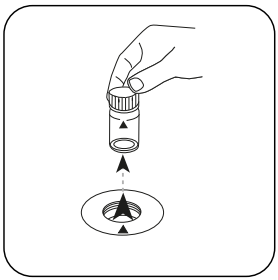
Close vial(s).



Place **sample vial** in the sample chamber. Pay attention to the positioning.

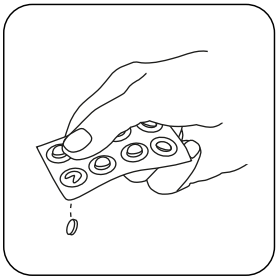


Press the **ZERO** button.

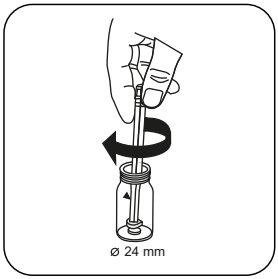


Remove the vial from the sample chamber.

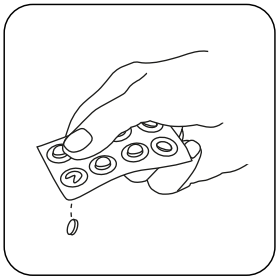
For devices that require **no ZERO measurement** , **start here**.



Add **PHOSPHATE No. 1 LR tablet**.

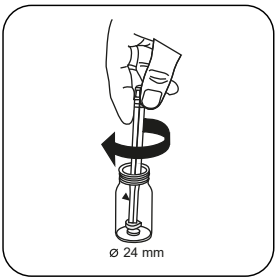


Crush tablet(s) by rotating slightly.

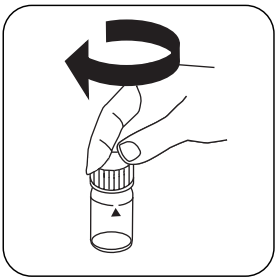


Add **PHOSPHATE No. 2 LR tablet**.

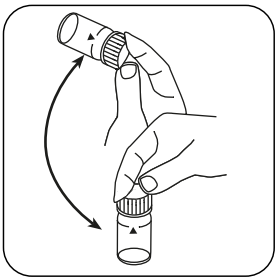
EN



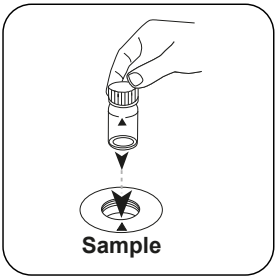
Crush tablet(s) by rotating slightly.



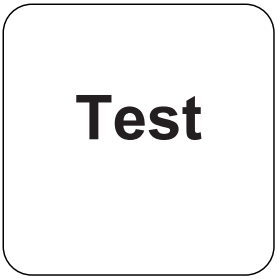
Close vial(s).



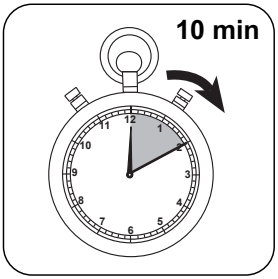
Dissolve tablet(s) by inverting.



Place **sample vial** in the sample chamber. Pay attention to the positioning.



Press the **TEST** (XD: **START**)button.



Wait for **10 minute(s) reaction time**.

Once the reaction period is finished, the measurement takes place automatically.

The result in mg/L ortho-Phosphate appears on the display.

Analyses

The following table identifies the output values can be converted into other citation forms.

Unit	Cite form	Scale Factor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemical Method

Phosphomolybdenum Blue

Appendix

Interferences

Interference	from / [mg/L]
Al	200
AsO_4^{3-}	in all quantities
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in all quantities
SiO_2	50
S^{2-}	in all quantities
Zn	80
V(V)	large quantities
W(VI)	large quantities

According to

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

including stirring rod, 10 cm

Phosphate PP M323

0.02 - 0.8 mg/L P PO4

Phosphomolybdenum Blue

EN

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Phosphate RGT F10 mL	Powder / 100 pc.	531550

Preparation

1. Strongly buffered samples or samples with extreme pH values should be adjusted to between pH 6 and pH 7 before the analysis (use 1 mol/l Sulphuric acid or 1 mol/l Sodium hydroxide).
2. Ortho-Phosphate ions react with the reagent to form an intense blue colour. Phosphate, which is found in organic and condensed, inorganic (meta-, pyro- and polyphosphate) forms, must therefore be converted into ortho-phosphate ions prior to analysis. The pretreatment of the sample with acid and heat creates the conditions for the hydrolysis of the condensed, inorganic forms. Organically bound phosphate can be converted into ortho-phosphate ions by heating with acid and Persulphate.
   The amount of organically bound phosphate can be calculated:
   mg/L organic Phosphate = mg/L Phosphate, total - mg/L Phosphate, can be hydrolysed in acid.

Notes

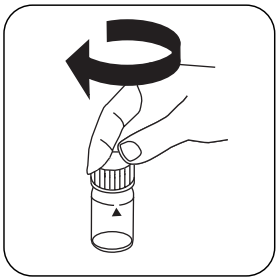
1. The reagent Vario Phosphate Rgt. F10 is not completely dissolved.

Determination of Phosphate, ortho with Vario Powder Packs

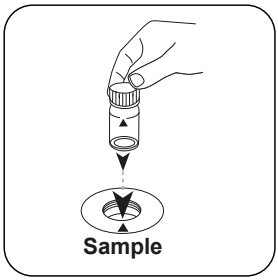
Select the method on the device.

For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500

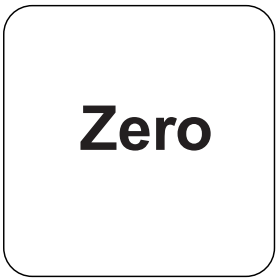
Fill 24 mm vial with **10 mL sample**.



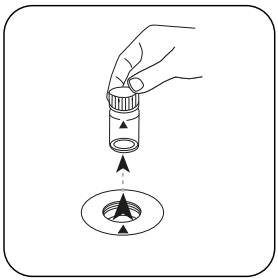
Close vial(s).



Place **sample vial** in the sample chamber. Pay attention to the positioning.

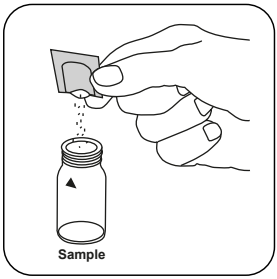


Press the **ZERO** button.

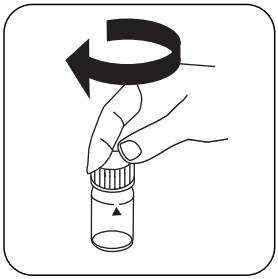


Remove the vial from the sample chamber.

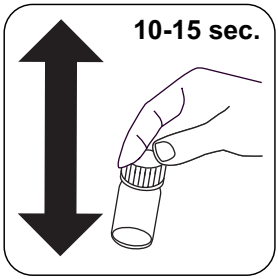
For devices that require **no ZERO measurement** , **start here**.



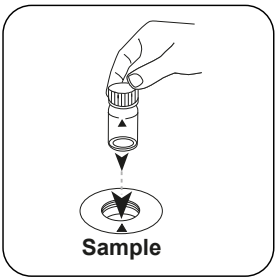
Add **Vario Phosphate Rgt. F10 powder pack**.

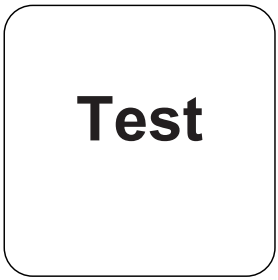


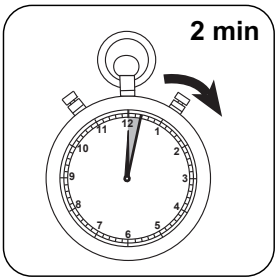
Close vial(s).



Mix the contents by shaking. (10-15 sec.).







EN

Place **sample vial** in the sample chamber. Pay attention to the positioning.

Press the **TEST** (XD: **START**)button.

Wait for **2 minute(s) reaction time**.

Once the reaction period is finished, the measurement takes place automatically.

The result in mg/L ortho-Phosphate appears on the display.

Analyses

The following table identifies the output values can be converted into other citation forms.

Unit	Cite form	Scale Factor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemical Method

Phosphomolybdenum Blue

Appendix

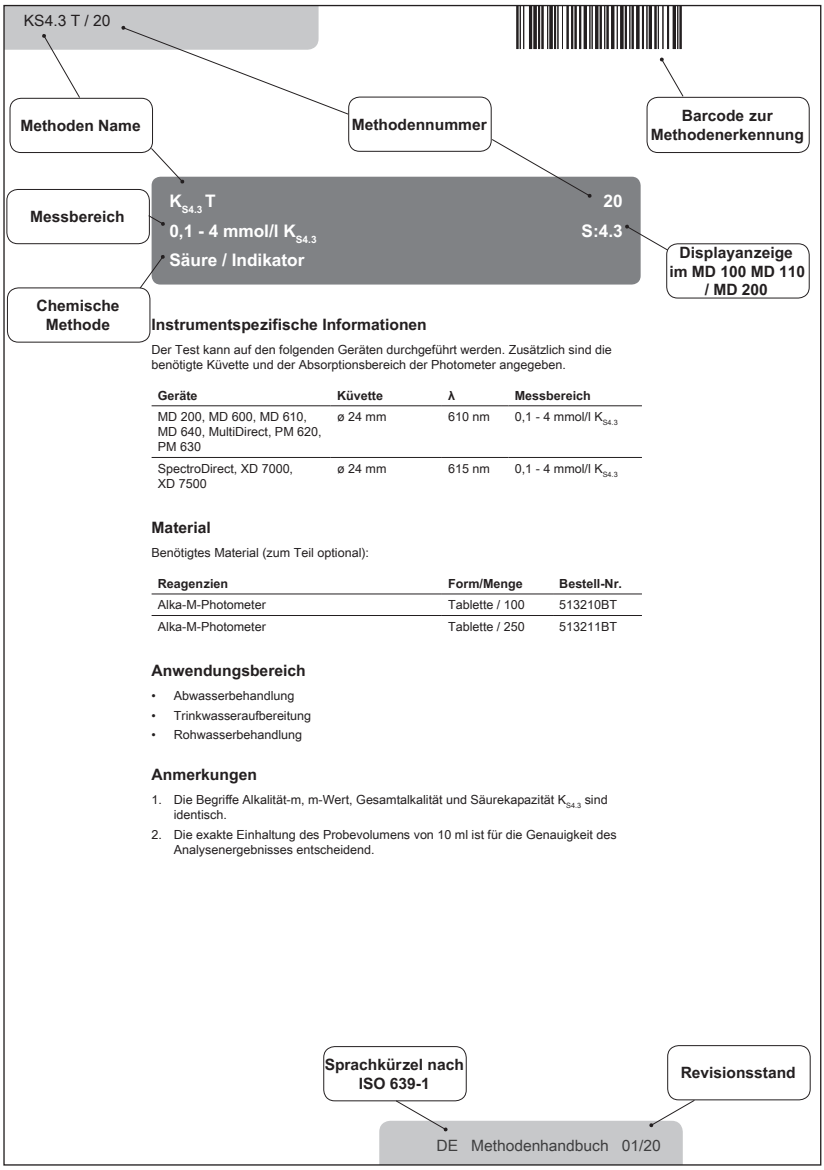
Interferences

Interference	from / [mg/L]
Al	200
AsO_4^{3-}	in all quantities
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in all quantities
SiO_2	50
$Si(OH)_4$	10
S^{2-}	in all quantities
Zn	80

According to

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

DE



Instrumentspezifische Informationen

Der Test kann auf den folgenden Geräten durchgeführt werden. Zusätzlich sind die benötigte Küvette und der Absorptionsbereich der Photometer angegeben.

Geräte	Küvette	λ	Messbereich
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0,1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0,1 - 4 mmol/l $K_{S4.3}$

Material

Benötigtes Material (zum Teil optional):

Reagenzien	Form/Menge	Bestell-Nr.
Alka-M-Photometer	Tablette / 100	513210BT
Alka-M-Photometer	Tablette / 250	513211BT

Anwendungsbereich

- Abwasserbehandlung
- Trinkwasseraufbereitung
- Rohwasserbehandlung

Anmerkungen

1. Die Begriffe Alkalität-m, m-Wert, Gesamtalkalität und Säurekapazität $K_{S4.3}$ sind identisch.
2. Die exakte Einhaltung des Probevolumens von 10 ml ist für die Genauigkeit des Analysenergebnisses entscheidend.

Durchführung der Messung

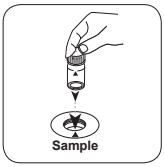
Durchführung der Bestimmung Säurekapazität $K_{S4.3}$ mit Tablette

Die Methode im Gerät auswählen.

Für diese Methode muss bei folgenden Geräten keine ZERO-Messung durchgeführt werden: XD 7000, XD 7500

24-mm-Küvette mit **10 ml Probe** füllen.

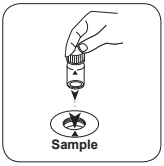
Küvette(n) verschließen.



Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.

• • •

Tablette(n) durch Umschwenken lösen.



Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.

Taste **TEST** (XD: **START**) drücken.

In der Anzeige erscheint das Ergebnis als Säurekapazität $K_{S4.3}$.

Phosphat LR T M320

0,02 - 1,3 mg/L P PO4

Phosphormolybdänblau

DE

Material

Benötigtes Material (zum Teil optional):

Reagenzien	Form/Menge	Bestell-Nr.
Phosphate No. 1 LR	Tablette / 100	513040BT
Phosphate No. 2 LR	Tablette / 100	513050BT
Phosphate No. 2 LR	Tablette / 250	513051BT
Set Phosphate No. 1 LR/No. 2 LR #	je 100	517651BT

Vorbereitung

1. Stark gepufferte Proben oder Proben mit extremen pH-Werten sollten vor der Analyse in einen pH-Bereich zwischen 6 und 7 gebracht werden (mit 1 mol/l Salzsäure bzw. 1 mol/l Natronlauge).
2. Die entstehende blaue Farbe wird durch Reaktion des Reagenzes mit ortho-Phosphat-Ionen erzeugt. Phosphate, die in organischer und in kondensierter, anorganischer (Meta-, Pyro- und Polyphosphate) Form vorliegen, müssen daher vor der Analyse in ortho-Phosphat-Ionen umgewandelt werden. Die Vorbehandlung der Probe mit Säure und Hitze schafft die Bedingungen für die Hydrolyse der kondensierten, anorganischen Formen. Organisch gebundene Phosphate werden durch Erhitzen mit Säure und Persulfat in ortho-Phosphat-Ionen umgewandelt. Die Menge an organisch gebundenem Phosphat kann berechnet werden: mg/L organische Phosphate = mg/L Phosphat, gesamt - mg/L Phosphat, säurehydrolysierbar.

Anmerkungen

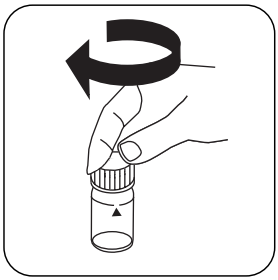
1. Es Reagieren nur ortho-Phosphat-Ionen.
2. Die Reihenfolge der Tablettenzugabe ist unbedingt einzuhalten.

Durchführung der Bestimmung Phosphat, ortho LR mit Tablette

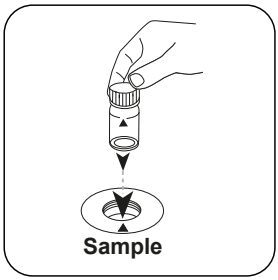
Die Methode im Gerät auswählen.

Für diese Methode muss bei folgenden Geräten nicht jedes mal eine ZERO-Messung durchgeführt werden: XD 7000, XD 7500

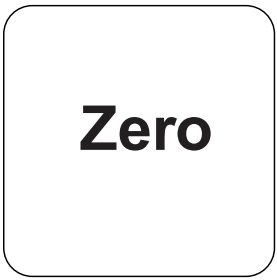
24-mm-Küvette mit **10 mL Probe** füllen.



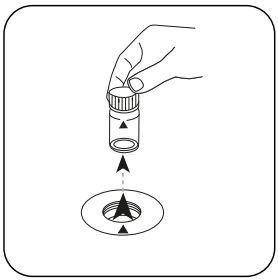
Küvette(n) verschließen.



Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.

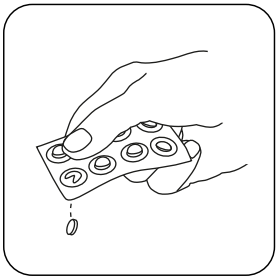


Taste **ZERO** drücken.

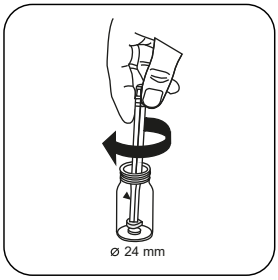


Küvette aus dem Messschacht nehmen.

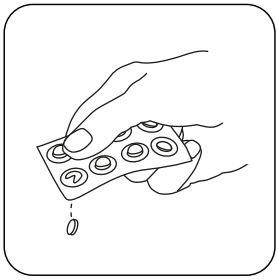
Bei Geräten, die **keine ZERO-Messung** erfordern, **hier beginnen**.



Eine **PHOSPHATE No. 1 LR Tablette** zugeben.

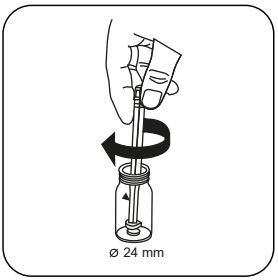


Tablette(n) unter leichter Drehung zerdrücken.

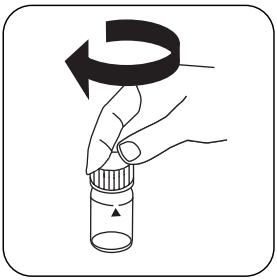


Eine **PHOSPHATE No. 2 LR Tablette** zugeben.

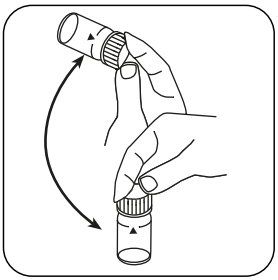
DE



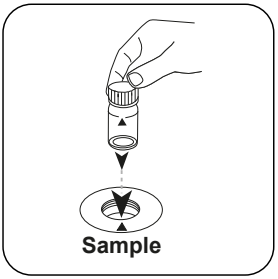
Tablette(n) unter leichter Drehung zerdrücken.



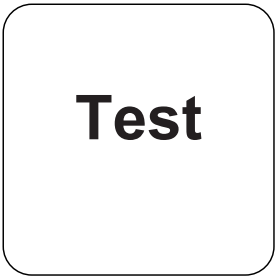
Küvette(n) verschließen.



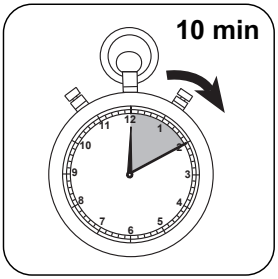
Tablette(n) durch Umschwenken lösen.



Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.



Taste **TEST** (XD: **START**) drücken.



10 Minute(n) Reaktionszeit abwarten.

Nach Ablauf der Reaktionszeit erfolgt automatisch die Messung.

In der Anzeige erscheint das Ergebnis in mg/L ortho-Phosphat.

Auswertung

Die folgende Tabelle gibt an wie die ausgegebenen Werte in andere Zitierformen umgewandelt werden können.

Einheit	Zitierform	Umrechnungsfaktor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemische Methode

Phosphormolybdänblau

Appendix

Störungen

Störung	Stört ab / [mg/L]
Al	200
AsO_4^{3-}	in allen Mengen
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in allen Mengen
SiO_2	50
S^{2-}	in allen Mengen
Zn	80
V(V)	große Mengen
W(VI)	große Mengen

Gemäß

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

inklusive Rührstab

Phosphat PP M323

0,02 - 0,8 mg/L P PO4

Phosphormolybdänblau

DE

Material

Benötigtes Material (zum Teil optional):

Reagenzien	Form/Menge	Bestell-Nr.
VARIO Phosphate RGT F10 mL	Pulver / 100 St.	531550

Vorbereitung

1. Stark gepufferte Proben oder Proben mit extremen pH-Werten sollten vor der Analyse in einen pH-Bereich zwischen 6 und 7 gebracht werden (mit 1 mol/l Salzsäure bzw. 1 mol/l Natronlauge).
2. Die entstehende blaue Farbe wird durch Reaktion des Reagenzes mit ortho-Phosphat-Ionen erzeugt. Phosphate, die in organischer und in kondensierter, anorganischer (Meta-, Pyro- und Polyphosphate) Form vorliegen, müssen daher vor der Analyse in ortho-Phosphat-Ionen umgewandelt werden. Die Vorbehandlung der Probe mit Säure und Hitze schafft die Bedingungen für die Hydrolyse der kondensierten, anorganischen Formen. Organisch gebundene Phosphate werden durch Erhitzen mit Säure und Persulfat in ortho-Phosphat-Ionen umgewandelt. Die Menge an organisch gebundenem Phosphat kann berechnet werden: mg/L organische Phosphate = mg/L Phosphat, gesamt - mg/L Phosphat, säurehydrolysierbar.

Anmerkungen

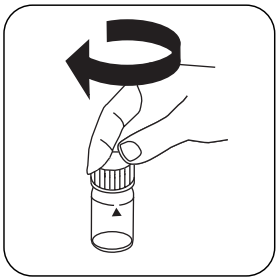
1. Das Reagenz Vario Phosphate Rgt. F10 löst sich nicht vollständig auf.

Durchführung der Bestimmung Phosphat, ortho mit Vario Pulverpäckchen

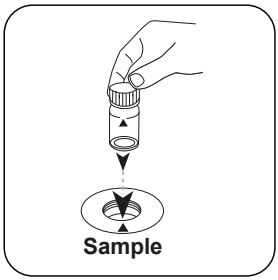
Die Methode im Gerät auswählen.

Für diese Methode muss bei folgenden Geräten nicht jedes mal eine ZERO-Messung durchgeführt werden: XD 7000, XD 7500

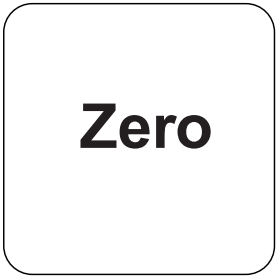
24-mm-Küvette mit **10 mL Probe** füllen.



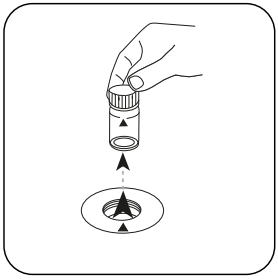
Küvette(n) verschließen.



Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.

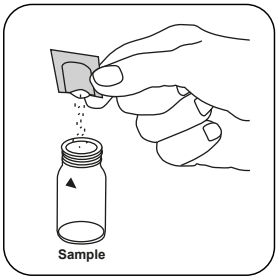


Taste **ZERO** drücken.

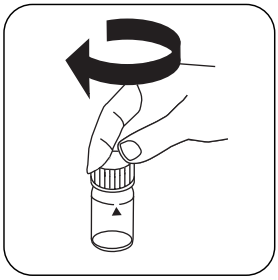


Küvette aus dem Messschacht nehmen.

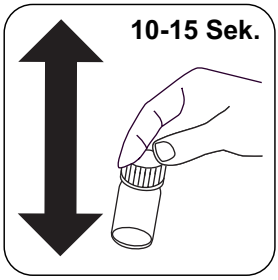
Bei Geräten, die **keine ZERO-Messung** erfordern, **hier beginnen**.



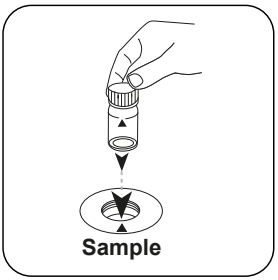
Ein **Vario Phosphate Rgt. F10 Pulverpäckchen** zugeben.

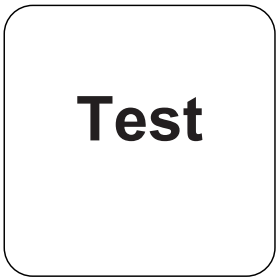


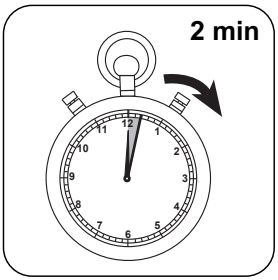
Küvette(n) verschließen.



Inhalt durch Schütteln mischen (10-15 Sek.).







DE

Die **Probenküvette** in den Messschacht stellen. Positionierung beachten.

Taste **TEST** (XD: **START**) drücken.

2 Minute(n) Reaktionszeit abwarten.

Nach Ablauf der Reaktionszeit erfolgt automatisch die Messung.

In der Anzeige erscheint das Ergebnis in mg/L ortho-Phosphat.

Auswertung

Die folgende Tabelle gibt an wie die ausgegebenen Werte in andere Zitierformen umgewandelt werden können.

Einheit	Zitierform	Umrechnungsfaktor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemische Methode

Phosphormolybdänblau

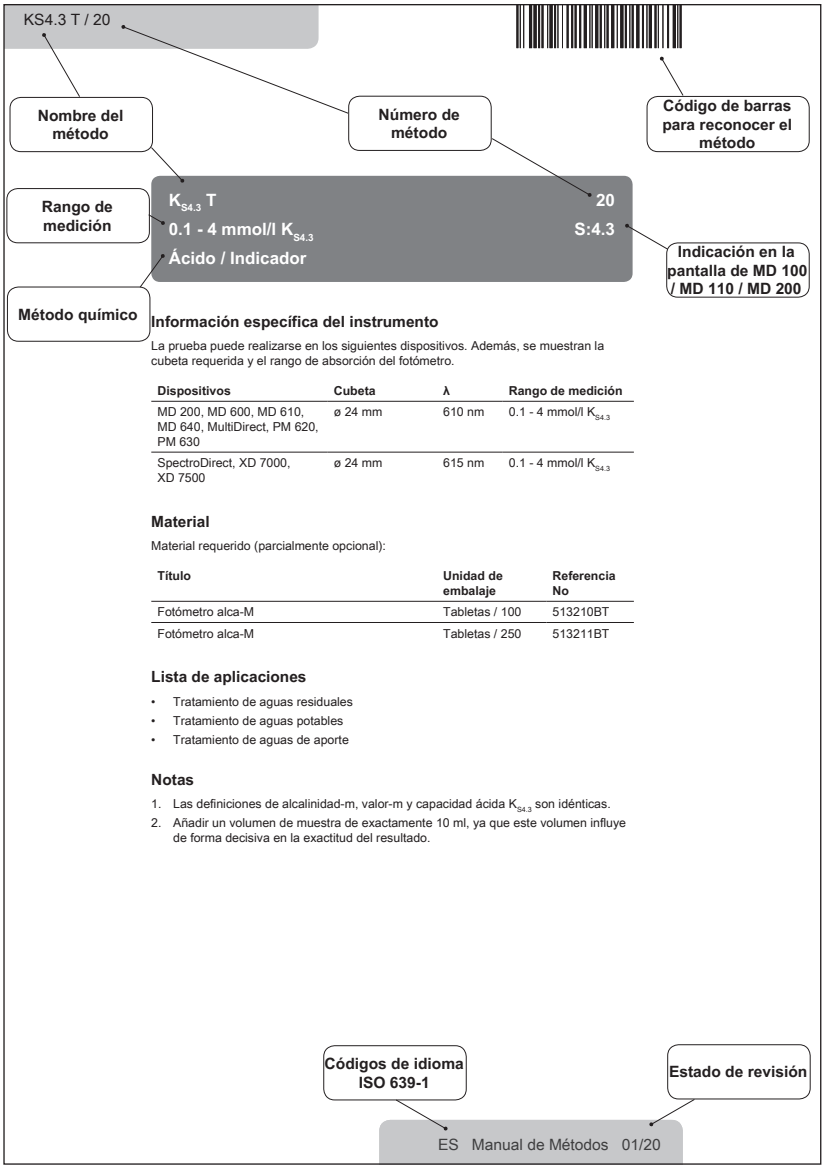
Appendix

Störungen

Störung	Stört ab / [mg/L]
Al	200
AsO_4^{3-}	in allen Mengen
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in allen Mengen
SiO_2	50
$Si(OH)_4$	10
S^{2-}	in allen Mengen
Zn	80

Gemäß

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2


KS4.3 T / 20
Nombre del método
Número de método
Código de barras para reconocer el método
Rango de medición
$K_{S4.3}$ T
20
0.1 - 4 mmol/l $K_{S4.3}$
S:4.3
Ácido / Indicador
Indicación en la pantalla de MD 100 / MD 110 / MD 200
Método químico
Información específica del instrumento
La prueba puede realizarse en los siguientes dispositivos. Además, se muestran la cubeta requerida y el rango de absorción del fotómetro.
Dispositivos | Cubeta | λ | Rango de medición
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630 | ø 24 mm | 610 nm | 0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500 | ø 24 mm | 615 nm | 0.1 - 4 mmol/l $K_{S4.3}$
Material
Material requerido (parcialmente opcional):
Título | Unidad de embalaje | Referencia No
Fotómetro alca-M | Tabletas / 100 | 513210BT
Fotómetro alca-M | Tabletas / 250 | 513211BT
Lista de aplicaciones
• Tratamiento de aguas residuales
• Tratamiento de aguas potables
• Tratamiento de aguas de aporte
Notas
1. Las definiciones de alcalinidad-m, valor-m y capacidad ácida $K_{S4.3}$ son idénticas.
2. Añadir un volumen de muestra de exactamente 10 ml, ya que este volumen influye de forma decisiva en la exactitud del resultado.
Códigos de idioma ISO 639-1
Estado de revisión
ES Manual de Métodos 01/20

Realización de la determinación

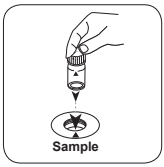
Ejecución de la determinación Capacidad ácida $K_{S4.3}$ con tableta

Seleccionar el método en el aparato.

Para este método no es necesario realizar medición CERO en los aparatos siguientes:
XD 7000, XD 7500

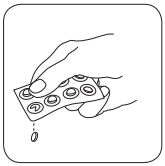
Llenar la cubeta de 24 mm con **10 ml de muestra** .

Cerrar la(s) cubeta(s).

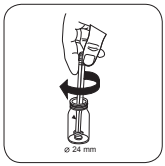


Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!

• • •



Añadir **tableta ALKA-M-PHOTOMETER**.



Triturar la(s) tableta(s) girando ligeramente.

Cerrar la(s) cubeta(s).

Fosfato LR T M320

0.02 - 1.3 mg/L P PO4

Azul de fosforomolibdeno

ES

Material

Material requerido (parcialmente opcional):

Reactivos	Unidad de embalaje	No. de referencia
Fosfato nº 1 LR	Tabletas / 100	513040BT
Fosfato nº 2 LR	Tabletas / 100	513050BT
Fosfato nº 2 LR	Tabletas / 250	513051BT
Juego fosfato nº 1 LR/nº 2 LR #	100 cada	517651BT

Preparación

1. Las muestras muy tamponadas o con valores de pH extremos se deberán poner antes del análisis en un rango de pH entre 6 y 7 (con 1 mol/l de ácido clorhídrico o 1 mol/l de hidróxido sódico).
2. El color azul producido lo causa la reacción del reactivo con los iones de ortofosfato. Los fosfatos que se encuentren condensados de forma orgánica o inorgánica (meta-, piro- y polifosfatos) se deberán transformar en orto-fosfatos antes de su determinación. El pretratamiento de la muestra con ácidos y calor proporciona las condiciones ideales para la hidrólisis de los fosfatos inorgánicos condensados. Los fosfatos orgánicamente ligados se transforman en orto-fosfatos mediante el calentamiento con ácido y persulfato.
   La cantidad de fosfatos orgánicos ligados se calcula según:
   mg/L fosfatos orgánicos = mg/L fosfato total, mg/L fosfato hidrolizable mediante ácido.

Notas

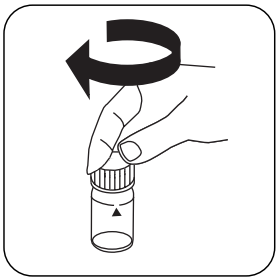
1. Solo reaccionan los iones de ortofosfato.
2. Debe seguirse estrictamente el orden de adición de las tabletas.

Ejecución de la determinación Fosfato, orto LR con tableta

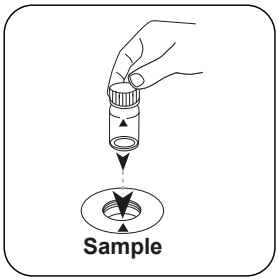
Seleccionar el método en el aparato.

Para este método, no es necesario realizar una medición CERO cada vez en los siguientes dispositivos: XD 7000, XD 7500

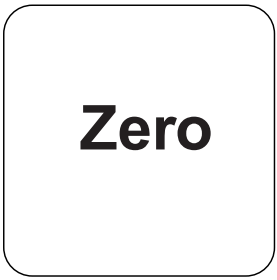
Llenar la cubeta de 24 mm con **10 mL de muestra** .



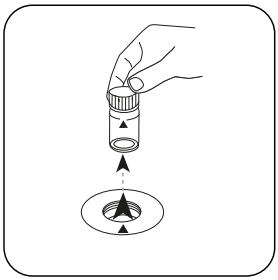
Cerrar la(s) cubeta(s).



Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!

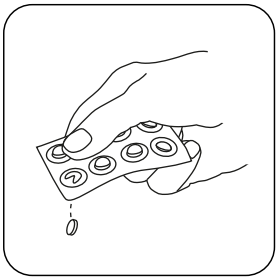


Pulsar la tecla **ZERO**.

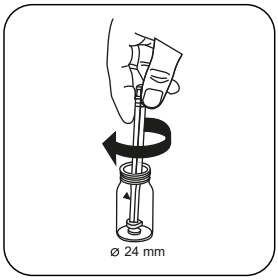


Extraer la cubeta del compartimiento de medición.

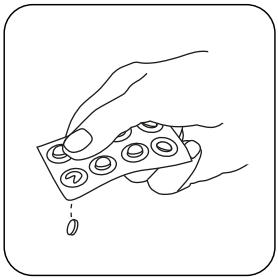
Para los aparatos que **no requieran medición CERO** , **empezar aquí**.



Añadir **tableta PHOSPHATE No. 1 LR** .

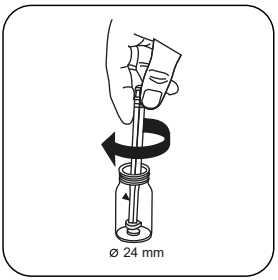


Triturar la(s) tableta(s) girando ligeramente.

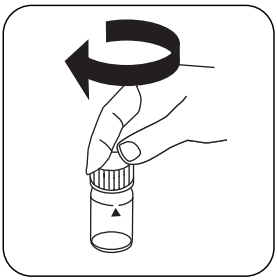


Añadir **tableta PHOSPHATE No. 2 LR** .

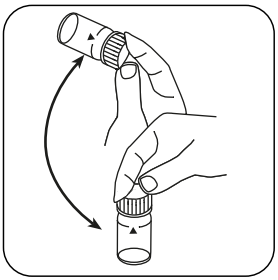
ES



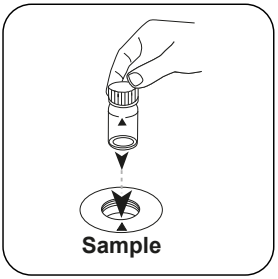
Triturar la(s) tableta(s) girando ligeramente.



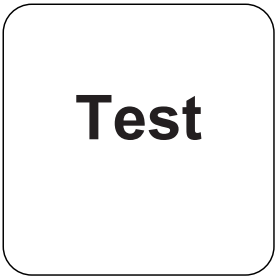
Cerrar la(s) cubeta(s).



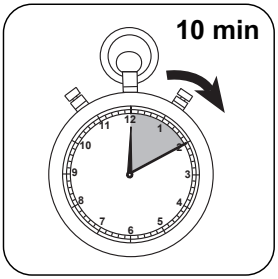
Disolver la(s) tableta(s) girando.



Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!



Pulsar la tecla **TEST** (XD: **START**).



Esperar **10 minutos como periodo de reacción**.

Finalizado el periodo de reacción se realizará la determinación automáticamente.

A continuación se visualizará el resultado en mg/L Fosfato-orto.

Evaluación

La siguiente tabla muestra cómo los valores de salida se pueden convertir a otros formularios de citas.

Unidad	Conversión	Factor de conversión
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Método químico

Azul de fosforomolibdeno

Apéndice

Interferencia

Interferencia	de / [mg/L]
Al	200
AsO_4^{3-}	en todas las cantidades
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	en todas las cantidades
SiO_2	50
S^{2-}	en todas las cantidades
Zn	80
V(V)	grandes cantidades
W(VI)	grandes cantidades

De acuerdo a

DIN ISO 15923-1 D49
Método estándar 4500-P E
US EPA 365.2

Fosfato PP M323

0.02 - 0.8 mg/L P PO4

Azul de fosforomolibdeno

ES

Material

Material requerido (parcialmente opcional):

Reactivos	Unidad de embalaje	No. de referencia
VARIO Phosphate RGT F10 mL	Polvos / 100 Cantidad	531550

Preparación

1. Las muestras muy tamponadas o con valores de pH extremos se deberán poner antes del análisis en un rango de pH entre 6 y 7 (con 1 mol/l de ácido clorhídrico o 1 mol/l de hidróxido sódico).
2. El color azul producido lo causa la reacción del reactivo con los iones de ortofosfato. Los fosfatos que se encuentren condensados de forma orgánica o inorgánica (meta-, piro- y polifosfatos) se deberán transformar en orto-fosfatos antes de su determinación. El pretratamiento de la muestra con ácidos y calor proporciona las condiciones ideales para la hidrólisis de los fosfatos inorgánicos condensados. Los fosfatos orgánicamente ligados se transforman en orto-fosfatos mediante el calentamiento con ácido y persulfato.
   La cantidad de fosfatos orgánicos ligados se calcula según:
   mg/L fosfatos orgánicos = mg/L fosfato total, mg/L fosfato hidrolizable mediante ácido.

Notas

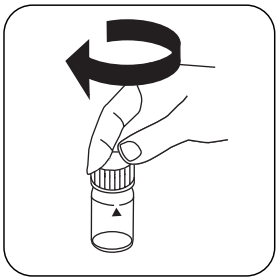
1. El reactivo Vario phos 3 F10 no se disuelve completamente.

Ejecución de la determinación Fosfato, orto con sobre de polvos Vario

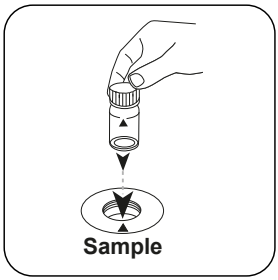
Seleccionar el método en el aparato.

Para este método, no es necesario realizar una medición CERO cada vez en los siguientes dispositivos: XD 7000, XD 7500

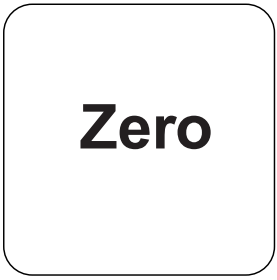
Llenar la cubeta de 24 mm con **10 mL de muestra** .



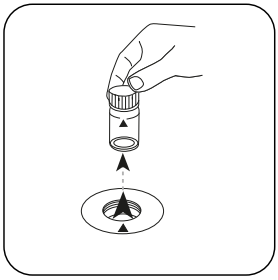
Cerrar la(s) cubeta(s).



Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!

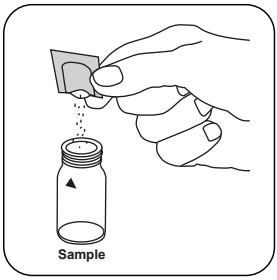


Pulsar la tecla **ZERO**.



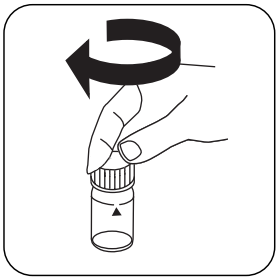
Extraer la cubeta del compartimiento de medición.

Para los aparatos que **no requieran medición CERO** , **empezar aquí**.

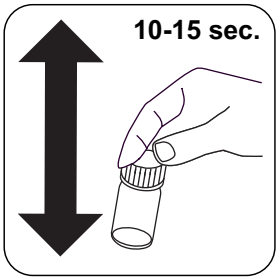


Añadir un **sobre de polvos Vario Phosphate Rgt. F10**

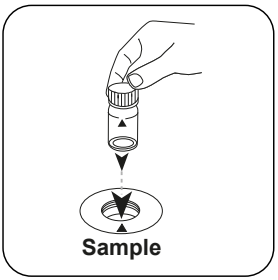
.

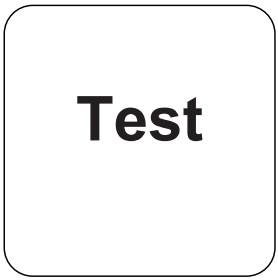


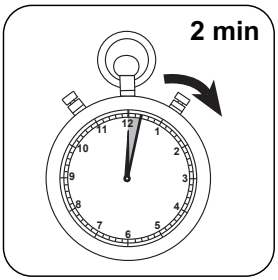
Cerrar la(s) cubeta(s).



Mezclar el contenido agitando (10-15 sec.).







ES

Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!

Pulsar la tecla **TEST** (XD: **START**).

Esperar **2 minutos como periodo de reacción**.

Finalizado el periodo de reacción se realizará la determinación automáticamente.

A continuación se visualizará el resultado en mg/L Fosfato-orto.

Evaluación

La siguiente tabla muestra cómo los valores de salida se pueden convertir a otros formularios de citas.

Unidad	Conversión	Factor de conversión
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Método químico

Azul de fosforomolibdeno

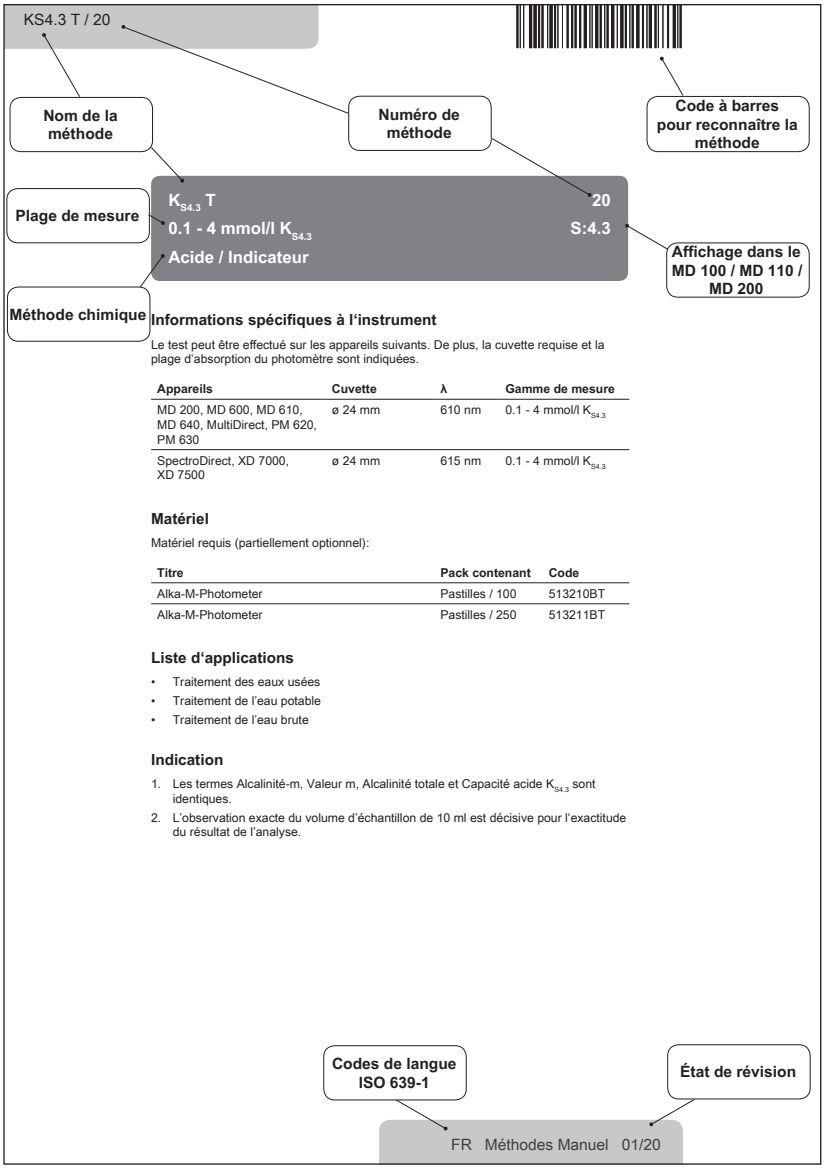
Apéndice

Interferencia

Interferencia	de / [mg/L]
Al	200
AsO_4^{3-}	en todas las cantidades
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	en todas las cantidades
SiO_2	50
$Si(OH)_4$	10
S^{2-}	en todas las cantidades
Zn	80

De acuerdo a

DIN ISO 15923-1 D49
Método estándar 4500-P E
US EPA 365.2


KS4.3 T / 20
Nom de la méthode
Numéro de méthode
Code à barres pour reconnaître la méthode
Plage de mesure
$K_{S4.3}$ T
20
0.1 - 4 mmol/l $K_{S4.3}$
S:4.3
Acide / Indicateur
Affichage dans le MD 100 / MD 110 / MD 200
Méthode chimique
Informations spécifiques à l'instrument
Le test peut être effectué sur les appareils suivants. De plus, la cuvette requise et la plage d'absorption du photomètre sont indiquées.
Appareils | Cuvette | λ | Gamme de mesure
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630 | ø 24 mm | 610 nm | 0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500 | ø 24 mm | 615 nm | 0.1 - 4 mmol/l $K_{S4.3}$
Matériel
Matériel requis (partiellement optionnel):
Titre | Pack contenant | Code
Alka-M-Photometer | Pastilles / 100 | 513210BT
Alka-M-Photometer | Pastilles / 250 | 513211BT
Liste d'applications
• Traitement des eaux usées
• Traitement de l'eau potable
• Traitement de l'eau brute
Indication
1. Les termes Alcalinité-m, Valeur m, Alcalinité totale et Capacité acide $K_{S4.3}$ sont identiques.
2. L'observation exacte du volume d'échantillon de 10 ml est décisive pour l'exactitude du résultat de l'analyse.
Codes de langue ISO 639-1
État de révision
FR Méthodes Manuel 01/20

Procédure du test

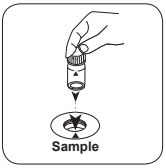
Réalisation de la quantification Capacité acide $K_{S4.3}$ avec pastille

Sélectionnez la méthode sur l'appareil.

Cette méthode ne nécessite aucune mesure du zéro sur les appareils suivants : XD 7000, XD 7500

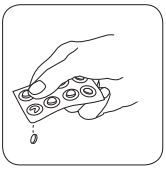
Remplissez une cuvette de 24 mm de **10 ml d'échantillon**.

Fermez la(les) cuvette(s).

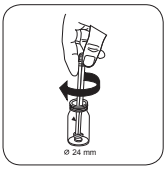


Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.

• • •



Ajoutez une **pastille de ALKA-M-PHOTOMETER**.



Écrasez la(les) pastille(s) en la(les) tournant un peu.

Fermez la(les) cuvette(s).

Phosphate LR T M320

0.02 - 1.3 mg/L P PO4

Bleu phosphomolybdique

FR

Matériel

Matériel requis (partiellement optionnel):

Réactifs	Pack contenant	Code
Phosphate N° 1 LR	Pastilles / 100	513040BT
Phosphate N° 2 LR	Pastilles / 100	513050BT
Phosphate N° 2 LR	Pastilles / 250	513051BT
Kit phosphate N° 1 LR/N° 2 LR #	100 chacun	517651BT

Préparation

1. Avant l'analyse, les échantillons très tamponnés ou les échantillons ayant des pH extrêmes devraient être ajustés sur un pH compris entre 6 et 7 (avec 1 mol/l d'acide chlorhydrique ou 1 mol/l de soude caustique).
2. La couleur bleue qui se forme, est générée par réaction du réactif avec les ions orthophosphates. Les phosphates présents sous forme organique et inorganique condensée (métaphosphates, pyrophosphates et polyphosphates) devront donc être transformés en ions orthophosphates avant l'analyse. Le prétraitement de l'échantillon à l'acide et à la chaleur crée les conditions nécessaires à l'hydrolyse des formes condensées, inorganiques. Les phosphates organiques sont transformés en ions orthophosphates par réchauffement à l'acide et au persulfate. La quantité de phosphate organique peut être calculée comme suit : mg/L de phosphates organiques = mg/L de phosphate, total - mg/L de phosphate, hydrolysable dans l'acide.

Indication

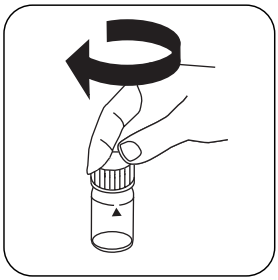
1. Seuls les ions orthophosphates réagissent.
2. Respectez obligatoirement l'ordre d'apport de la pastille indiqué.

Réalisation de la quantification Phosphate, ortho LR avec pastille

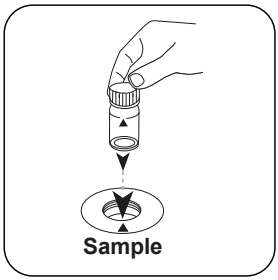
Sélectionnez la méthode sur l'appareil.

Pour cette méthode, il n'est pas nécessaire d'effectuer une mesure ZERO à chaque fois sur les appareils suivants : XD 7000, XD 7500

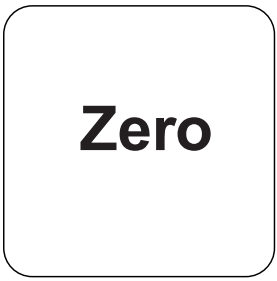
Remplissez une cuvette de 24 mm de **10 mL d'échantillon**.



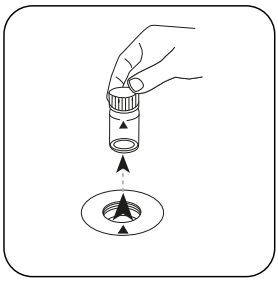
Fermez la(les) cuvette(s).



Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.

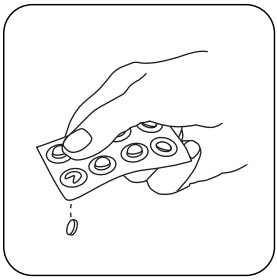


Appuyez sur la touche **ZERO**.

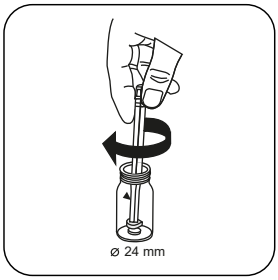


Retirez la cuvette de la chambre de mesure.

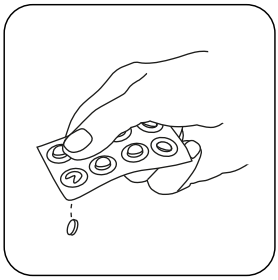
Sur les appareils ne nécessitant **aucune mesure ZÉRO** , **commencez ici**.



Ajoutez une **pastille de PHOSPHATE No. 1 LR** .

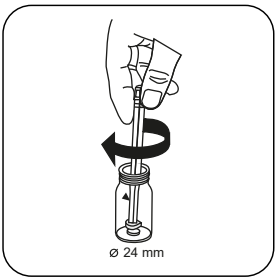


Écrasez la(les) pastille(s) en la(les) tournant un peu.

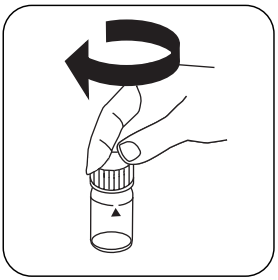


Ajoutez une **pastille de PHOSPHATE No. 2 LR** .

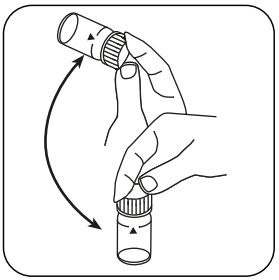
FR



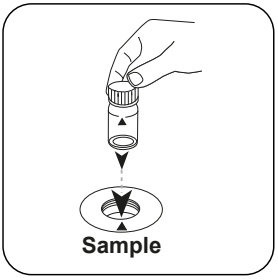
Écrasez la(les) pastille(s) en la(les) tournant un peu.



Fermez la(les) cuvette(s).

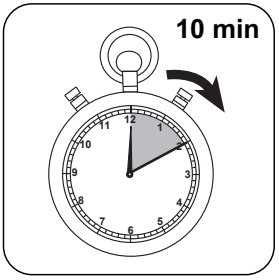


Dissolvez la(les) pastille(s) en mettant le tube plusieurs fois à l'envers.



Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure.
Attention à la positionner correctement.

Appuyez sur la touche **TEST** (XD: **START**).



Attendez la fin du **temps de réaction de 10 minute(s)** .

À l'issue du temps de réaction, la mesure est effectuée automatiquement.

Le résultat s'affiche à l'écran en mg/L Orthophosphate.

Analyses

Le tableau suivant identifie les valeurs de sortie qui peuvent être converties en d'autres formes de citation.

Unité	Formes de citation	Facteur de conversion
mg/l	P	1
mg/l	PO_4^{3-}	3.0661
mg/l	P_2O_5	2.2913

Méthode chimique

Bleu phosphomolybdique

Appendice

Interférences

Interférences	de / [mg/L]
Al	200
AsO_4^{3-}	Dans toutes les quantités
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	Dans toutes les quantités
SiO_2	50
S^{2-}	Dans toutes les quantités
Zn	80
V(V)	grandes quantités
W(VI)	grandes quantités

Selon

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

[j] # agitateur inclus

Phosphate PP M323

0.02 - 0.8 mg/L P PO4

Bleu phosphomolybdique

FR

Matériel

Matériel requis (partiellement optionnel):

Réactifs	Pack contenant	Code
VARIO Phosphate RGT F10 mL	Poudre / 100 Pièces	531550

Préparation

1. Avant l'analyse, les échantillons très tamponnés ou les échantillons ayant des pH extrêmes devraient être ajustés sur un pH compris entre 6 et 7 (avec 1 mol/l d'acide chlorhydrique ou 1 mol/l de soude caustique).
2. La couleur bleue qui se forme, est générée par réaction du réactif avec les ions orthophosphates. Les phosphates présents sous forme organique et inorganique condensée (métaphosphates, pyrophosphates et polyphosphates) devront donc être transformés en ions orthophosphates avant l'analyse. Le prétraitement de l'échantillon à l'acide et à la chaleur crée les conditions nécessaires à l'hydrolyse des formes condensées, inorganiques. Les phosphates organiques sont transformés en ions orthophosphates par réchauffement à l'acide et au persulfate. La quantité de phosphate organique peut être calculée comme suit : mg/L de phosphates organiques = mg/L de phosphate, total - mg/L de phosphate, hydrolysable dans l'acide.

Indication

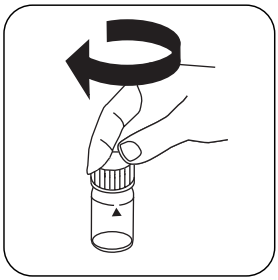
1. Le réactif Vario Phosphate Rgt. F10 ne se dissout pas entièrement.

Réalisation de la quantification Phosphate, ortho avec sachet de poudre Vario

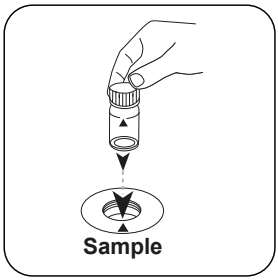
Sélectionnez la méthode sur l'appareil.

Pour cette méthode, il n'est pas nécessaire d'effectuer une mesure ZERO à chaque fois sur les appareils suivants : XD 7000, XD 7500

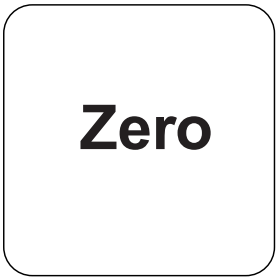
Remplissez une cuvette de 24 mm de **10 mL d'échantillon**.



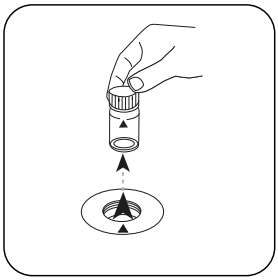
Fermez la(les) cuvette(s).



Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.

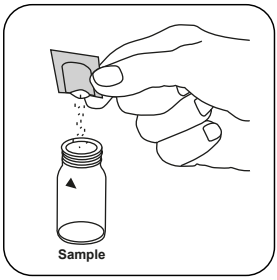


Appuyez sur la touche **ZERO**.

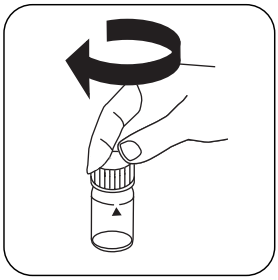


Retirez la cuvette de la chambre de mesure.

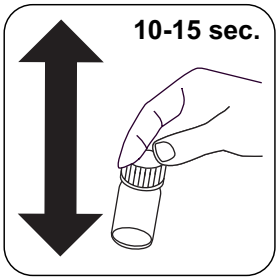
Sur les appareils ne nécessitant **aucune mesure ZÉRO** , **commencez ici**.



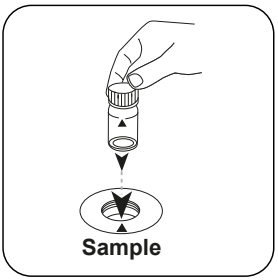
Ajoutez un **sachet de poudre Vario Phosphate Rgt. F10**.

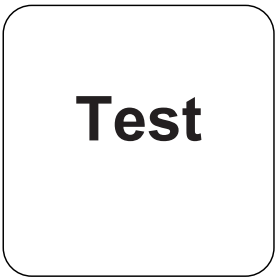


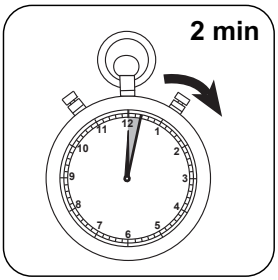
Fermez la(les) cuvette(s).



Mélangez le contenu en agitant (10-15 sec.).







FR

Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.

Appuyez sur la touche **TEST** (XD: **START**).

Attendez la fin du **temps de réaction de 2 minute(s)** .

À l'issue du temps de réaction, la mesure est effectuée automatiquement.

Le résultat s'affiche à l'écran en mg/L Orthophosphate.

Analyses

Le tableau suivant identifie les valeurs de sortie qui peuvent être converties en d'autres formes de citation.

Unité	Formes de citation	Facteur de conversion
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Méthode chimique

Bleu phosphomolybdique

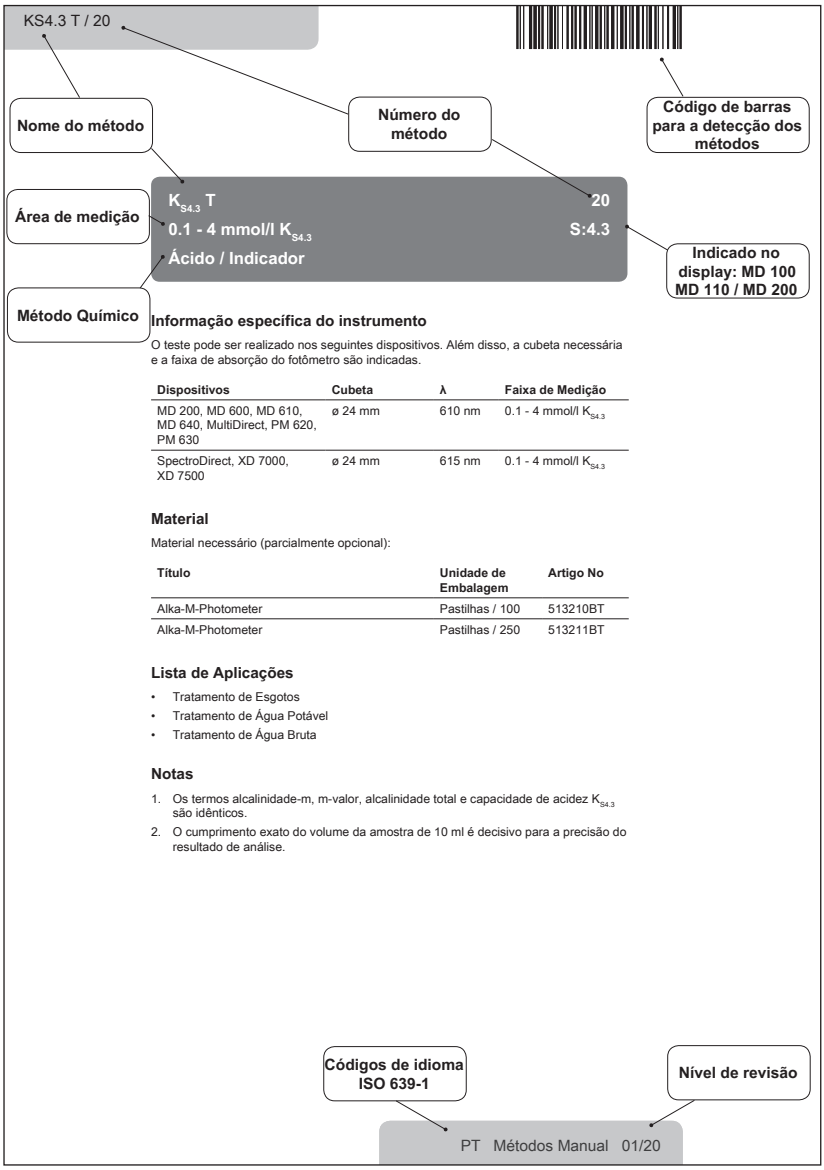
Appendice

Interférences

Interférences	de / [mg/L]
Al	200
AsO_4^{3-}	en toutes les quantités
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	en toutes les quantités
SiO_2	50
$Si(OH)_4$	10
S^{2-}	en toutes les quantités
Zn	80

Selon

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2


KS4.3 T / 20
Nome do método
Número do método
Código de barras para a detecção dos métodos
Área de medição
$K_{S4.3}$ T
20
0.1 - 4 mmol/l $K_{S4.3}$
S:4.3
Ácido / Indicador
Indicado no display: MD 100 MD 110 / MD 200
Método Químico
Informação específica do instrumento
O teste pode ser realizado nos seguintes dispositivos. Além disso, a cubeta necessária e a faixa de absorção do fotômetro são indicadas.
Dispositivos | Cubeta | λ | Faixa de Medição
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630 | ø 24 mm | 610 nm | 0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500 | ø 24 mm | 615 nm | 0.1 - 4 mmol/l $K_{S4.3}$
Material
Material necessário (parcialmente opcional):
Título | Unidade de Embalagem | Artigo No
Alka-M-Photometer | Pastilhas / 100 | 513210BT
Alka-M-Photometer | Pastilhas / 250 | 513211BT
Lista de Aplicações
• Tratamento de Esgotos
• Tratamento de Água Potável
• Tratamento de Água Bruta
Notas
1. Os termos alcalinidade-m, m-valor, alcalinidade total e capacidade de acidez $K_{S4.3}$ são idênticos.
2. O cumprimento exato do volume da amostra de 10 ml é decisivo para a precisão do resultado de análise.
Códigos de idioma ISO 639-1
Nível de revisão
PT Métodos Manual 01/20

Efetuar a medição

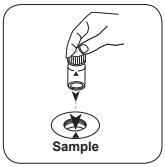
Realização da determinação Capacidade de acidez $K_{S4.3}$ com pastilha

Escolher o método no equipamento.

Para este método não tem de ser efetuada uma medição ZERO nos seguintes equipamentos: XD 7000, XD 7500

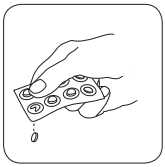
Encher a célula de 24 mm com **10 ml de amostra** .

Fechar a(s) célula(s).

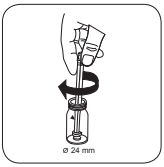


Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

• • •



Pastilha ALKA-M-PHOTOMETER.



Esmagar a(s) pastilha(s) rodando ligeiramente.

Fechar a(s) célula(s).

Fosfato LR T M320

0.02 - 1.3 mg/L P PO4

Phosphomolybdenum Blue

PT

Material

Material necessário (parcialmente opcional):

Reagentes	Unidade de Embalagem	Código do Produto
Fosfato Não. 1 LR	Pastilhas / 100	513040BT
Fosfato Não. 2 LR	Pastilhas / 100	513050BT
Fosfato Não. 2 LR	Pastilhas / 250	513051BT
Definir nº fosfato 1 LR/No. 2 LR #	cada 100	517651BT

Preparação

1. As amostras muito tamponadas ou as amostras com valores pH extremos deviam, antes da análise, ser ajustadas para um valor pH entre 6 e 7 (com 1 mol/l de ácido sulfúrico ou 1 mol/l soda cáustica).
2. A cor azul resultante é obtida por reação do reagente com iões de orto-fosfato. Os fosfatos que estão presentes em forma orgânica e inorgânica condensada (meta, piro e poli-fosfatos) têm, por isso, de ser convertidos, antes da análise, em iões de orto-fosfatos. O pré-tratamento da amostra com ácido e calor proporciona as condições para a hidrólise das formas inorgânicas condensadas. Os fosfatos organicamente compostos são convertidos por aquecimento com ácido e persulfato em iões de orto-fosfato.
   A quantidade de fosfato orgânico composto pode ser calculado:
   mg/L fosfatos orgânicos = mg/L fosfato, total - mg/L fosfato, hidrolizável em ácido.

Notas

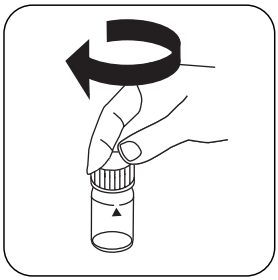
1. Só reagem os iões de orto-fosfato.
2. A sequência da adição de pastilhas tem de ser cumprida.

Realização da determinação Fosfato, orto LR com pastilha

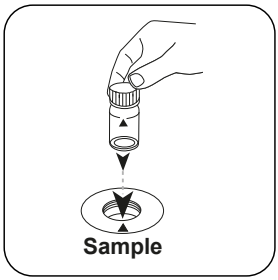
Escolher o método no equipamento.

Para este método, uma medição ZERO não precisa ser realizada todas as vezes nos seguintes dispositivos: XD 7000, XD 7500

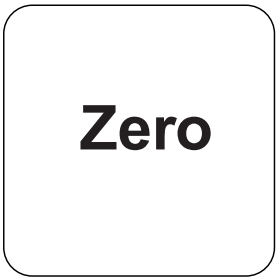
Encher a célula de 24 mm com **10 mL de amostra** .



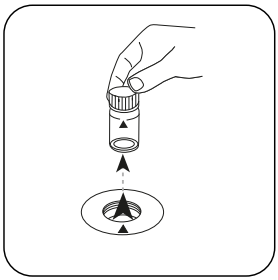
Fechar a(s) célula(s).



Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

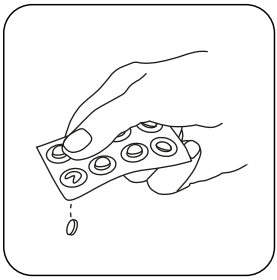


Premir a tecla **ZERO**.

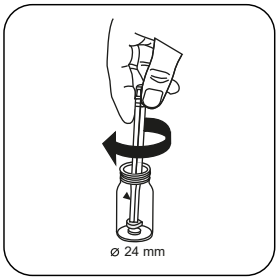


Retirar a célula do compartimento de medição.

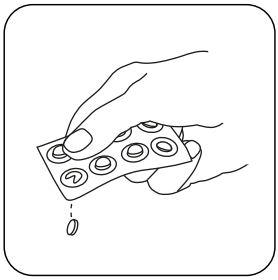
Nos equipamentos que **não requerem uma medição ZERO** , **deve começar aqui**.



Pastilha PHOSPHATE No. 1 LR .

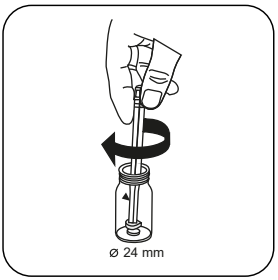


Esmagar a(s) pastilha(s) rodando ligeiramente.

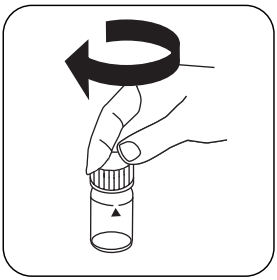


Pastilha PHOSPHATE No. 2 LR .

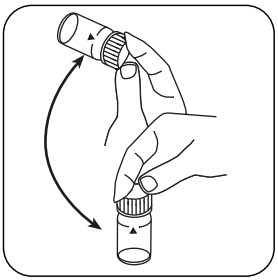
PT



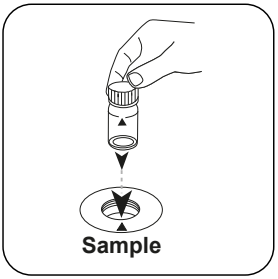
Esmagar a(s) pastilha(s) rodando ligeiramente.



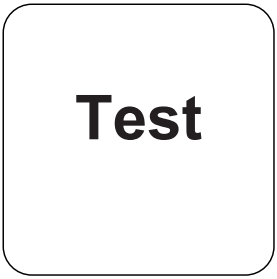
Fechar a(s) célula(s).



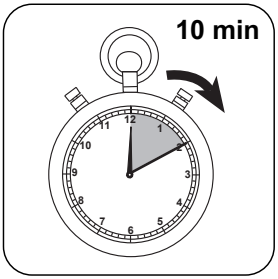
Dissolver a(s) pastilha(s) girando.



Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.



Premir a tecla **TEST** (XD: **START**).



Aguardar **10 minuto(s) de tempo de reação**.

Decorrido o tempo de reação, a medição é efetuada automaticamente.

No visor aparece o resultado em mg/L orto-fosfato.

Análises

A tabela a seguir identifica os valores de saída que podem ser convertidos em outras formas de citação.

Unidade	Forma de citação	Fator de conversão
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Método Químico

Phosphomolybdenum Blue

Apêndice

Texto de Interferências

Interferências	a partir de / [mg/L]
Al	200
AsO_4^{3-}	em todas as quantidades
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	em todas as quantidades
SiO_2	50
S^{2-}	em todas as quantidades
Zn	80
V(V)	grandes quantidades
W(VI)	grandes quantidades

De acordo com

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

#incluindo vareta de agitação

Fosfato PP M323

0.02 - 0.8 mg/L P PO4

Phosphomolybdenum Blue

PT

Material

Material necessário (parcialmente opcional):

Reagentes	Unidade de Embalagem	Código do Produto
VARIO Phosphate RGT F10 mL	Pó / 100 pc.	531550

Preparação

1. As amostras muito tamponadas ou as amostras com valores pH extremos deviam, antes da análise, ser ajustadas para um valor pH entre 6 e 7 (com 1 mol/l de ácido sulfúrico ou 1 mol/l soda cáustica).
2. A cor azul resultante é obtida por reação do reagente com iões de orto-fosfato. Os fosfatos que estão presentes em forma orgânica e inorgânica condensada (meta, piro e poli-fosfatos) têm, por isso, de ser convertidos, antes da análise, em iões de orto-fosfatos. O pré-tratamento da amostra com ácido e calor proporciona as condições para a hidrólise das formas inorgânicas condensadas. Os fosfatos organicamente compostos são convertidos por aquecimento com ácido e persulfato em iões de orto-fosfato.
   A quantidade de fosfato orgânico composto pode ser calculado:
   mg/L fosfatos orgânicos = mg/L fosfato, total - mg/L fosfato, hidrolizável em ácido.

Notas

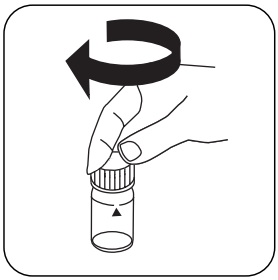
1. O reagente Vario Phosphate Rgt. F10 não se dissolve completamente.

Realização da determinação Fosfato, orto com pacote de pó Vario

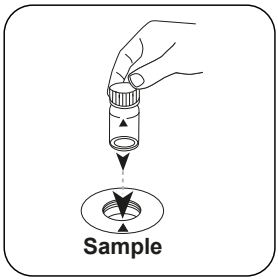
Escolher o método no equipamento.

Para este método, uma medição ZERO não precisa ser realizada todas as vezes nos seguintes dispositivos: XD 7000, XD 7500

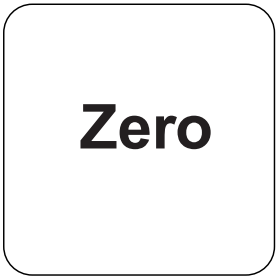
Encher a célula de 24 mm com **10 mL de amostra** .



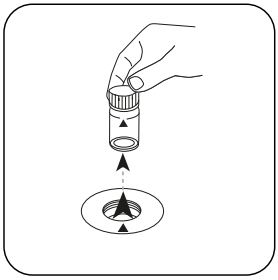
Fechar a(s) célula(s).



Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

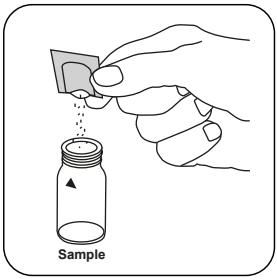


Premir a tecla **ZERO**.



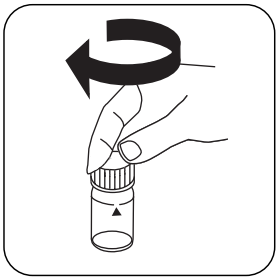
Retirar a célula do compartimento de medição.

Nos equipamentos que **não requerem uma medição ZERO** , **deve começar aqui**.

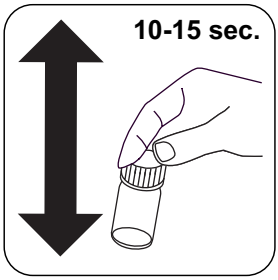


Adicionar um **pacote de pó Vario Phosphate Rgt. F10**

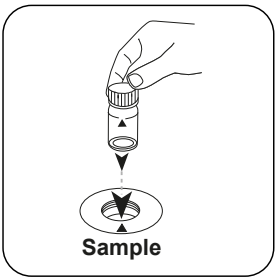
.

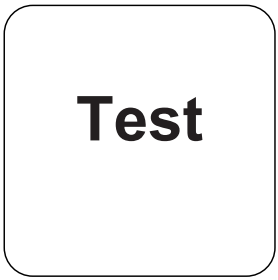


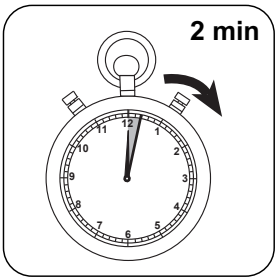
Fechar a(s) célula(s).



Misturar o conteúdo girando (10-15 sec.).







PT

Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

Premir a tecla **TEST** (XD: **START**).

Aguardar **2 minuto(s) de tempo de reação**.

Decorrido o tempo de reação, a medição é efetuada automaticamente.

No visor aparece o resultado em mg/L orto-fosfato.

Análises

A tabela a seguir identifica os valores de saída que podem ser convertidos em outras formas de citação.

Unidade	Forma de citação	Fator de conversão
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Método Químico

Phosphomolybdenum Blue

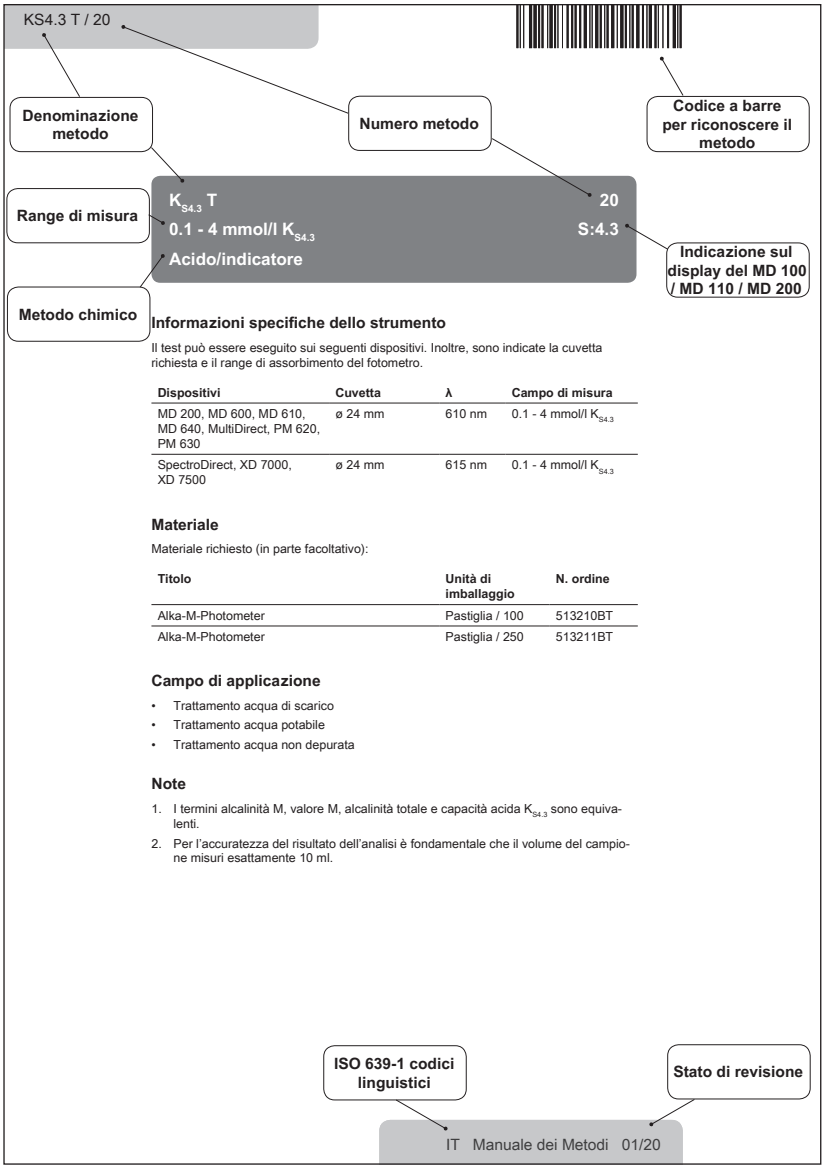
Apêndice

Texto de Interferências

Interferências	a partir de / [mg/L]
Al	200
AsO_4^{3-}	em todas as quantidades
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	em todas as quantidades
SiO_2	50
$Si(OH)_4$	10
S^{2-}	em todas as quantidades
Zn	80

De acordo com

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2



Informazioni specifiche dello strumento

Il test può essere eseguito sui seguenti dispositivi. Inoltre, sono indicate la cuvetta richiesta e il range di assorbimento del fotometro.

Dispositivi	Cuvetta	λ	Campo di misura
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

Materiale

Materiale richiesto (in parte facoltativo):

Titolo	Unità di imballaggio	N. ordine
Alka-M-Photometer	Pastiglia / 100	513210BT
Alka-M-Photometer	Pastiglia / 250	513211BT

Campo di applicazione

- Trattamento acqua di scarico
- Trattamento acqua potabile
- Trattamento acqua non depurata

Note

1. I termini alcalinità M, valore M, alcalinità totale e capacità acida $K_{S4.3}$ sono equivalenti.
2. Per l'accuratezza del risultato dell'analisi è fondamentale che il volume del campione misuri esattamente 10 ml.

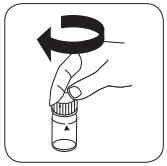
Svolgimento della misurazione

Esecuzione della rilevazione Capacità acida $K_{S4.3}$ con pastiglia

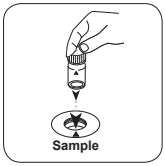
Selezionare il metodo nel dispositivo.

Con i seguenti dispositivi, per questo metodo non è necessario eseguire una misurazione ZERO: XD 7000, XD 7500

Riempire una cuvetta da 24 mm con **10 ml di campione**.



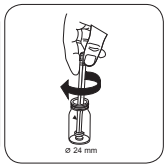
Chiudere la/e cuvetta/e.



Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

• • •

Aggiungere **una pastiglia ALKA-M-PHOTOMETER**.



Frantumare la/e pastiglia/e con una leggera rotazione.

Chiudere la/e cuvetta/e.

Fosfato LR T M320

0.02 - 1.3 mg/L P PO4

Blu di fosfomolibdeno

IT

Materiale

Materiale richiesto (in parte facoltativo):

Reagenti	Unità di imballaggio	N. ordine
Fosfati No. 1 LR	Pastiglia / 100	513040BT
Fosfati No. 2 LR	Pastiglia / 100	513050BT
Fosfati No. 2 LR	Pastiglia / 250	513051BT
Set Fosfati No. 1 LR/No. 2 LR #	ciascuna 100	517651BT

Preparazione

1. I campioni fortemente tamponati o i campioni con valori di pH estremi dovrebbero essere portati prima dell'analisi entro un range di pH compreso tra 6 e 7 (con 1 mol/l di acido cloridrico o 1 mol/l di liscivia).
2. Il colore blu ottenuto viene prodotto dalla reazione tra il reagente e gli ioni di ortofosfato. I fosfati presenti in forma organica e inorganica condensata (meta/piro/polifosfati) devono quindi essere trasformati in ioni di ortofosfato prima dell'analisi. Il pretrattamento del campione con acido e calore crea le condizioni per l'idrolisi delle forme inorganiche condensate. I fosfati legati organicamente vengono trasformati in ioni di ortofosfato tramite riscaldamento con acido e persolfato.
   La quantità di fosfato legato organicamente può essere così calcolata:
   mg/L di fosfati organici = mg/L di fosfato totale - mg/L di fosfato idrolizzabile con acido.

Note

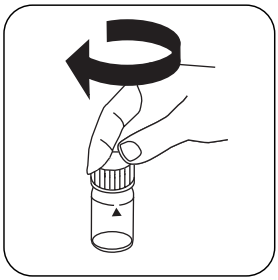
1. Reagiscono soltanto gli ioni di ortofosfato.
2. Attenersi scrupolosamente all'ordine con cui aggiungere le pastiglie.

Esecuzione della rilevazione Fosfato orto LR con pastiglia

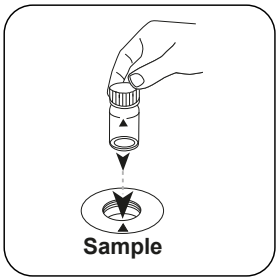
Selezionare il metodo nel dispositivo.

Per questo metodo, non è necessario eseguire una misurazione ZERO ogni volta sui seguenti dispositivi: XD 7000, XD 7500

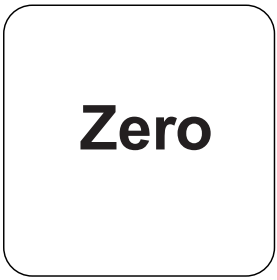
Riempire una cuvetta da 24 mm con **10 mL di campione**.



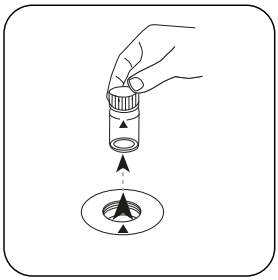
Chiudere la/e cuvetta/e.



Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

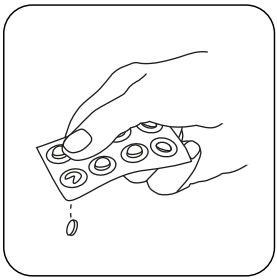


Premere il tasto **ZERO**.

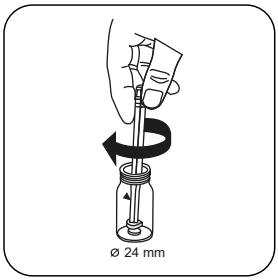


Prelevare la cuvetta dal vano di misurazione.

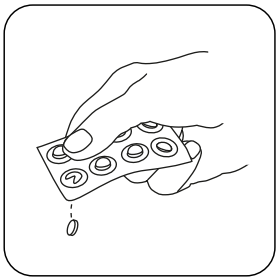
In caso di dispositivi che **non richiedono una misurazione ZERO**, **iniziare da qui**.



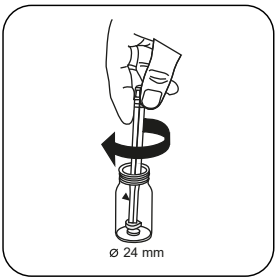
Aggiungere **una pastiglia PHOSPHATE No. 1 LR** .



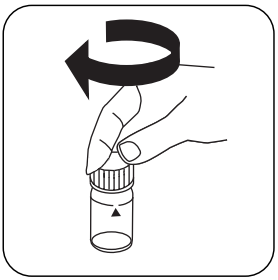
Frantumare la/e pastiglia/e con una leggera rotazione.



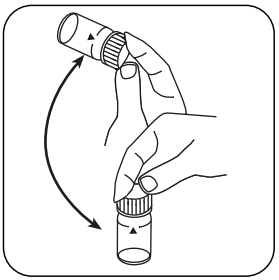
Aggiungere **una pastiglia PHOSPHATE No. 2 LR** .



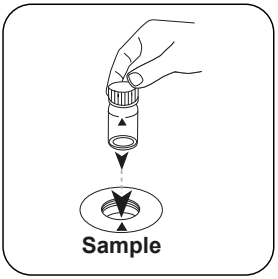
Frantumare la/e pastiglia/e con una leggera rotazione.



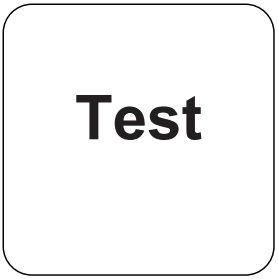
Chiudere la/e cuvetta/e.



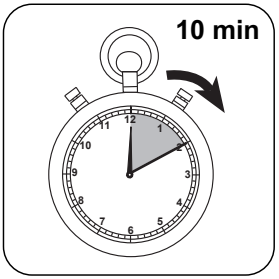
Far sciogliere la/e pastiglia/e agitando.



Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.



Premere il tasto **TEST** (XD: **START**).



Attendere un **tempo di reazione di 10 minuto/i** .

Allo scadere del tempo di reazione viene effettuata automaticamente la misurazione.

Sul display compare il risultato in mg/L di Ortofosfato.

Valutazione

La seguente tabella identifica i valori di output che possono essere convertiti in altre forme di citazione.

Unità di misura	Forma di citazione	Fattore di conversione
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Metodo chimico

Blu di fosfomolibdeno

Appendice

Interferenze

Interferenze	da / [mg/L]
Al	200
AsO_4^{3-}	in tutte le quantità
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in tutte le quantità
SiO_2	50
S^{2-}	in tutte le quantità
Zn	80
V(V)	grandi quantità
W(VI)	grandi quantità

Secondo

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

[i] #Bacchetta compresa

Fosfato PP M323

0.02 - 0.8 mg/L P PO4

Blu di fosfomolibdeno

IT

Materiale

Materiale richiesto (in parte facoltativo):

Reagenti	Unità di imballaggio	N. ordine
VARIO Phosphate RGT F10 mL	Polvere / 100 pz.	531550

Preparazione

1. I campioni fortemente tamponati o i campioni con valori di pH estremi dovrebbero essere portati prima dell'analisi entro un range di pH compreso tra 6 e 7 (con 1 mol/l di acido cloridrico o 1 mol/l di liscivia).
2. Il colore blu ottenuto viene prodotto dalla reazione tra il reagente e gli ioni di ortofosfato. I fosfati presenti in forma organica e inorganica condensata (meta/piro/polifosfati) devono quindi essere trasformati in ioni di ortofosfato prima dell'analisi. Il pretrattamento del campione con acido e calore crea le condizioni per l'idrolisi delle forme inorganiche condensate. I fosfati legati organicamente vengono trasformati in ioni di ortofosfato tramite riscaldamento con acido e persolfato.
   La quantità di fosfato legato organicamente può essere così calcolata:
   mg/L di fosfati organici = mg/L di fosfato totale - mg/L di fosfato idrolizzabile con acido.

Note

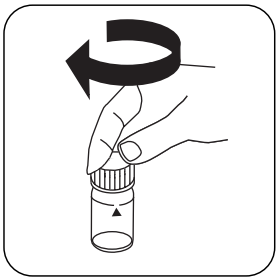
1. Il reagente Vario Phosphate Rgt. F10 non si scioglie completamente.

Esecuzione della rilevazione Fosfato orto con polvere in bustine Vario

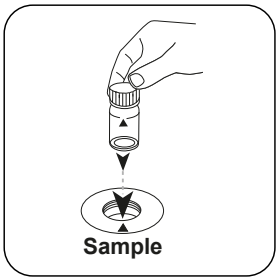
Selezionare il metodo nel dispositivo.

Per questo metodo, non è necessario eseguire una misurazione ZERO ogni volta sui seguenti dispositivi: XD 7000, XD 7500

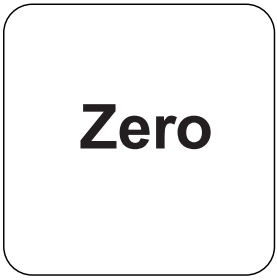
Riempire una cuvetta da 24 mm con **10 mL di campione**.



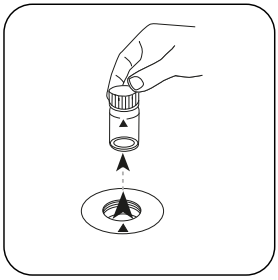
Chiudere la/e cuvetta/e.



Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

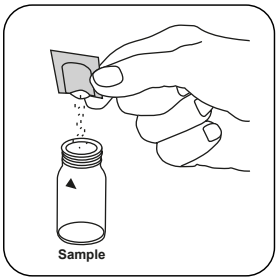


Premere il tasto **ZERO**.

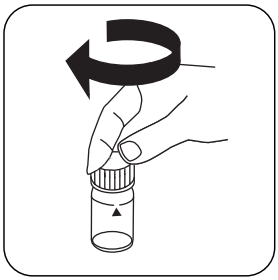


Prelevare la cuvetta dal vano di misurazione.

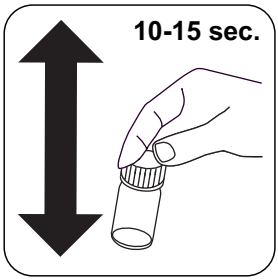
In caso di dispositivi che **non richiedono una misurazione ZERO**, **iniziare da qui**.



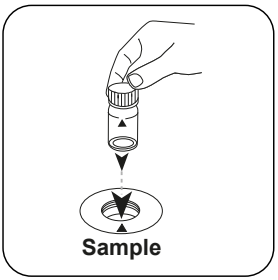
Aggiungere **una bustina di polvere Vario Phosphate Rgt. F10**.

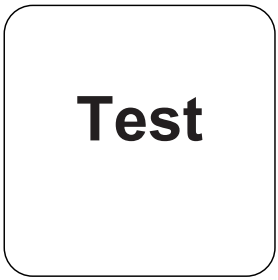


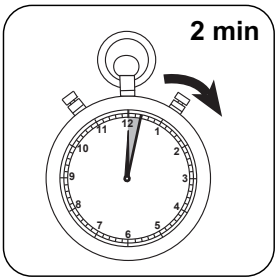
Chiudere la/e cuvetta/e.



Miscelare il contenuto agitando (10-15 sec.).







IT

Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

Premere il tasto **TEST** (XD: **START**).

Attendere un **tempo di reazione di 2 minuto/i** .

Allo scadere del tempo di reazione viene effettuata automaticamente la misurazione.

Sul display compare il risultato in mg/L di Ortofosfato.

Valutazione

La seguente tabella identifica i valori di output che possono essere convertiti in altre forme di citazione.

Unità di misura	Forma di citazione	Fattore di conversione
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Metodo chimico

Blu di fosfomolibdeno

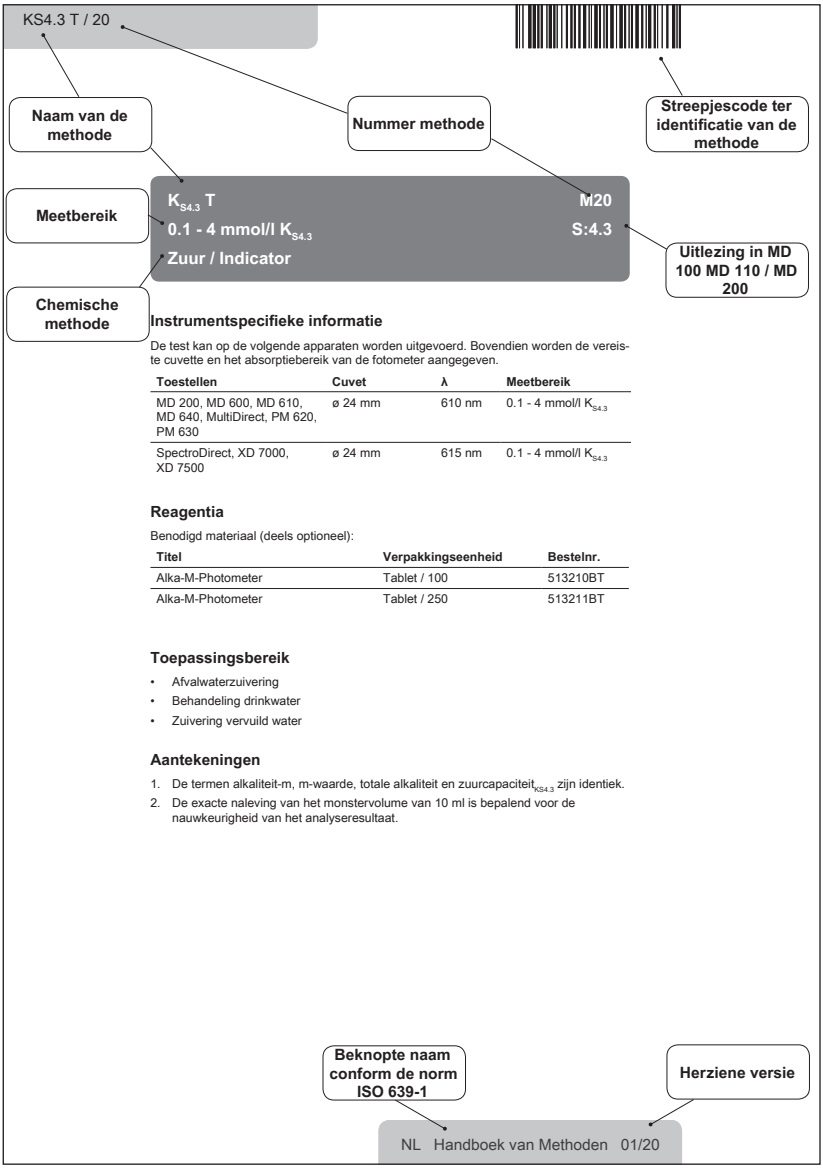
Appendice

Interferenze

Interferenze	da / [mg/L]
Al	200
AsO_4^{3-}	in tutte le quantità
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in tutte le quantità
SiO_2	50
$Si(OH)_4$	10
S^{2-}	in tutte le quantità
Zn	80

Secondo

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2



Instrumentspecifieke informatie

De test kan op de volgende apparaten worden uitgevoerd. Bovendien worden de vereiste cuvette en het absorptiebereik van de fotometer aangegeven.

Toestellen	Cuvet	λ	Meetbereik
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

Reagentia

Benodigd materiaal (deels optioneel):

Titel	Verpakkingseenheid	Bestelnr.
Alka-M-Photometer	Tablet / 100	513210BT
Alka-M-Photometer	Tablet / 250	513211BT

Toepassingsbereik

- Afvalwaterzuivering
- Behandeling drinkwater
- Zuivering vervuild water

Aantekeningen

1. De termen alkaliteit-m, m-waarde, totale alkaliteit en zuurcapaciteit$_{KS4.3}$ zijn identiek.
2. De exacte naleving van het monstervolume van 10 ml is bepalend voor de nauwkeurigheid van het analyseresultaat.

Uitvoering van de meting

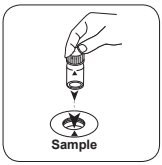
Uitvoering van de bepaling Zuurcapaciteit $K_{S4.3}$ met tablet

De methode in het apparaat selecteren.

Voor deze methode moet bij de volgende apparaten geen nulmeting worden uitgevoerd: XD 7000, XD 7500

Spoelbakje van 24 mm met **10 ml staal** vullen.

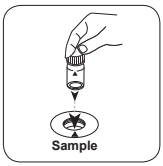
De spoelbakjes afsluiten.



Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

• • •

Tabletten oplossen door om te draaien



Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

De toets **TEST** (XD: **START**) indrukken.

De display toont het resultaat als Zuurcapaciteit $K_{S4.3}$.

Fosfaat LR T M320

0.02 - 1.3 mg/L P PO4

Fosformolybdeenblauw

NL

Reagentia

Benodigd materiaal (deels optioneel):

Reagentia	Verpakkingseenheid	Bestelnr.
Fosfaat Nr. 1 LR	Tablet / 100	513040BT
Fosfaat Nr. 2 LR	Tablet / 100	513050BT
Fosfaat Nr. 2 LR	Tablet / 250	513051BT
Set fosfaat nr. 1 LR/Nr. 2 LR #	per 100	517651BT

Voorbereiding

1. Sterk gebufferde monsters of monsters met extreme pH-waarden moeten vóór de analyse in een pH-bereik tussen 6 en 7 worden gebracht (met 1 mol/l-zoutzuur of 1 mol/l-zoutoplossing).
2. De resulterende blauwe kleur wordt geproduceerd door reactie van het reagens met orthofosfaationen. Fosfaten in organische en gecondenseerde anorganische vorm (meta-, pyro- en polyfosfaten) moeten daarom vóór analyse worden omgezet in orthofosfaationen. De voorbehandeling van het monster met zuur en warmte schept de voorwaarden voor de hydrolyse van de gecondenseerde anorganische vormen. Organisch gebonden fosfaten worden door verhitting met zuur en persulfaat omgezet in orthofosfaationen.
   De hoeveelheid organisch gebonden fosfaat kan worden berekend:
   mg/L organische fosfaten = mg/L totaal fosfaat - mg/L fosfaat, zuur hydrolyseerbaar.

Aantekeningen

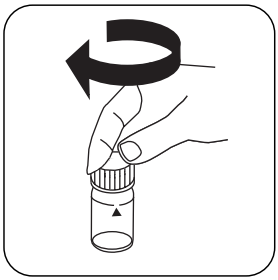
1. Alleen orthofosfaat-ionen reageren.
2. De volgorde waarin de tabletten worden toegevoegd, moet strikt in acht worden genomen.

Uitvoering van de bepaling Fosfaat, ortho LR met tablet

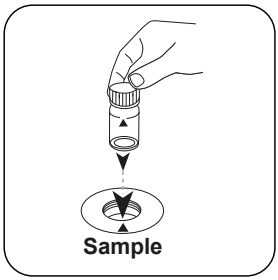
De methode in het apparaat selecteren.

Voor deze methode hoeft niet elke keer een nulmeting uitgevoerd te worden op de volgende apparaten: XD 7000, XD 7500

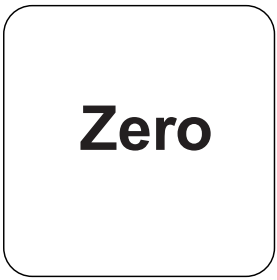
Spoelbakje van 24 mm met **10 mL staal** vullen.



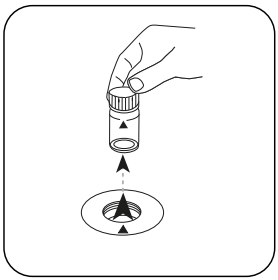
De spoelbakjes afsluiten.



Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

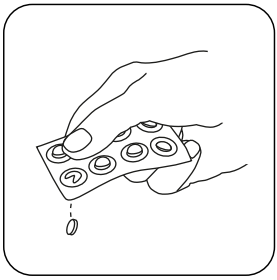


De toets **NUL** indrukken.

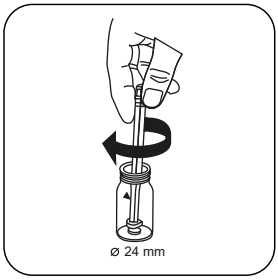


Het spoelbakje uit de meetschacht nemen.

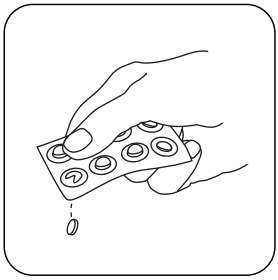
Bij apparaten die **geen nulmeting** vereisen, **hier beginnen**.



Een FOSFAAT Nr. 1 LR tablet toevoegen.

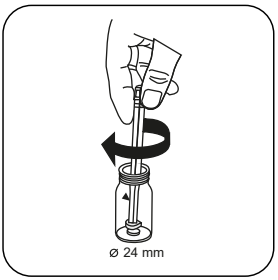


De tabletten onder lichte rotatie verpletteren.

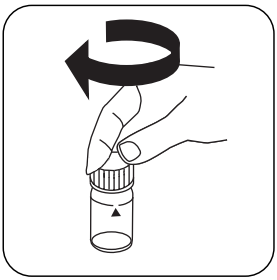


Een FOSFAAT Nr. 2 LR tablet toevoegen.

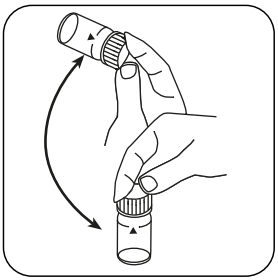
NL



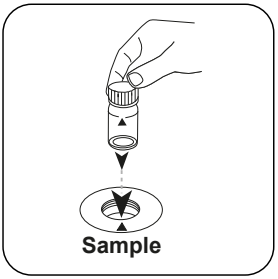
De tabletten onder lichte rotatie verpletteren.



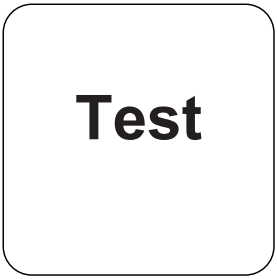
De spoelbakjes afsluiten.



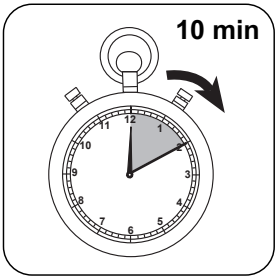
Tabletten oplossen door om te draaien



Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.



De toets **TEST** (XD: **START**) indrukken.



De reactietijd van 10 minuten afwachten.

Na afloop van de reactietijd wordt de meting automatisch uitgevoerd.

De display toont het resultaat in mg/L Orthofosfaat.

Evaluatie

De volgende tabel geeft aan dat de uitvoerwaarden kunnen worden geconverteerd naar andere citatievormen.

Eenheid	Dagvaardingsformulier	Omrekeningsfactor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemische methode

Fosformolybdeenblauw

Aanhangsel

Verstoringen

Verstoringen	verstoort vanaf
Al	200
AsO_4^{3-}	in alle hoeveelheden
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in alle hoeveelheden
SiO_2	50
S^{2-}	in alle hoeveelheden
Zn	80
V(V)	grote aantallen
W(VI)	grote aantallen

Overeenkomstig

DIN ISO 15923-1 D49.
Standaardmethode 4500-P E
US EPA 365.2

[#] met inbegrip van de mengstaaf

Fosfaat PP M323

0.02 - 0.8 mg/L P PO4

Fosformolybdeenblauw

NL

Reagentia

Benodigd materiaal (deels optioneel):

Reagentia	Verpakkingseenheid	Bestelnr.
VARIO Phosphate RGT F10 mL	Poeder / 100 St.	531550

Voorbereiding

1. Sterk gebufferde monsters of monsters met extreme pH-waarden moeten vóór de analyse in een pH-bereik tussen 6 en 7 worden gebracht (met 1 mol/l-zoutzuur of 1 mol/l-zoutoplossing).
2. De resulterende blauwe kleur wordt geproduceerd door reactie van het reagens met orthofosfaationen. Fosfaten in organische en gecondenseerde anorganische vorm (meta-, pyro- en polyfosfaten) moeten daarom vóór analyse worden omgezet in orthofosfaationen. De voorbehandeling van het monster met zuur en warmte schept de voorwaarden voor de hydrolyse van de gecondenseerde anorganische vormen. Organisch gebonden fosfaten worden door verhitting met zuur en persulfaat omgezet in orthofosfaationen.
   De hoeveelheid organisch gebonden fosfaat kan worden berekend:
   mg/L organische fosfaten = mg/L totaal fosfaat - mg/L fosfaat, zuur hydrolyseerbaar.

Aantekeningen

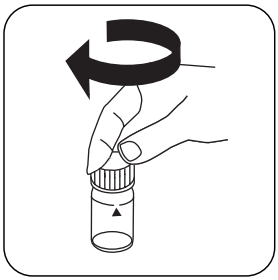
1. Het reagens Vario Fosfaat Rgt. F10 lost niet volledig op.

Uitvoering van de bepaling Fosfaat, ortho met Vario-poederpakje

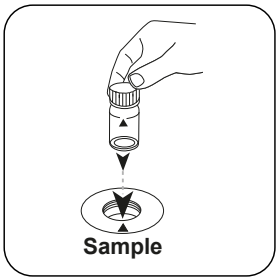
De methode in het apparaat selecteren.

Voor deze methode hoeft niet elke keer een nulmeting uitgevoerd te worden op de volgende apparaten: XD 7000, XD 7500

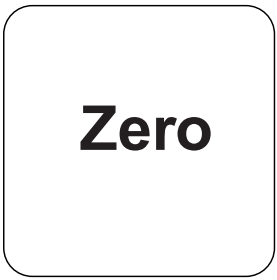
Spoelbakje van 24 mm met **10 mL staal** vullen.



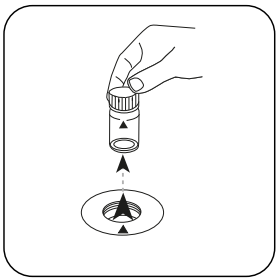
De spoelbakjes afsluiten.



Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

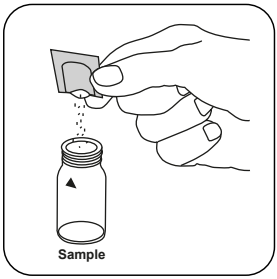


De toets **NUL** indrukken.

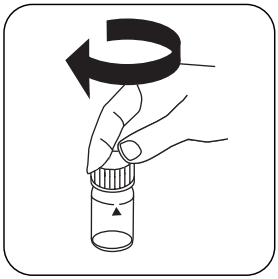


Het spoelbakje uit de meetschacht nemen.

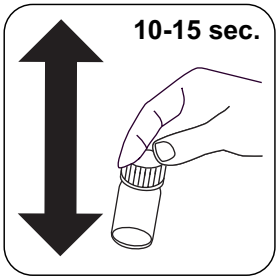
Bij apparaten die **geen nulmeting** vereisen, **hier beginnen**.



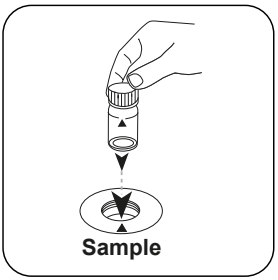
Een **Vario fosfaat Rgt. F10 poederpakje** toevoegen.

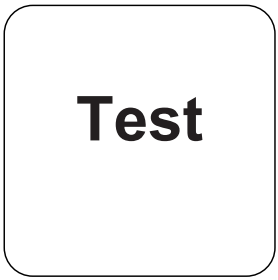


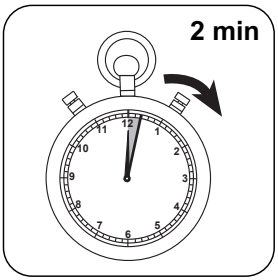
De spoelbakjes afsluiten.



De inhoud mengen door te schudden (10-15 sec.).







NL

Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

De toets **TEST** (XD: **START**) indrukken.

De reactietijd van 2 minuten afwachten.

Na afloop van de reactietijd wordt de meting automatisch uitgevoerd.

De display toont het resultaat in mg/L Orthofosfaat.

Evaluatie

De volgende tabel geeft aan dat de uitvoerwaarden kunnen worden geconverteerd naar andere citatievormen.

Eenheid	Dagvaardingsformulier	Omrekeningsfactor
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Chemische methode

Fosformolybdeenblauw

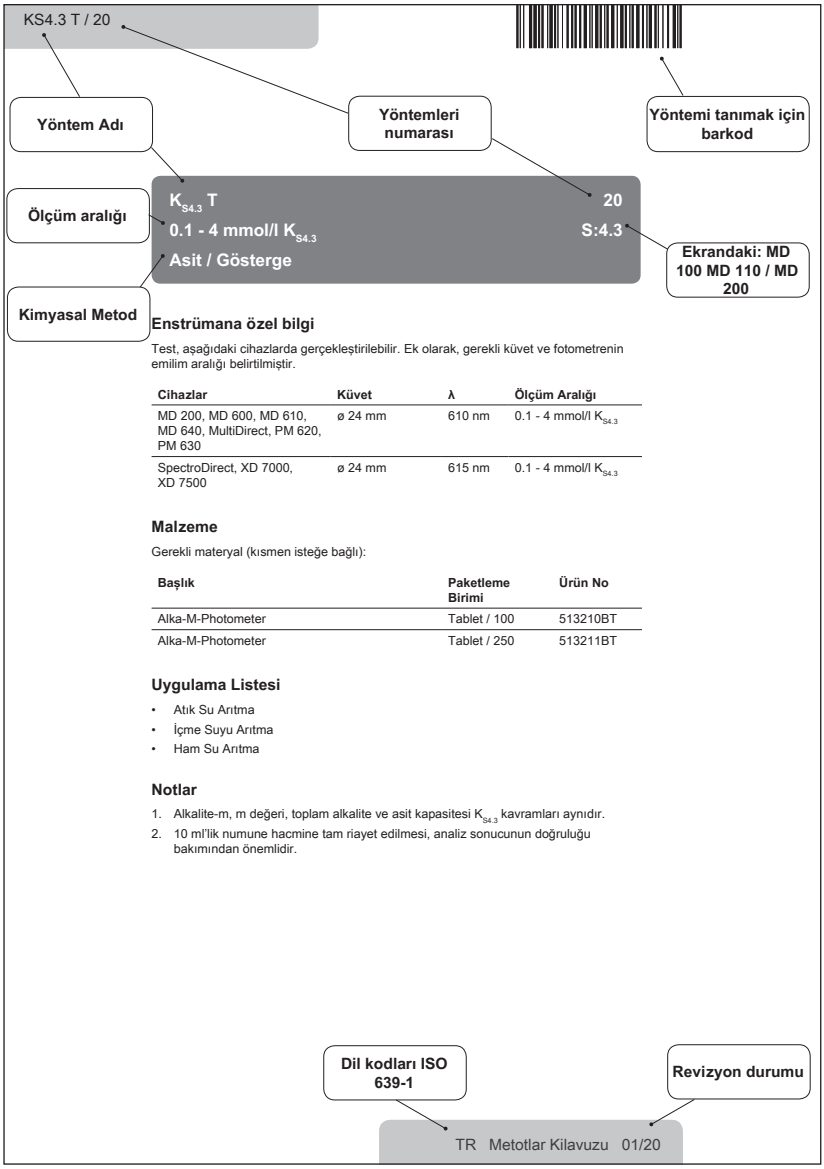
Aanhangsel

Verstoringen

Verstoringen	verstoort vanaf
Al	200
AsO_4^{3-}	in alle hoeveelheden
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	in alle hoeveelheden
SiO_2	50
$Si(OH)_4$	10
S^{2-}	in alle hoeveelheden
Zn	80

Overeenkomstig

DIN ISO 15923-1 D49.
Standaardmethode 4500-P E
US EPA 365.2



Enstrümana özel bilgi

Test, aşağıdaki cihazlarda gerçekleştirilebilir. Ek olarak, gerekli küvet ve fotometrenin emilim aralığı belirtilmiştir.

Cihazlar	Küvet	λ	Ölçüm Aralığı
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

Malzeme

Gerekli materyal (kısmen isteğe bağlı):

Başlık	Paketleme Birimi	Ürün No
Alka-M-Photometer	Tablet / 100	513210BT
Alka-M-Photometer	Tablet / 250	513211BT

Uygulama Listesi

- Atık Su Arıtma
- İçme Suyu Arıtma
- Ham Su Arıtma

Notlar

1. Alkalite-m, m değeri, toplam alkalite ve asit kapasitesi $K_{S4.3}$ kavramları aynıdır.
2. 10 ml'lik numune hacmine tam riayet edilmesi, analiz sonucunun doğruluğu bakımından önemlidir.

Testin uygulanması

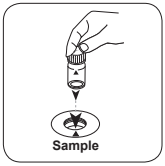
Tespitin uygulanması Tabletli asit kapasitesi $K_{S4.3}$

Cihazda metot seçin.

Bu metot için şu cihazlarda ZERO ölçümü yapılması gerekmez: XD 7000, XD 7500

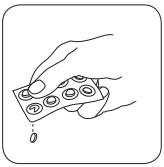
24 mm'lik küveti **10 ml numune** ile doldurun.

Küveti(küvetleri) kapatın.

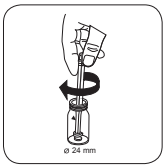


Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

• • •



ALKA-M-PHOTOMETER tablet ilave edin.



Tableti(tabletleri) hafifçe döndürerek ezin.

Küveti(küvetleri) kapatın.

TR Metotlar Kilavuzu 01/20

Fosfat LR T M320

0.02 - 1.3 mg/L P PO4

Fosfomolibden Mavisi

TR

Malzeme

Gerekli materyal (kısmen isteğe bağlı):

Ayıraçlar	Paketleme Birimi	Ürün No
Fosfat No. 1 LR	Tablet / 100	513040BT
Fosfat No. 2 LR	Tablet / 100	513050BT
Fosfat No. 2 LR	Tablet / 250	513051BT
Set fosfat No. 1 LR/No. 2 LR #	her bir 100	517651BT

Hazırlık

1. Analizden önce yoğun tampon çözeltili numuneler veya aşırı pH değerli numuneler 6 ve 7 arasında bir pH aralığına getirilmelidir (1 mol/l tuz asidi veya. 1 mol/l sodyum hidroksitin su ile çözünmüş hali ile).
2. Ortaya çıkan mavi renk ayıracın ortofosfat iyonları ile tepkimesi sayesinde elde edilir. Dolayısıyla inorganik ve yoğunlaşmamış, anorganik (meta, piro ve polifosfat) formda bulunan fosfatlar, analizden önce ortofosfat iyonlarına dönüştürülmelidir. Numunenin asit ve ısı ile ön işlemi, yoğunlaşmış anorganik formların hidrolizi için gerekli olan şartları yerine getirir. Organik bağlı fosfatlar asit ve persülfat ile ısıtılarak ortofosfat iyonlara dönüştürülür.
   Organik bağlı fosfat miktarı hesaplanabilir:
   mg/L organik fosfat = mg/L fosfat, toplam - mg/L fosfat, asit hidrolize edilebilir.

Notlar

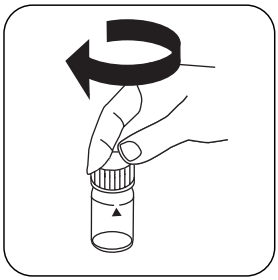
1. Yalnızca ortofosfat iyonlar tepkimeye girer.
2. Tabletlerin ilave sırasına kesinlikle uyulmalıdır.

Tespitin uygulanması Fosfat, tabletli ortho LR

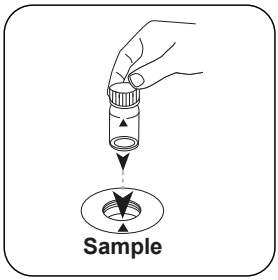
Cihazda metot seçin.

Bu yöntem için, aşağıdaki cihazlarda her seferinde SIFIR ölçümünün yapılması gerekmez: XD 7000, XD 7500

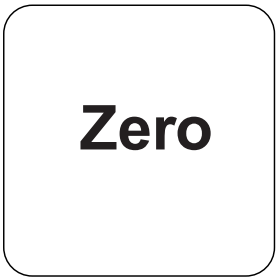
24 mm'lik küveti **10 mL numune** ile doldurun.



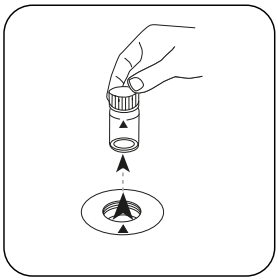
Küveti(küvetleri) kapatın.



Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

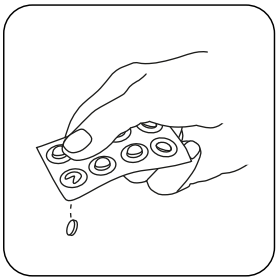


ZERO tuşuna basın.

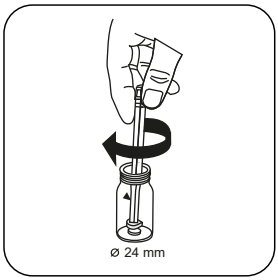


Küveti ölçüm haznesinden alın.

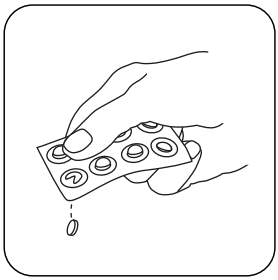
ZERO ölçümü gerektirmeyen cihazlarda **buradan başlayın**.



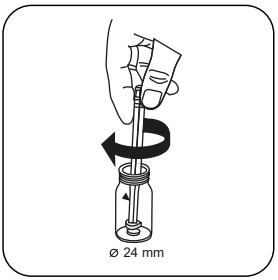
PHOSPHATE No. 1 LR tablet ilave edin.



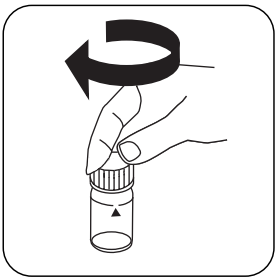
Tableti(tabletleri) hafifçe döndürerek ezin.



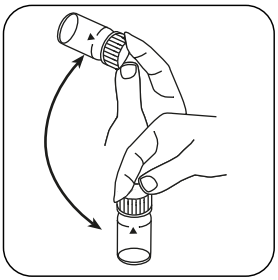
PHOSPHATE No. 2 LR tablet ilave edin.



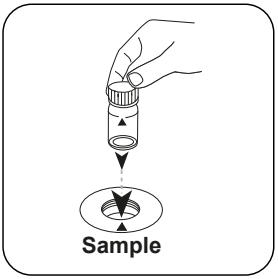
Tableti(tabletleri) hafifçe döndürerek ezin.



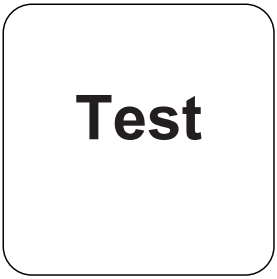
Küveti(küvetleri) kapatın.



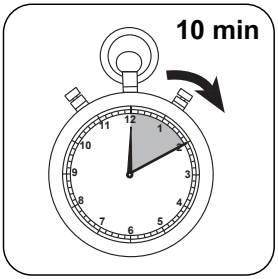
Tableti(tabletleri) sallayarak çözdürün.



Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.



TEST (XD: **START**) tuşuna basın.



10 dakika tepkime süresi bekleyin.

Tepkime süresinin sona ermesinden sonra ölçüm otomatik gerçekleşir.

Ekranda sonuç mg/L ortofosfat cinsinden belirir.

Analizler

Aşağıdaki tablo, çıkış değerlerini diğer alıntı formlarına dönüştürülebileceğini tanımlar.

Birim	Kısa formül	Ölçek katsayısı
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Kimyasal Metod

Fosfomolibden Mavisi

Apandis

Girişim Metni

Karışmalar	itibaren / [mg/L]
Al	200
AsO_4^{3-}	tüm miktarlarda
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	tüm miktarlarda
SiO_2	50
S^{2-}	tüm miktarlarda
Zn	80
V(V)	büyük miktarlar
W(VI)	büyük miktarlar

Göre

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2

karıştırma çubuğu dahil

Fosfat PP M323

0.02 - 0.8 mg/L P PO4

Fosfomolibden Mavisi

TR

Malzeme

Gerekli materyal (kısmen isteğe bağlı):

Ayıraçlar	Paketleme Birimi	Ürün No
VARIO Phosphate RGT F10 mL	Toz / 100 adetler	531550

Hazırlık

1. Analizden önce yoğun tampon çözeltili numuneler veya aşırı pH değerli numuneler 6 ve 7 arasında bir pH aralığına getirilmelidir (1 mol/l tuz asidi veya. 1 mol/l sodyum hidroksitin su ile çözünmüş hali ile).
2. Ortaya çıkan mavi renk ayıracın ortofosfat iyonları ile tepkimesi sayesinde elde edilir. Dolayısıyla inorganik ve yoğunlaşmamış, anorganik (meta, piro ve polifosfat) formda bulunan fosfatlar, analizden önce ortofosfat iyonlarına dönüştürülmelidir. Numunenin asit ve ısı ile ön işlemi, yoğunlaşmış anorganik formların hidrolizi için gerekli olan şartları yerine getirir. Organik bağlı fosfatlar asit ve persülfat ile ısıtılarak ortofosfat iyonlara dönüştürülür.
   Organik bağlı fosfat miktarı hesaplanabilir:
   mg/L organik fosfat = mg/L fosfat, toplam - mg/L fosfat, asit hidrolize edilebilir.

Notlar

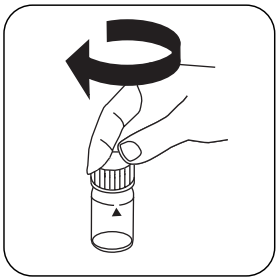
1. Vario fosfat ayır. F10 tamamen çözünmez.

Tespitin uygulanması Fosfat, Vario toz paketli orto

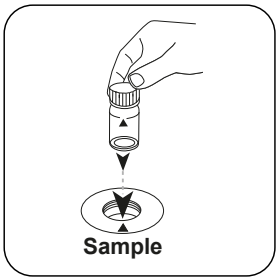
Cihazda metot seçin.

Bu yöntem için, aşağıdaki cihazlarda her seferinde SIFIR ölçümünün yapılması gerekmez: XD 7000, XD 7500

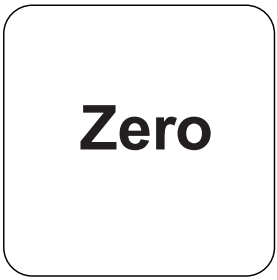
24 mm'lik küveti **10 mL numune** ile doldurun.



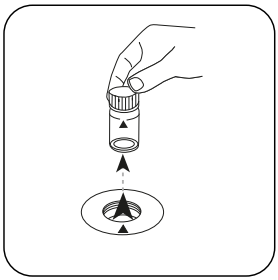
Küveti(küvetleri) kapatın.



Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

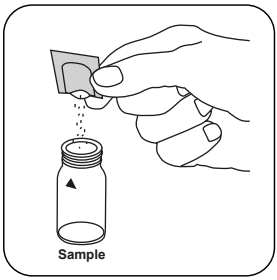


ZERO tuşuna basın.

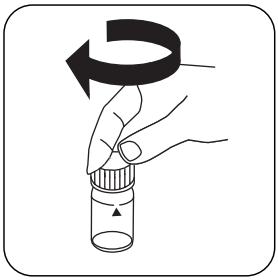


Küveti ölçüm haznesinden alın.

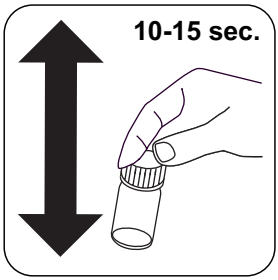
ZERO ölçümü gerektirmeyen cihazlarda **buradan başlayın**.



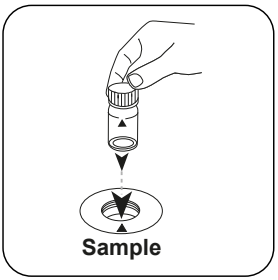
Vario Phosphate Rgt. F10 toz paketi ilave edin.

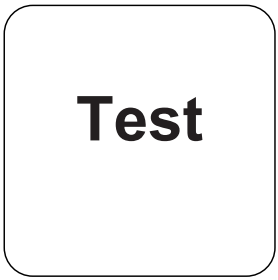


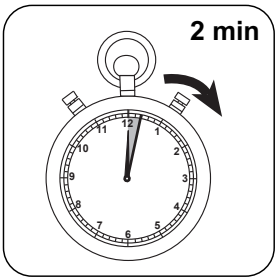
Küveti(küvetleri) kapatın.



Çalkalayarak içeriği karıştırın (10-15 sec.).







TR

Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

TEST (XD: **START**) tuşuna basın.

2 dakika tepkime süresi bekleyin.

Tepkime süresinin sona ermesinden sonra ölçüm otomatik gerçekleşir.

Ekranda sonuç mg/L ortofosfat cinsinden belirir.

Analizler

Aşağıdaki tablo, çıkış değerlerini diğer alıntı formlarına dönüştürülebileceğini tanımlar.

Birim	Kısa formül	Ölçek katsayısı
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Kimyasal Metod

Fosfomolibden Mavisi

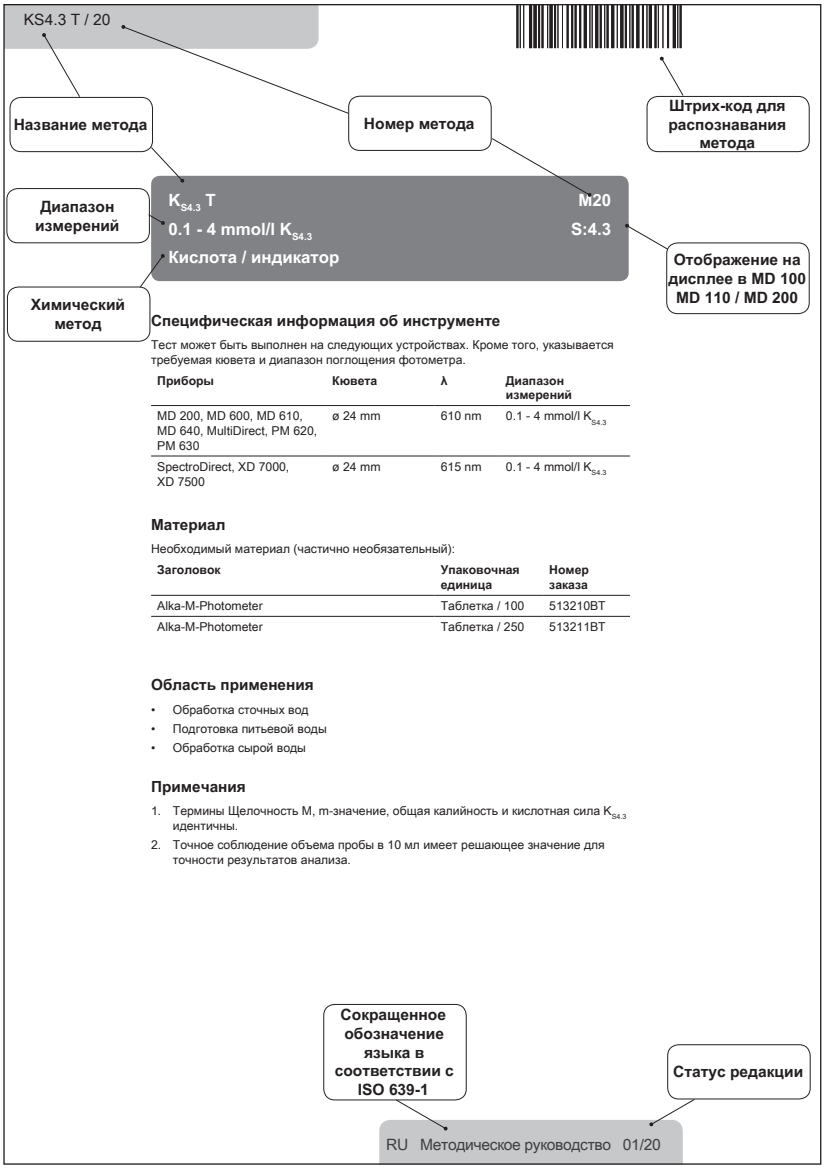
Apandis

Girişim Metni

Karışmalar	itibaren / [mg/L]
Al	200
AsO_4^{3-}	tüm miktarlarda
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	tüm miktarlarda
SiO_2	50
$Si(OH)_4$	10
S^{2-}	tüm miktarlarda
Zn	80

Göre

DIN ISO 15923-1 D49
Standard Method 4500-P E
US EPA 365.2



Специфическая информация об инструменте

Тест может быть выполнен на следующих устройствах. Кроме того, указывается требуемая кювета и диапазон поглощения фотометра.

Приборы	Кювета	λ	Диапазон измерений
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

Материал

Необходимый материал (частично необязательный):

Заголовок	Упаковочная единица	Номер заказа
Alka-M-Photometer	Таблетка / 100	513210BT
Alka-M-Photometer	Таблетка / 250	513211BT

Область применения

- Обработка сточных вод
- Подготовка питьевой воды
- Обработка сырой воды

Примечания

1. Термины Щелочность M, m-значение, общая калийность и кислотная сила $K_{S4.3}$ идентичны.
2. Точное соблюдение объема пробы в 10 мл имеет решающее значение для точности результатов анализа.

Выполнение измерения

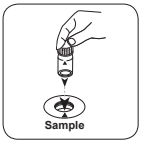
Выполнение определения Кислотная сила $K_{S4.3}$ с таблеткой

Выберите метод в устройстве.

Для этого метода измерения нуля не требуется для следующих устройств: XD 7000, XD 7500

24-Наполните кювету -мм **10** пробой мл.

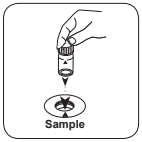
Закройте кювету(ы).



Поместите кювету для проб в измерительную шахту. Обращайте внимание на позиционирование.

■ ■ ■

Растворите таблетку (таблетки) покачиванием.



Поместите кювету для проб в измерительную шахту. Обращайте внимание на позиционирование.

Нажмите клавишу ТЕСТ (XD: СТАРТ).

На дисплее отображается результат в виде Кислотная сила $K_{S4.3}$.

Фосфат LR T M320

0.02 - 1.3 mg/L P PO4

Фосформолибден синий

RU

Материал

Необходимый материал (частично необязательный):

Реактивы	Упаковочная единица	Номер заказа
Фосфат № 1 LR	Таблетка / 100	513040BT
Фосфат № 2 LR	Таблетка / 100	513050BT
Фосфат № 2 LR	Таблетка / 250	513051BT
Набор Фосфат № 1 LR/№ 2 LR #	100 каждая	517651BT

Подготовка

1. Сильно буферизованные пробы или пробы с экстремальными значениями уровня pH перед анализом должны быть приведены в диапазон pH от 6 до 7 (с 1 моль/л соляной кислоты или 1 моль/л раствора гидроксида натрия).
2. Полученный синий цвет образуется в результате реакции реагента с ортофосфатными ионами. Поэтому фосфаты, присутствующие в органической и конденсированной неорганической форме (мета-, пиро- и полифосфаты), перед анализом должны быть преобразованы в ортофосфат-ионы. Предварительная обработка пробы кислотой и теплом создает условия для гидролиза конденсированных неорганических форм. Органически связанные фосфаты преобразуются в ортофосфатные ионы путем нагрева кислотой и персульфатом.
   Количество органически связанного фосфата может быть рассчитано: органические фосфаты мг/л = общий фосфат мг/л - фосфат, кислотный гидролизующийся, мг/л.

Примечания

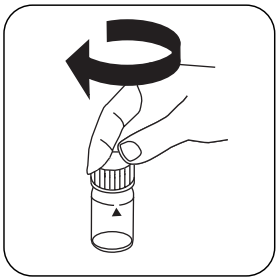
1. Реагируют только ортофосфатные ионы.
2. Порядок добавления таблеток должен строго соблюдаться.

Выполнение определения Фосфат, орто LR с таблеткой

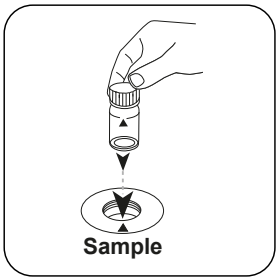
Выберите метод в устройстве.

Для этого метода необязательно проводить измерение НУЛЯ каждый раз на следующих устройствах: XD 7000, XD 7500

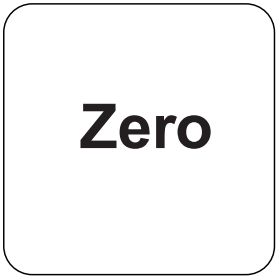
24-Наполните кювету -мм **10 пробой мл**.



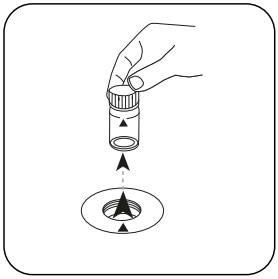
Закройте кювету(ы).



Поместите **кювету для проб** в измерительную шахту. Обращайте внимание на позиционирование.

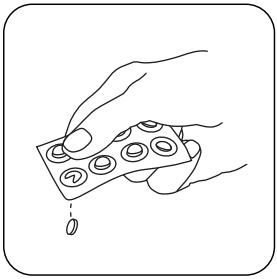


Нажмите клавишу **НОЛЬ** .

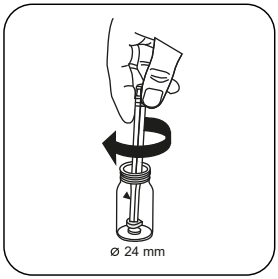


Извлеките кювету из измерительной шахты.

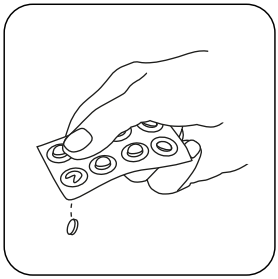
Для приборов, для которых не требуется **измерение нулевого значения** , **начните отсюда**.



Добавить **таблетку PHOSPHATE No. 1 LR** .

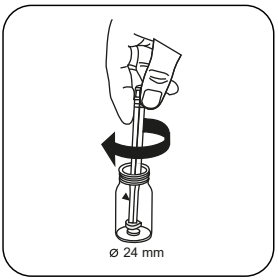


Раздавите таблетку (таблетки) легким вращением.

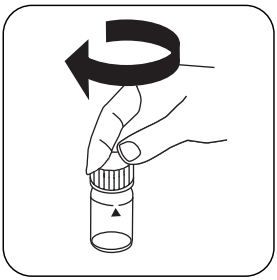


Добавить **таблетку PHOSPHATE No. 2 LR** .

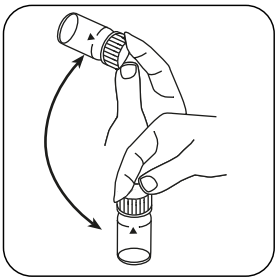
RU



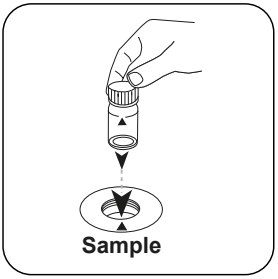
Раздавите таблетку (таблетки) легким вращением.



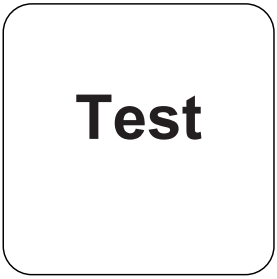
Закройте кювету(ы).



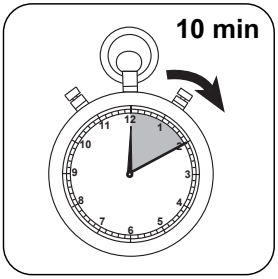
Растворите таблетку (таблетки) покачиванием.



Поместите **кювету для проб** в измерительную шахту. Обращайте внимание на позиционирование.



Нажмите клавишу **ТЕСТ** (XD: **СТАРТ**).



Выдержите **10 минут(ы) времени реакции**.

По истечении времени реакции измерение выполняется автоматически.

На дисплее отображается результат в мг/л Ортофосфат.

Оценка

В следующей таблице указаны выходные значения, которые могут быть преобразованы в другие формы цитирования.

единицах	Форма цитирования	коэффициент преобразования
mg/l	P	1
mg/l	PO_4^{3-}	3.0661
mg/l	P_2O_5	2.2913

Химический метод

Фосформолибден синий

Приложение

Нарушения

Помехи	от / [мг/л]
Al	200
AsO_4^{3-}	во всех количествах
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	во всех количествах
SiO_2	50
S^{2-}	во всех количествах
Zn	80
V(V)	большие объемы
W(VI)	большие объемы

Согласно

DIN ISO 15923-1 D49
Стандартный метод 4500-P E
US EPA 365.2

[#] в комплект входит палочка для перемешивания

Фосфат PP M323

0.02 - 0.8 mg/L P PO4

Фосформолибден синий

RU

Материал

Необходимый материал (частично необязательный):

Реактивы	Упаковочная единица	Номер заказа
VARIO Phosphate RGT F10 mL	Порошок / 100 Шт.	531550

Подготовка

1. Сильно буферизованные пробы или пробы с экстремальными значениями уровня pH перед анализом должны быть приведены в диапазон pH от 6 до 7 (с 1 моль/л соляной кислоты или 1 моль/л раствора гидроксида натрия).
2. Полученный синий цвет образуется в результате реакции реагента с ортофосфатными ионами. Поэтому фосфаты, присутствующие в органической и конденсированной неорганической форме (мета-, пиро- и полифосфаты), перед анализом должны быть преобразованы в ортофосфат-ионы. Предварительная обработка пробы кислотой и теплом создает условия для гидролиза конденсированных неорганических форм. Органически связанные фосфаты преобразуются в ортофосфатные ионы путем нагрева кислотой и персульфатом.
   Количество органически связанного фосфата может быть рассчитано: органические фосфаты мг/л = общий фосфат мг/л - фосфат, кислотный гидролизующийся, мг/л.

Примечания

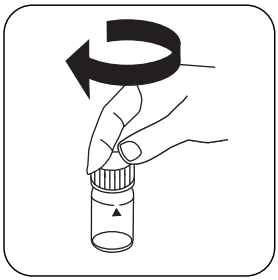
1. Реагент Vario Phosphate Rgt. F10 не растворяется полностью.

Выполнение определения Фосфат, орто, с упаковкой порошка Vario

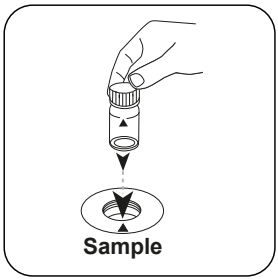
Выберите метод в устройстве.

Для этого метода необязательно проводить измерение НУЛЯ каждый раз на следующих устройствах: XD 7000, XD 7500

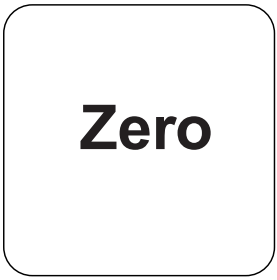
24-Наполните кювету -мм **10 пробой мл**.



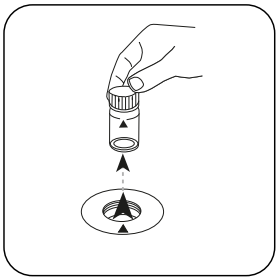
Закройте кювету(ы).



Поместите **кювету для проб** в измерительную шахту. Обращайте внимание на позиционирование.

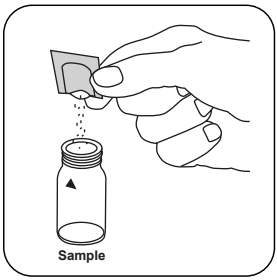


Нажмите клавишу **НОЛЬ** .

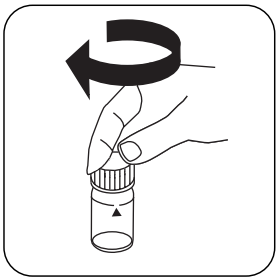


Извлеките кювету из измерительной шахты.

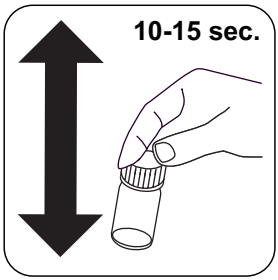
Для приборов, для которых не требуется **измерение нулевого значения** , **начните отсюда**.



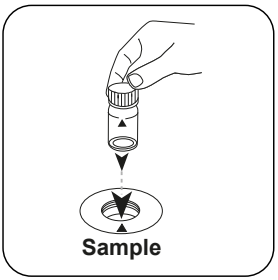
Добавьте **упаковку порошка Vario Phosphate Rgt. F10**.

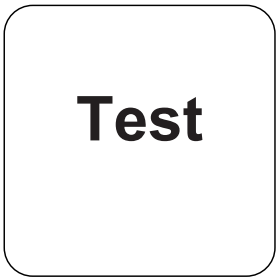


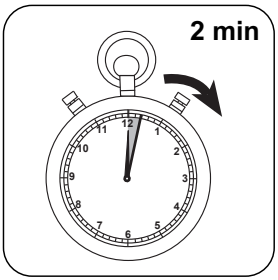
Закройте кювету(ы).



Перемешайте содержимое взбалтыванием (10-15 sec.).







RU

Поместите **кювету для проб** в измерительную шахту. Обращайте внимание на позиционирование.

Нажмите клавишу **ТЕСТ** (XD: **СТАРТ**).

Выдержите **2 минут(ы) времени реакции**.

По истечении времени реакции измерение выполняется автоматически.

На дисплее отображается результат в мг/л Ортофосфат.

Оценка

В следующей таблице указаны выходные значения, которые могут быть преобразованы в другие формы цитирования.

единицах	Форма цитирования	коэффициент преобразования
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

Химический метод

Фосформолибден синий

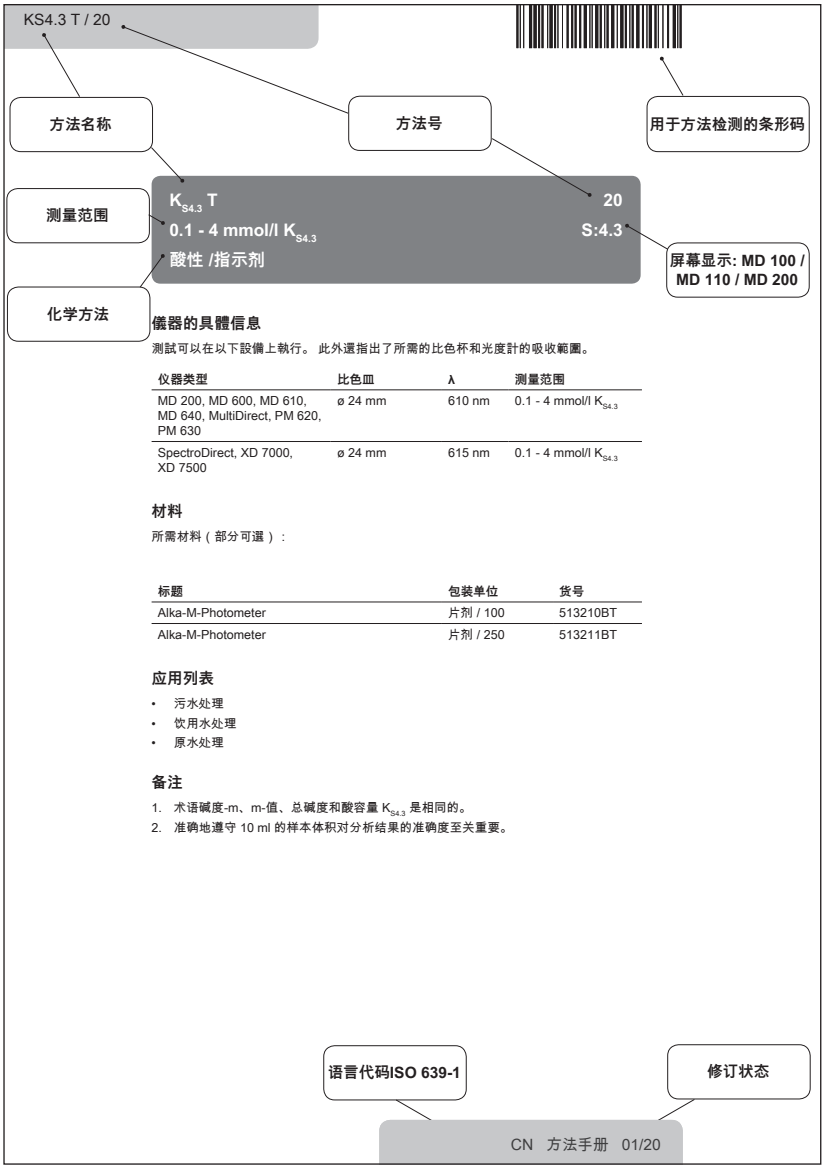
Приложение

Нарушения

Помехи	от / [мг/л]
Al	200
AsO_4^{3-}	во всех количествах
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	во всех количествах
SiO_2	50
$Si(OH)_4$	10
S^{2-}	во всех количествах
Zn	80

Согласно

DIN ISO 15923-1 D49
Стандартный метод 4500-P E
US EPA 365.2



儀器的具體信息

測試可以在以下設備上執行。 此外還指出了所需的比色杯和光度計的吸收範圍。

仪器类型	比色皿	λ	测量范围
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	ø 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

材料

所需材料（部分可選）：

标题	包装单位	货号
Alka-M-Photometer	片剂 / 100	513210BT
Alka-M-Photometer	片剂 / 250	513211BT

应用列表

- 污水处理
- 饮用水处理
- 原水处理

备注

1. 术语碱度-m、m-值、总碱度和酸容量 $K_{S4.3}$ 是相同的。
2. 准确地遵守 10 ml 的样本体积对分析结果的准确度至关重要。

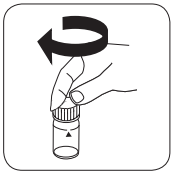
开始测量

进行测定 $K_{S4.3}$ 片剂酸容量

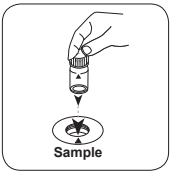
选择设备中的方法。

对于这种方法，在以下设备上不能进行 ZERO 测量：XD 7000, XD 7500

用 **10 ml** 样本填充 24 mm 比色杯。

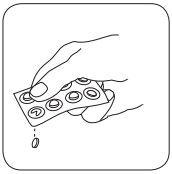


密封比色杯。

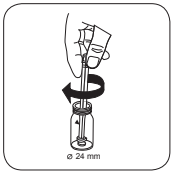


将样本比色杯放入测量轴中。注意定位。

• • •



加入 **ALKA-M-PHOTOMETER** 片剂。



用轻微的扭转压碎片剂。

密封比色杯。

CN 方法手册 01/20

LR T 磷酸盐 M320

0.02 - 1.3 mg/L P PO4

磷钼蓝

材料
所需材料（部分可選）：

ZH

试剂	包装单位	货号
磷酸盐1 LR	片剂 / 100	513040BT
磷酸盐2 LR	片剂 / 100	513050BT
磷酸盐2 LR	片剂 / 250	513051BT
套件磷酸盐 No.1 LR/No.2 LR#	各100次	517651BT

准备

1. 在分析前（用 1 mol/l 盐酸或 1 mol/l 氢氧化钠溶液）应将高度缓冲样本或极端 pH 值样本的 pH 范围调节到 6 和 7 之间。
2. 出现的蓝色是由试剂与正磷酸根离子反应而产生的。因此，以有机和缩合、无机（间位、焦磷酸和多磷酸）形式存在的磷酸盐在分析之前必须转化为正磷酸根离子。用酸和热预处理样本，为冷凝的无机形式的水解创造条件。通过用酸和过硫酸盐加热将有机结合的磷酸盐转化为正磷酸盐离子。
   可以计算有机结合磷酸盐的量：
   mg/L 有机磷酸盐 = mg/L 磷酸盐，总 - mg/L 磷酸盐，可以酸水解。

备注

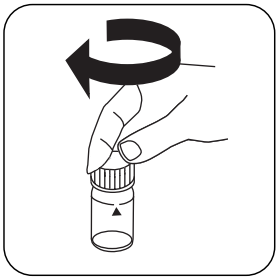
1. 只有邻位磷酸盐离子发生反应。
2. 必须严格遵守添加片剂的顺序。

进行测定 磷酸盐，邻位 LR 片剂

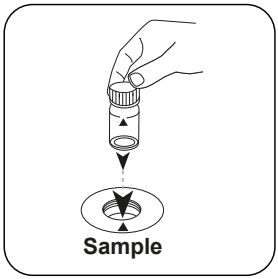
选择设备中的方法。

对于此方法，不必每次都在以下设备上进行零测量：XD 7000, XD 7500

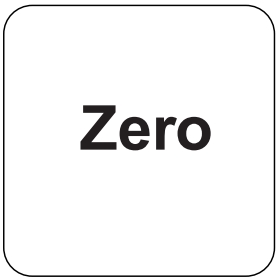
用 **10 mL 样本**填充 24 mm 比色杯。



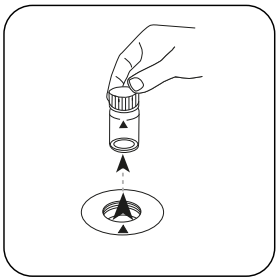
密封比色杯。



将**样本比色杯**放入测量轴中。注意定位。

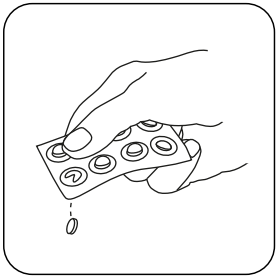


按下 **ZERO** 按钮。

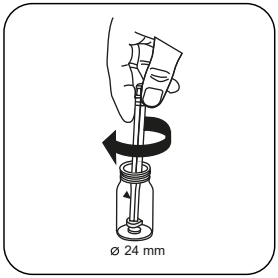


从测量轴上取下比色杯。

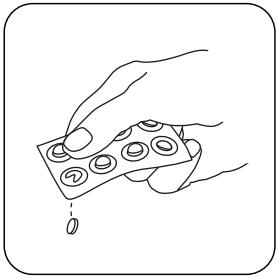
对于**不需要 ZERO 测量**的设备，**从这里开始。**



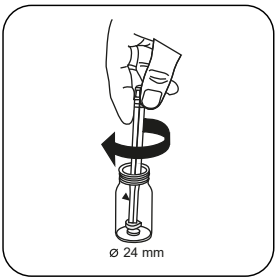
加入 **PHOSPHATE No. 1 LR 片剂。**



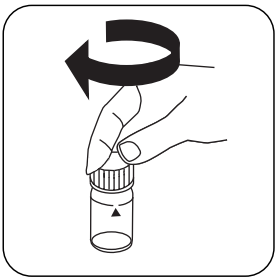
用轻微的扭转压碎片剂。



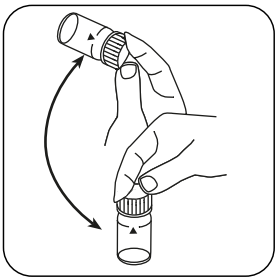
加入 **PHOSPHATE No. 2 LR 片剂。**



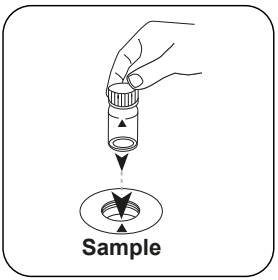
用轻微的扭转压碎片剂。



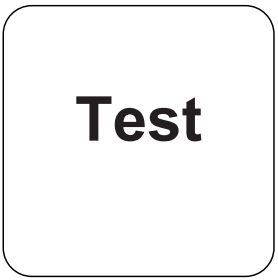
密封比色杯。



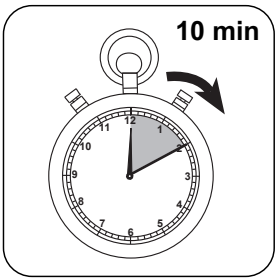
通过旋转溶解片剂。



将**样本比色杯**放入测量轴中。注意定位。



按下 **TEST** (XD: **START**) 按钮。



等待 **10 分钟反应时间** 。

反应时间结束后，自动进行测量。

结果在显示屏上显示为 mg / l 正磷酸盐。

分析

下表中输出数据也可转换为其他格式表示.

单位	参考表格	因素
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

化学方法

磷钼蓝

附錄

干扰说明

干擾	從/ [mg/l]
Al	200
AsO_4^{3-}	所有的量
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	所有的量
SiO_2	50
S^{2-}	所有的量
Zn	80
V(V)	大量
W(VI)	大量

参照

DIN ISO 15923-1 D49
标准方法 4500-P E
US EPA 365.2

i含搅拌棒, 10cm

PP 磷酸盐 M323

0.02 - 0.8 mg/L P PO4

磷钼蓝

材料
所需材料（部分可選）：

ZH

试剂	包装单位	货号
VARIO Phosphate RGT F10 mL	粉剂 / 100 片	531550

准备

1. 在分析前（用 1 mol/l 盐酸或 1 mol/l 氢氧化钠溶液）应将高度缓冲样本或极端 pH 值样本的 pH 范围调节到 6 和 7 之间。
2. 出现的蓝色是由试剂与正磷酸根离子反应而产生的。因此，以有机和缩合、无机（间位、焦磷酸和多磷酸）形式存在的磷酸盐在分析之前必须转化为正磷酸根离子。用酸和热预处理样本，为冷凝的无机形式的水解创造条件。通过用酸和过硫酸盐加热将有机结合的磷酸盐转化为正磷酸盐离子。
   可以计算有机结合磷酸盐的量：
   mg/L 有机磷酸盐 = mg/L 磷酸盐，总 - mg/L 磷酸盐，可以酸水解。

备注

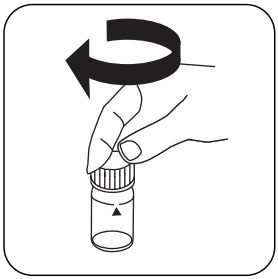
1. 试剂 Vario 磷酸盐 Rgt.F10 完全溶解。

进行测定 正磷酸盐，Vario 粉包

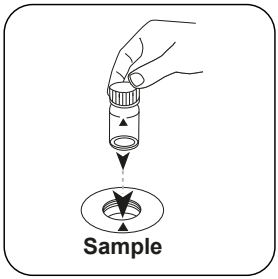
选择设备中的方法。

对于此方法，不必每次都在以下设备上进行零测量：XD 7000, XD 7500

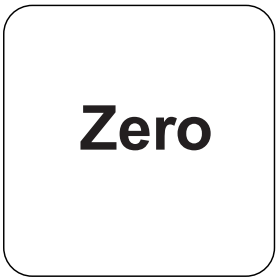
用 **10 mL 样本**填充 24 mm 比色杯。



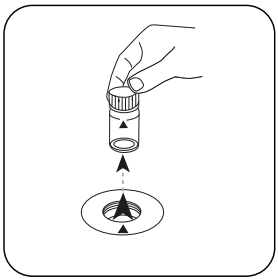
密封比色杯。



将**样本比色杯**放入测量轴中。注意定位。

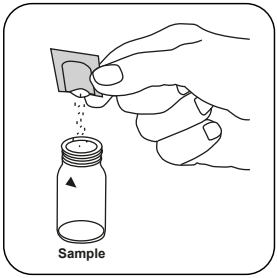


按下 **ZERO** 按钮。

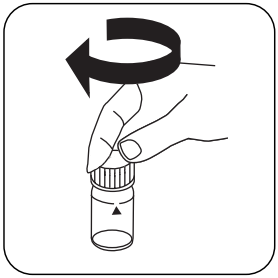


从测量轴上取下比色杯。

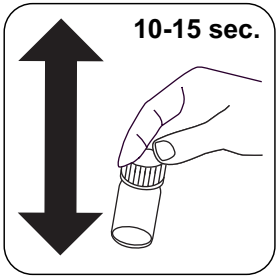
对于**不需要 ZERO 测量**的设备，**从这里开始。**



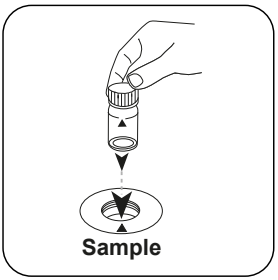
加入 **Vario Phosphate Rgt. F10 粉包**。



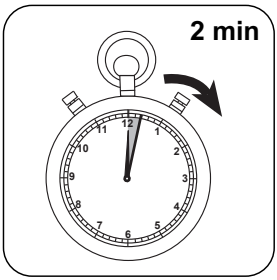
密封比色杯。



通过摇晃混合内容物（10-15 sec.）。



Test



ZH

将**样本比色杯**放入测量轴中。注意定位。

按下 **TEST** (XD: **START**) 按钮。

等待 **2 分钟反应时间** 。

反应时间结束后，自动进行测量。

结果在显示屏上显示为 mg / l 正磷酸盐。

分析

下表中输出数据也可转换为其他格式表示.

单位	参考表格	因素
mg/l	P	1
mg/l	PO_4^{3-}	3.066177
mg/l	P_2O_5	2.29137

化学方法

磷钼蓝

附錄

干扰说明

干擾	從/ [mg/l]
Al	200
AsO_4^{3-}	所有的量
Cr	100
Cu	10
Fe	100
Ni	300
H_2S	所有的量
SiO_2	50
$Si(OH)_4$	10
S^{2-}	所有的量
Zn	80

参照

DIN ISO 15923-1 D49
标准方法 4500-P E
US EPA 365.2

Tintometer GmbH
Lovibond® Water Testing
Schleefstraße 8-12
44287 Dortmund
Tel.: +49 (0)231/94510-0
sales@lovibond.com
www.lovibond.com
Germany

The Tintometer Limited
Lovibond House
Sun Rise Way
Amesbury, SP4 7GR
Tel.: +44 (0)1980 664800
Fax: +44 (0)1980 625412
sales@lovibond.uk
www.lovibond.com
UK

Tintometer China
9F, SOHO II C.
No.9 Guanghualu,
Chaoyang District,
Beijing, 100020
Customer Care China Tel.: 4009021628
Tel.: +86 10 85251111 Ext. 330
Fax: +86 10 85251001
chinaoffice@tintometer.com
www.lovibond.com
China

Tintometer South East Asia
Unit B-3-12, BBT One Boulevard,
Lebuh Nilam 2, Bandar Bukit Tinggi,
Klang, 41200, Selangor D.E
Tel.: +60 (0)3 3325 2285/6
Fax: +60 (0)3 3325 2287
lovibond.asia@tintometer.com
www.lovibond.com
Malaysia

Tintometer Brazil
Caixa Postal: 271
CEP: 13201-970
Jundiaí – SP
Tel.: +55 (11) 3230-6410
sales@lovibond.us
www.lovibond.com.br
Brazil

Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
Tel: 941.756.6410
Fax: 941.727.9654
sales@lovibond.us
www.lovibond.us
USA

Tintometer India Pvt. Ltd.
Door No: 7-2-C-14, 2nd, 3rd & 4th Floor
Sanathnagar Industrial Estate,
Hyderabad, 500018
Telangana
Tel: +91 (0) 40 23883300
Toll Free: 1 800 599 3891/ 3892
indiaoffice@lovibond.in
www.lovibondwater.in
India

Tintometer Spain
Postbox: 24047
08080 Barcelona
Tel.: +34 661 606 770
sales@tintometer.es
www.lovibond.com
Spain

Technical changes without notice
Printed in Germany 08/24
No.: 00386770