

Lovibond® Water Testing

Tintometer® Group



Manual of Methods

MD 100 • MD 110 • MD 200

Chlorine

(EN) Manual of Methods

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(ES) Manual de Métodos

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(IT) Manuale dei Metodi

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(NL) Handboek Methoden

Zijde 40

(DE) Methodenhandbuch

Seite 10

(FR) Méthodes Manuel

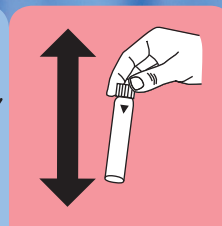
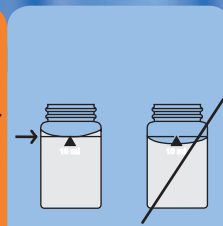
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(PT) Métodos Manual

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(ZH) 方法手册

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KS4.3 T / 20


Method name

Method number

Bar code for the detection of the methods

Measuring range

20

S:4.3

Chemical Method

Display in the MD 100 / MD 110 / MD 200

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.

Language codes ISO 639-1

Revision status

EN Handbook of Methods 01/20

Performing test procedure

Implementation of the provision Acid capacity $K_{S_{4.3}}$ 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 $K_{S_{4.3}}$ appears on the display.



Chlorine HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI / Acid

Material

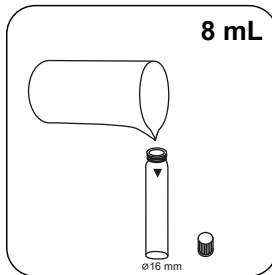
EN

Required material (partly optional):

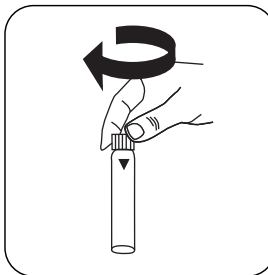
Reagents	Packaging Unit	Part Number
Chlorine HR (KI)	Tablet / 100	513000BT
Chlorine HR (KI)	Tablet / 250	513001BT
Acidifying GP	Tablet / 100	515480BT
Acidifying GP	Tablet / 250	515481BT
Set Chlorine HR (KI)/Acidifying GP 100 Pc. #	100 each	517721BT
Set Chlorine HR (KI)/Acidifying GP 250 Pc. #	250 each	517722BT
Chlorine HR (KI)	Tablet / 100	501210
Chlorine HR (KI)	Tablet / 250	501211

Determination of Chlorine HR (KI) with Tablet

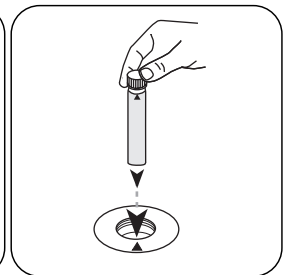
Select the method on the device.



Fill 16 mm vial with **8 mL sample**.



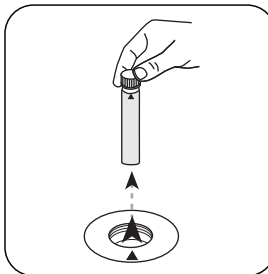
Close vial(s).



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



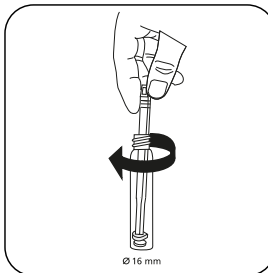
Press the **ZERO** button.



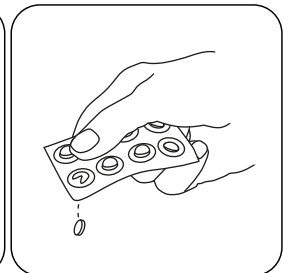
Remove **vial** from the sample chamber.



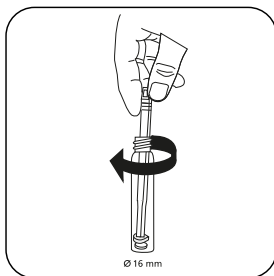
Add **Chlorine HR (KI) tablet**.



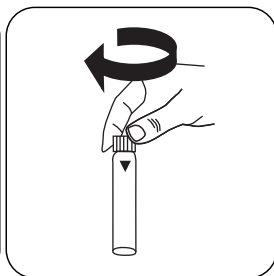
Crush tablet(s) by rotating slightly.



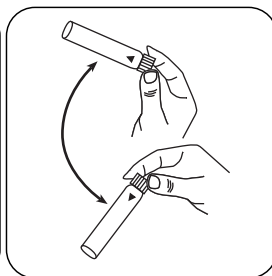
Add **ACIDIFYING GP tablet**.



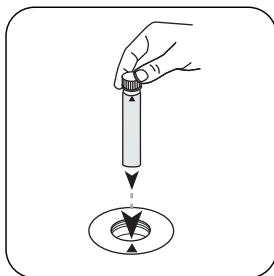
Crush tablet(s) by rotating slightly.



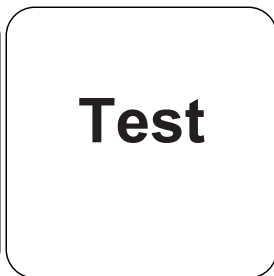
Close vial(s).



Dissolve tablet(s) by inverting.



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



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

The result in mg/L Chlorine appears on the display.

Chemical Method

KI / Acid

Appendix

Interferences

Persistent Interferences

- All oxidising agents in the samples react like chlorine, which leads to higher results.

Method Validation

Limit of Detection	1.29 mg/L
Limit of Quantification	3.86 mg/L
End of Measuring Range	200 mg/L
Sensitivity	83.96 mg/L / Abs
Confidence Intervall	1.14 mg/L
Standard Deviation	0.45 mg/L
Variation Coefficient	0.45 %

Derived from

EN ISO 7393-3

* including stirring rod, 10 cm

EN

KS4.3 T / 20


Methoden Name

Methodennummer

Barcode zur Methodenerkennung

Messbereich

20

S:4.3

Säure / Indikator

Displayanzeige im MD 100 MD 110 / MD 200

Chemische Methode

Instrumentenspezifische 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 Analyseergebnisses entscheidend.

Sprachkürzel nach ISO 639-1

Revisionsstand

DE Methodenhandbuch 01/20

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.

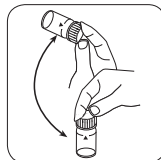


Küvette(n) verschließen.

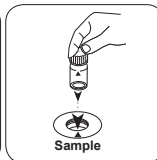


Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.

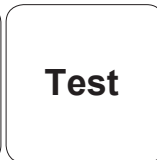
• • •



Tablette(n) durch Umschwenken lösen.



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



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

In der Anzeige erscheint das Ergebnis als Säurekapazität $K_{s4,3}$.



Chlor HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI / Säure

Material

DE

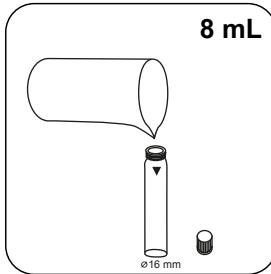
Benötigtes Material (zum Teil optional):

Reagenzien	Form/Menge	Bestell-Nr.
Chlorine HR (KI)	Tablette / 100	513000BT
Chlorine HR (KI)	Tablette / 250	513001BT
Acidifying GP	Tablette / 100	515480BT
Acidifying GP	Tablette / 250	515481BT
Set Chlorine HR (KI)/Acidifying GP#	je 100	517721BT
Set Chlorine HR (KI)/Acidifying GP#	je 250	517722BT
Chlorine HR (KI)	Tablette / 100	501210
Chlorine HR (KI)	Tablette / 250	501211

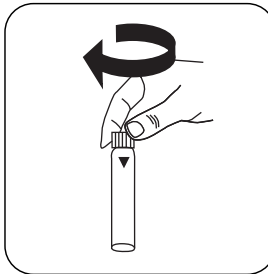


Durchführung der Bestimmung Chlor HR (KI) mit Tablette

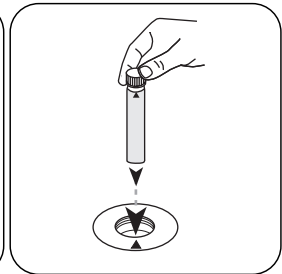
Die Methode im Gerät auswählen.



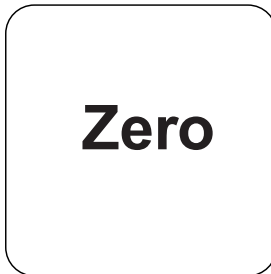
16-mm-Küvette mit **8 mL Probe** füllen.



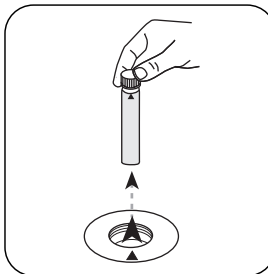
Küvette(n) verschließen.



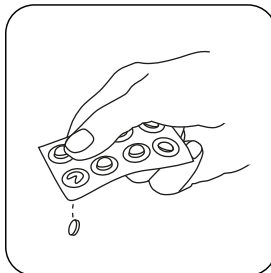
Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.



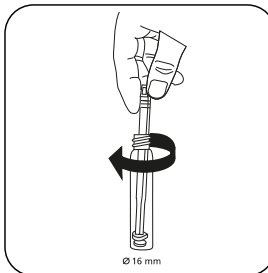
Taste **ZERO** drücken.



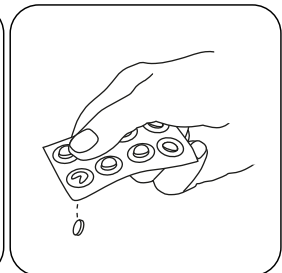
Die **Küvette** aus dem Messschacht nehmen.



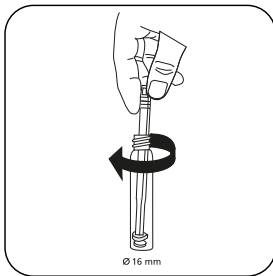
Eine **Chlorine HR (KI) Tablette** zugeben.



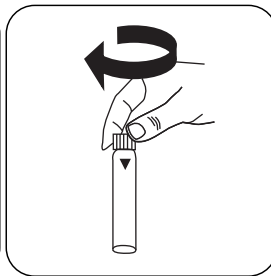
Tablette(n) unter leichter Drehung zerdrücken.



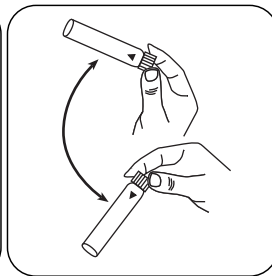
Eine **ACIDIFYING GP Tablette** zugeben.



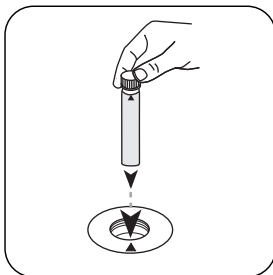
Tablette(n) unter leichter Drehung zerdrücken.



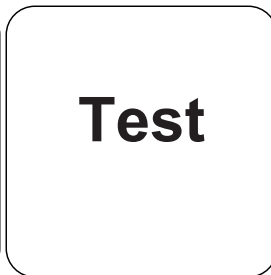
Küvette(n) verschließen.



Tablette(n) durch Umschwenken lösen.



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



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

In der Anzeige erscheint das Ergebnis in mg/L Chlor.

Chemische Methode

KI / Säure

Appendix

Störungen

Permanente Störungen

- Alle in den Proben vorhandenen Oxidationsmittel reagieren wie Chlor, was zu Mehrbefunden führt.

Methodenvalidierung

Nachweisgrenze	1.29 mg/L
Bestimmungsgrenze	3.86 mg/L
Messbereichsende	200 mg/L
Empfindlichkeit	83.96 mg/L / Abs
Vertrauensbereich	1.14 mg/L
Verfahrensstandardabweichung	0.45 mg/L
Verfahrensvariationskoeffizient	0.45 %

Abgeleitet von

EN ISO 7393-3

* inklusive Rührstab

KS4.3 T / 20



Nombre del método

Número de método

Código de barras para reconocer el método

Rango de medición

$K_{S4.3} T$
0.1 - 4 mmol/l $K_{S4.3}$

20
S:4.3

Método químico

Ácido / Indicador

Indicación en la pantalla de MD 100 / MD 110 / MD 200

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	\varnothing 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	\varnothing 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 $K_{24.3}$ con tableta

Seleccionar el método en el aparato.

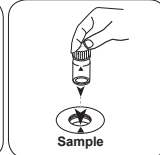
Para este método no es necesario realizar medición CERO en los aparatos siguientes: XD 7000, XD 7500



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!

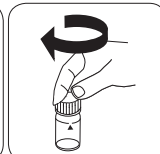
• • •



Añadir **tableta ALKA-M-PHOTOMETER**.



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



Cerrar la(s) cubeta(s).



Cloro HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI / ácido

Material

ES

Material requerido (parcialmente opcional):

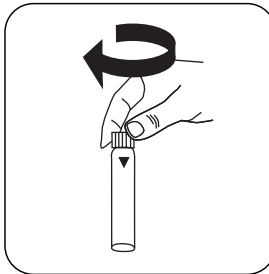
Reactivos	Unidad de embalaje	No. de referencia
Cloro HR (KI)	Tabletas / 100	513000BT
Cloro HR (KI)	Tabletas / 250	513001BT
Acidificante GP	Tabletas / 100	515480BT
Acidificante GP	Tabletas / 250	515481BT
Juego cloro HR (KI)/acidificante GP [#]	100 cada	517721BT
Juego cloro HR (KI)/acidificante GP [#]	250 cada	517722BT
Cloro HR (KI)	Tabletas / 100	501210
Cloro HR (KI)	Tabletas / 250	501211

Ejecución de la determinación Cloro HR (KI) con tableta

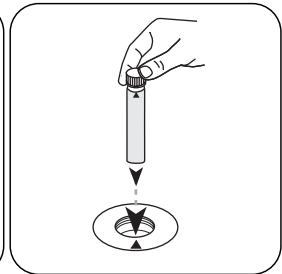
Seleccionar el método en el aparato.



Llenar la cubeta de 16 mm con **8 mL de muestra**.



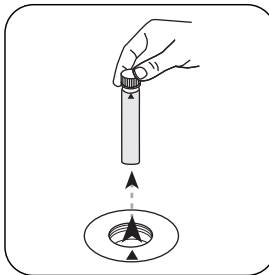
Cerrar la(s) cubeta(s).



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



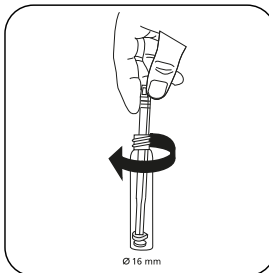
Pulsar la tecla **ZERO**.



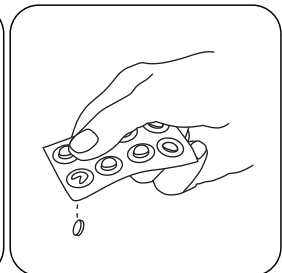
Extraer la **cubeta** del compartimiento de medición.



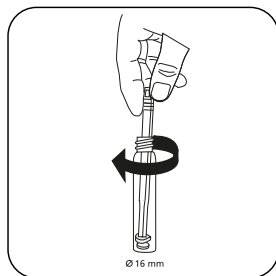
Añadir tableta **Chlorine HR (KI)**.



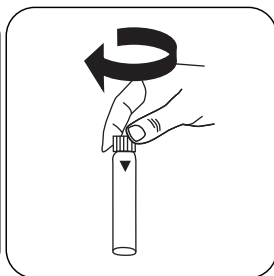
Triturar la(s) tableta(s) girando ligeramente.



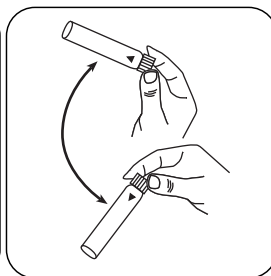
Añadir tableta **ACIDIFYING GP**.



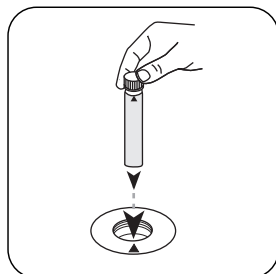
Triturar la(s) tableta(s) girando ligeramente.



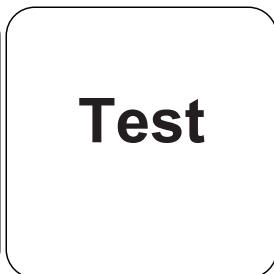
Cerrar la(s) cubeta(s).



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**).

A continuación se visualizará el resultado en mg/L Cloro.

Método químico

KI / ácido

Apéndice

Interferencia

ES

Interferencias persistentes


- Todos los elementos oxidantes existentes en la muestra reaccionan como el cloro, lo que produce un resultado más elevado.

Validación del método

Límite de detección	1.29 mg/L
Límite de determinación	3.86 mg/L
Límite del rango de medición	200 mg/L
Sensibilidad	83.96 mg/L / Abs
Intervalo de confianza	1.14 mg/L
Desviación estándar	0.45 mg/L
Coefficiente de variación	0.45 %

Derivado de

EN ISO 7393-3

KS4.3 T / 20


Nom de la méthode

Numéro de méthode

Code à barres pour reconnaître la méthode

Plage de mesure

20

S:4.3

Méthode chimique

Affichage dans le MD 100 / MD 110 / MD 200

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).



Chlore HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI / Acide

Matériel

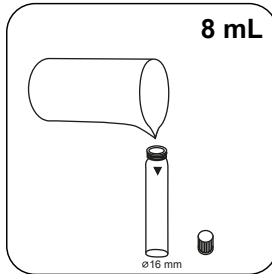
FR

Matériel requis (partiellement optionnel):

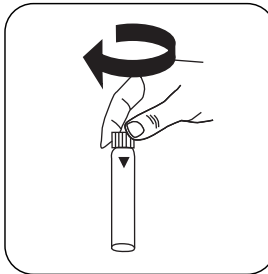
Réactifs	Pack contenant	Code
Chlore HR (KI)	Pastilles / 100	513000BT
Chlore HR (KI)	Pastilles / 250	513001BT
Acidifiants PT	Pastilles / 100	515480BT
Acidifiants PT	Pastilles / 250	515481BT
Kit chlore HR (KI)/acidifiant GP#	100 chacun	517721BT
Kit chlore HR (KI)/acidifiant GP#	250 chacun	517722BT
Chlore HR (KI)	Pastilles / 100	501210
Chlore HR (KI)	Pastilles / 250	501211

Réalisation de la quantification Chlore HR (KI) avec pastille

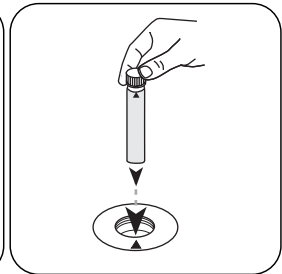
Sélectionnez la méthode sur l'appareil.



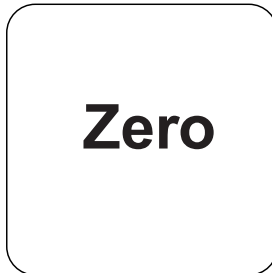
Remplissez une cuvette de 16 mm de **8 mL** d'échantillon.



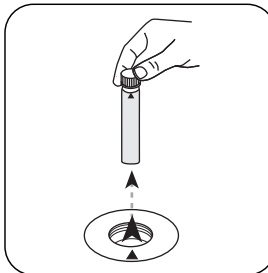
Fermez la(les) cuvette(s).



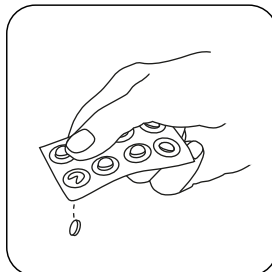
Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.



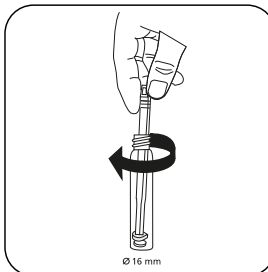
Appuyez sur la touche **ZERO**.



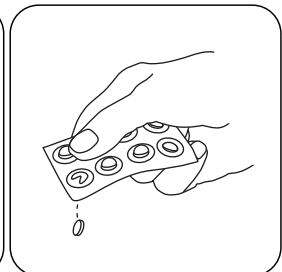
Retirez la **cuvette** de la chambre de mesure.



Ajoutez une **pastille de Chlore HR (KI)**.



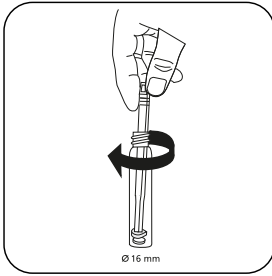
Écrasez la(les) pastille(s) en la(les) tournant un peu.



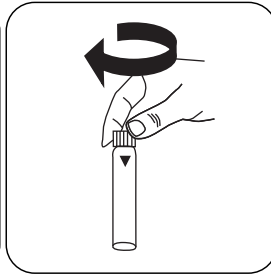
Ajoutez une **pastille de ACIDIFYING GP**.



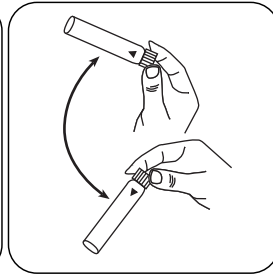
FR



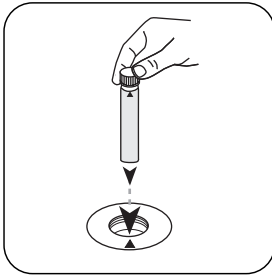
Écrasez la(les) pastille(s)
en la(les) tournant un peu.



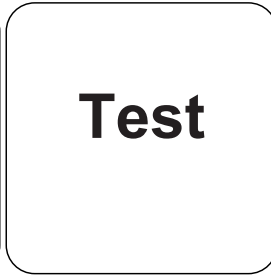
Fermez la(les) cuvette(s).



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).

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

Méthode chimique

KI / Acide

Appendice

Interférences

Interférences persistantes

- Les agents oxydants contenus dans les échantillons réagissent tous comme le chlore, ce qui entraîne des résultats plus élevés.

Méthode Validation

Limite de détection	1.29 mg/L
Limite de détermination	3.86 mg/L
Fin de la gamme de mesure	200 mg/L
Sensibilité	83.96 mg/L / Abs
Intervalle de confiance	1.14 mg/L
Déviatoin standard	0.45 mg/L
Coefficient de variation	0.45 %


Dérivé de

EN ISO 7393-3

ⁱⁱ* agitateur inclus

FR

KS4.3 T / 20



Denominazione metodo

Numero metodo

Codice a barre per riconoscere il metodo

Range di misura

$K_{S_{4.3} T}$
0.1 - 4 mmol/l $K_{S_{4.3}}$

Acido/indicatore

20
S:4.3

Indicazione sul display del MD 100 / MD 110 / MD 200

Metodo chimico

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 $K_{S_{4.3}}$
SpectroDirect, XD 7000, XD 7500	ø 24 mm	615 nm	0.1 - 4 mmol/l $K_{S_{4.3}}$

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 $K_{S_{4.3}}$ sono equivalenti.
2. Per l'accuratezza del risultato dell'analisi è fondamentale che il volume del campione misuri esattamente 10 ml.

ISO 639-1 codici linguistici

Stato di revisione

IT Manuale dei Metodi 01/20

**Svolgimento della
misurazione**

Esecuzione della rilevazione Capacità acida $K_{s4,3}$ con pastiglia

Selezionare il metodo nel dispositivo.

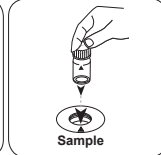
Con i seguenti dispositivi, per questo metodo non è necessario eseguire una misurazione ZERO: XD 7000, XD 7500



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

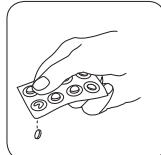


Chiudere la/e cuvetta/e.

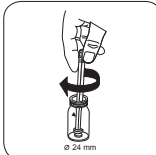


Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

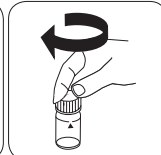
• • •



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



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



Chiudere la/e cuvetta/e.



Cloro HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI/acido

IT

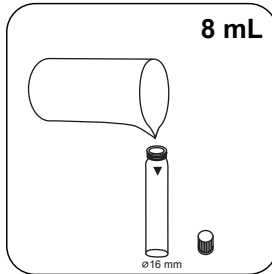
Materiale

Materiale richiesto (in parte facoltativo):

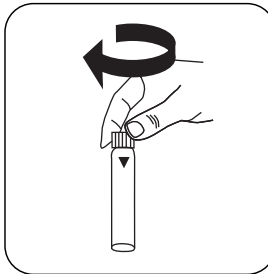
Reagenti	Unità di imballaggio	N. ordine
Cloro HR (KI)	Pastiglia / 100	513000BT
Cloro HR (KI)	Pastiglia / 250	513001BT
Acidificante GP	Pastiglia / 100	515480BT
Acidificante GP	Pastiglia / 250	515481BT
Set Cloro HR (KI)/Acidificante GP [#]	ciascuna 100	517721BT
Set Cloro HR (KI)/Acidificante GP [#]	ciascuna 250	517722BT
Cloro HR (KI)	Pastiglia / 100	501210
Cloro HR (KI)	Pastiglia / 250	501211

Esecuzione della rilevazione Cloro HR (KI) con pastiglia

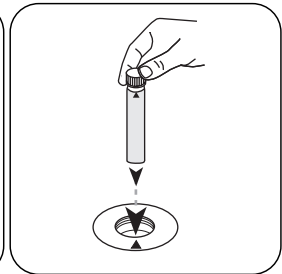
Selezionare il metodo nel dispositivo.



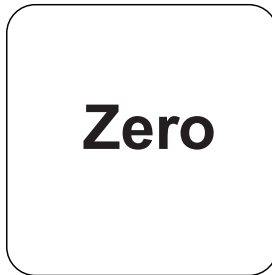
Riempire una cuvetta da 16 mm con **8 mL di campione**.



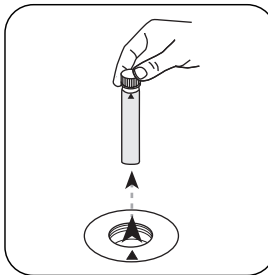
Chiudere la/e cuvetta/e.



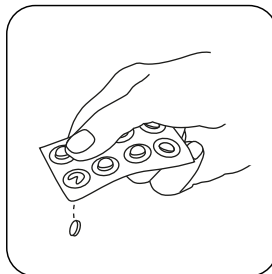
Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.



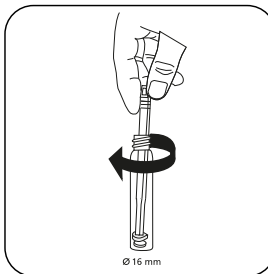
Premere il tasto **ZERO**.



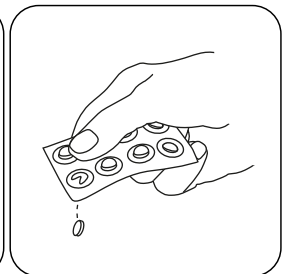
Prelevare la **cuvetta** dal vano di misurazione.



Aggiungere una **pastiglia Chlorine HR (KI)**.



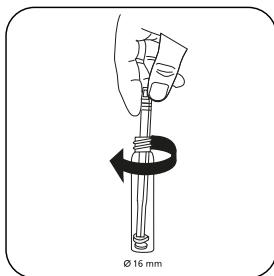
Frantumare la/e pastiglia/e con una leggera rotazione.



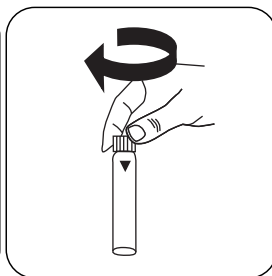
Aggiungere una **pastiglia ACIDIFYING GP**.



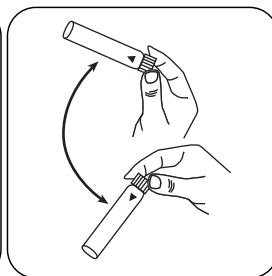
IT



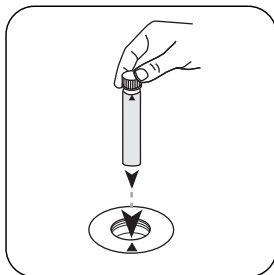
Frantumare la/e pastiglia/e con una leggera rotazione.



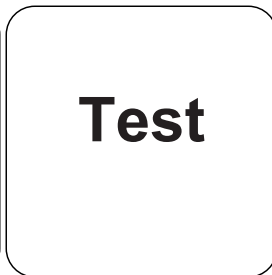
Chiudere la/e cuvetta/e.



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**).

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

Metodo chimico

KI/acido

Appendice

Interferenze

Interferenze permanenti

- Tutti gli ossidanti presenti nei campioni reagiscono come il cloro dando risultati troppo elevati.

Validazione metodo


Limite di rilevabilità	1.29 mg/L
Limite di quantificazione	3.86 mg/L
Estremità campo di misura	200 mg/L
Sensibilità	83.96 mg/L / Abs
Intervallo di confidenza	1.14 mg/L
Deviazione standard della procedura	0.45 mg/L
Coefficiente di variazione della procedura	0.45 %

Derivato di

EN ISO 7393-3

[#]Bacchetta compresa

KS4.3 T / 20



Nome do método

Número do método

Código de barras para a detecção dos métodos

Área de medição

$K_{S_{4.3}} T$
0.1 - 4 mmol/l $K_{S_{4.3}}$
Ácido / Indicador

20
S:4.3

Método Químico

Indicado no display: MD 100 / MD 110 / MD 200

Informação específica do instrumento

O teste pode ser realizado nos seguintes dispositivos. Além disso, a cubeta necessária e a faixa de absorção do fotómetro são indicadas.

Dispositivos	Cubeta	λ	Faixa de Medição
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	\varnothing 24 mm	610 nm	0.1 - 4 mmol/l $K_{S_{4.3}}$
SpectroDirect, XD 7000, XD 7500	\varnothing 24 mm	615 nm	0.1 - 4 mmol/l $K_{S_{4.3}}$

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 $K_{S_{4.3}}$ 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

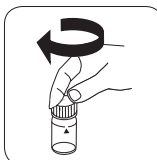
Realização da determinação Capacidade de acidez $K_{s4.3}$ com pastilha

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).

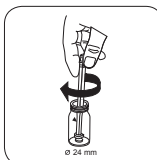


Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

• • •



Pastilha ALKA-M-PHOTO-METER.



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



Fechar a(s) célula(s).

PT Métodos Manual 01/20

PT



Cloro HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

KI / Ácido

Material

PT

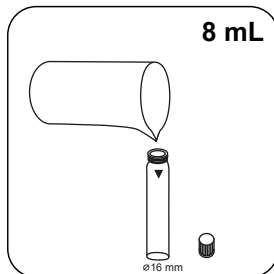
Material necessário (parcialmente opcional):

Reagentes	Unidade de Embalagem	Código do Produto
Cloro HR (KI)	Pastilhas / 100	513000BT
Cloro HR (KI)	Pastilhas / 250	513001BT
Acidificante GP	Pastilhas / 100	515480BT
Acidificante GP	Pastilhas / 250	515481BT
Definir Cloro HR (KI)/Acidificar GP#	cada 100	517721BT
Definir Cloro HR (KI)/Acidificar GP#	cada 250	517722BT
Cloro HR (KI)	Pastilhas / 100	501210
Cloro HR (KI)	Pastilhas / 250	501211

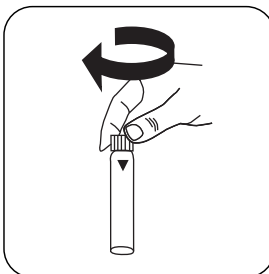


Realização da determinação Cloro HR (KI) com pastilha

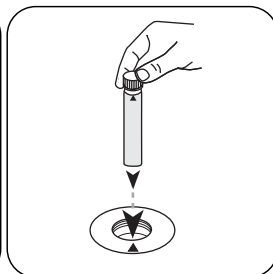
Escolher o método no equipamento.



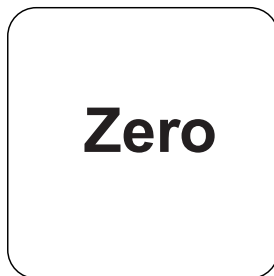
Encher a célula de 16 mm com **8 mL de amostra**.



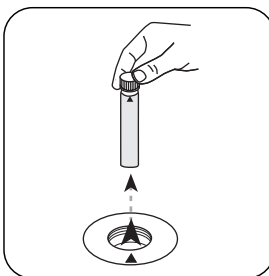
Fechar a(s) célula(s).



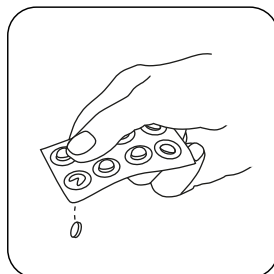
Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.



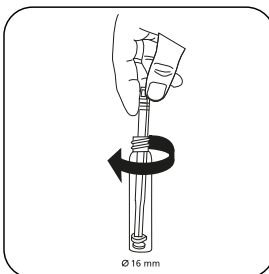
Premir a tecla **ZERO**.



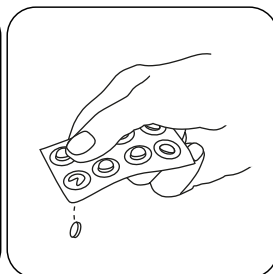
Retirar a **célula** do compartimento de medição.



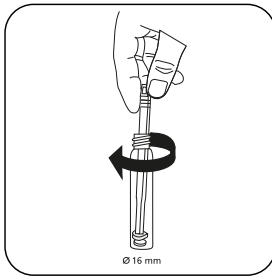
Pastilha Chlorine HR (KI).



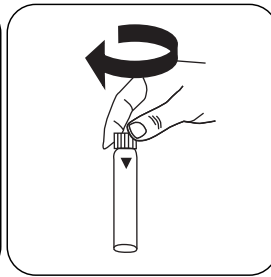
Esmagar a(s) pastilha(s) rodando ligeiramente.



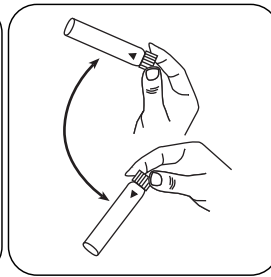
Pastilha ACIDIFYING GP.



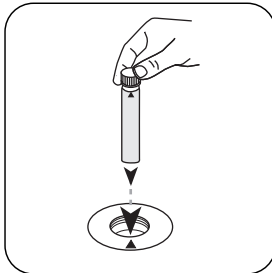
Esmagar a(s) pastilha(s) rodando ligeiramente.



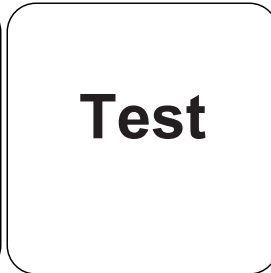
Fechar a(s) célula(s).



Dissolver a(s) pastilha(s) girando.



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



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

No visor aparece o resultado em mg/L Cloro.

Método Químico

KI / Ácido

Apêndice

Texto de Interferências

Interferências Persistentes

- Todos os oxidantes presentes nas amostras reagem como o cloro, o que leva a resultados demasiado altos.

Validação de método


Limite de Detecção	1.29 mg/L
Limite de Determinação	3.86 mg/L
Fim da Faixa de Medição	200 mg/L
Sensibilidade	83.96 mg/L / Abs
Faixa de Confiança	1.14 mg/L
Desvio Padrão	0.45 mg/L
Coefficiente de Variação	0.45 %

Derivado de

EN ISO 7393-3

*incluindo vareta de agitação

KS4.3 T / 20



Naam van de methode

Nummer methode

Streepjescode ter identificatie van de methode

Meetbereik

$K_{S_{4.3}} T$ M20
0.1 - 4 mmol/l $K_{S_{4.3}}$ S:4.3
Zuur / Indicator

Chemische methode

Uitlezing in MD
100 MD 110 / MD
200

Instrument specifieke 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	\varnothing 24 mm	610 nm	0.1 - 4 mmol/l $K_{S_{4.3}}$
SpectroDirect, XD 7000, XD 7500	\varnothing 24 mm	615 nm	0.1 - 4 mmol/l $K_{S_{4.3}}$

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_{S_{4.3}} zijn identiek.
2. De exacte naleving van het monstervolume van 10 ml is bepalend voor de nauwkeurigheid van het analysesresultaat.

Beknopte naam conform de norm ISO 639-1

Herziene versie

NL Handboek van Methoden 01/20

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 $K_{s4,3}$.



Chloor HR (KI) T

M105

5 - 200 mg/L Cl₂

CLHr

Al / Zuur

NL

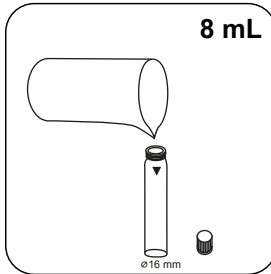
Reagentia

Benodigd materiaal (deels optioneel):

Reagentia	Verpakkingseenheid	Bestelnr.
Chloor HR (KI)	Tablet / 100	513000BT
Chloor HR (KI)	Tablet / 250	513001BT
Acidifying GP	Tablet / 100	515480BT
Acidifying GP	Tablet / 250	515481BT
Set chloor HR (KI)/Acidifying GP#	per 100	517721BT
Set chloor HR (KI)/Acidifying GP#	per 250	517722BT
Chloor HR (KI)	Tablet / 100	501210
Chloor HR (KI)	Tablet / 250	501211

Uitvoering van de bepaling Chloor HR (KI) met tablet

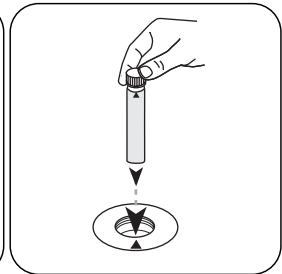
De methode in het apparaat selecteren.



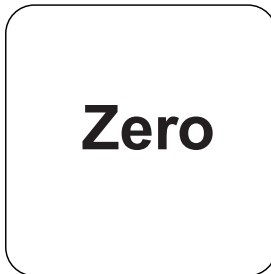
Spoelbakje van 16 mm met 8 mL staal vullen.



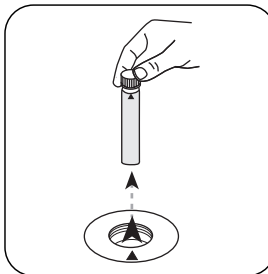
De spoelbakjes afsluiten.



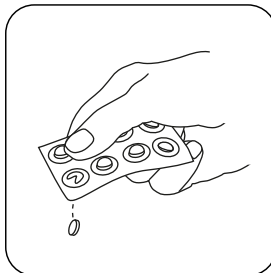
Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letteren.



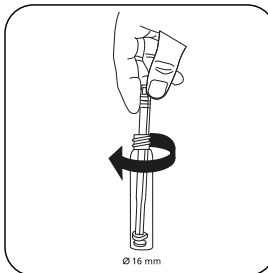
De toets **NUL** indrukken.



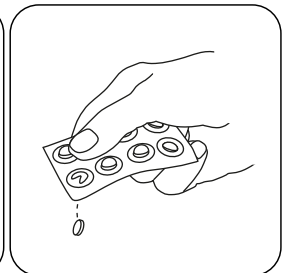
Het **spoelbakje** uit de meetschacht nemen.



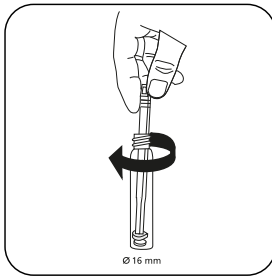
Een **Chloor HR (KI) tablet** toevoegen.



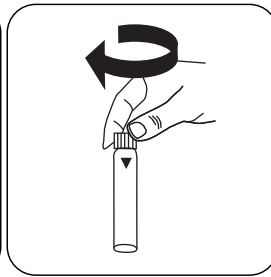
De tabletten onder lichte rotatie verpletteren.



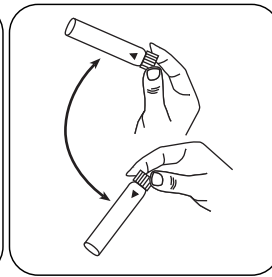
Een **ACIDIFYING GP tablet** toevoegen.



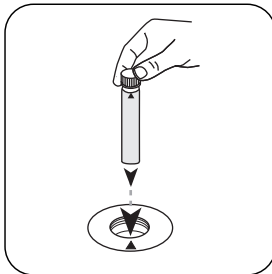
De tabletten onder lichte rotatie verpletteren.



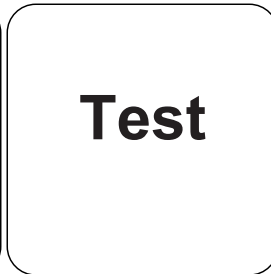
De spoelbakjes afsluiten.



Tabletten oplossen door om te draaien



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



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

De display toont het resultaat in mg/L Chloor.

Chemische methode

Al / Zuur

Aanhangsel

Verstoringsen

Permanente verstoringen

- Alle oxidatiemiddelen in de monsters reageren als chloor, wat tot extra resultaten leidt.

Validatie van de methodes

Aantoonbaarheidsgrens	1.29 mg/L
Bepaalbaarheidsgrens	3.86 mg/L
Einde meetbereik	200 mg/L
Gevoeligheid	83.96 mg/L / Abs
Betrouwbaarheidsgrenzen	1.14 mg/L
Standaardafwijking procedure	0.45 mg/L
Variatiecoëfficiënt procedure	0.45 %

Afgeleid van

EN ISO 7393-3

* met inbegrip van de mengstaaf

KS4.3 T / 20

方法名称

方法号

用于方法检测的条形码

测量范围

酸性 / 指示剂

化学方法

仪器的具體信息

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。

儀器類型	比色皿	λ	測量範圍
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630	\varnothing 24 mm	610 nm	0.1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500	\varnothing 24 mm	615 nm	0.1 - 4 mmol/l $K_{S4.3}$

材料

所需材料 (部分可選) :

標題	包裝單位	貨號
Alka-M-Photometer	片劑 / 100	513210BT
Alka-M-Photometer	片劑 / 250	513211BT

應用列表

- 污水處理
- 飲用水處理
- 原水處理

備註

1. 術語總度-m、m-值、總碱度和酸容量 $K_{S4.3}$ 是相同的。
2. 準確地遵守 10 ml 的樣本體積對分析結果的準確度至關重要。

語言代碼ISO 639-1

修訂狀態

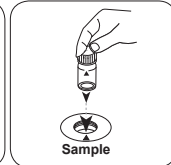
CN 方法手冊 01/20

开始测量

进行测定 $K_{s4.3}$ 片剂酸容量

选择设备中的方法。

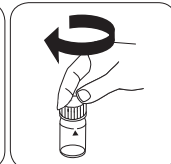
对于这种方法，在以下设备上不能进行 ZERO 测量：XD 7000, XD 7500

用 10 ml 样本填充 24 mm 比密封比色杯。
色杯。将样本比色杯放入测量轴
中。注意定位。

• • •

加入 ALKA-M-PHOTOME-
TER 片剂。

用轻微的扭转压碎片剂。



密封比色杯。

CN 方法手册 01/20

ZH



HR (KI) T 氯

M105

5 - 200 mg/L Cl₂

CLHr

碘化钾 / 酸法

材料

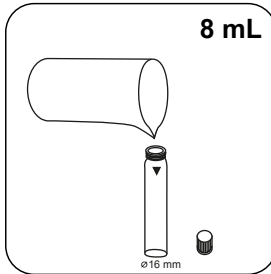
所需材料 (部分可選) :

ZH

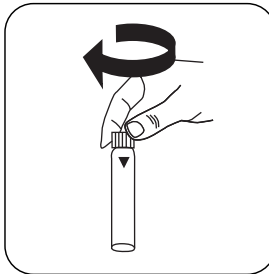
试剂	包装单位	货号
氯 HR (KI)	片剂 / 100	513000BT
氯 HR (KI)	片剂 / 250	513001BT
酸化 GP	片剂 / 100	515480BT
酸化 GP	片剂 / 250	515481BT
套件氯 HR (KI)/酸化 GP#	各100次	517721BT
套件氯 HR (KI)/酸化 GP#	各250次	517722BT
氯 HR (KI)	片剂 / 100	501210
氯 HR (KI)	片剂 / 250	501211

进行测定 HR (KI) 氯片剂

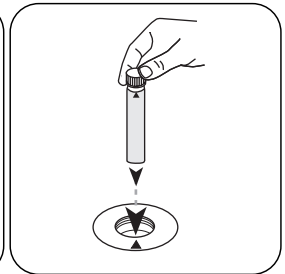
选择设备中的方法。



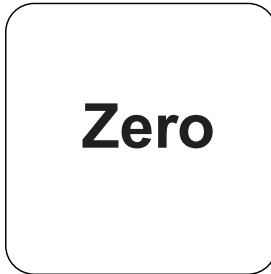
用 8 mL 样本填充 16 mm 比色杯。



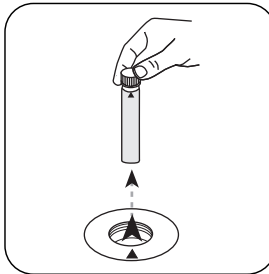
密封比色杯。



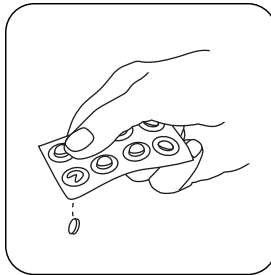
将样本比色杯放入测量轴中。注意定位。



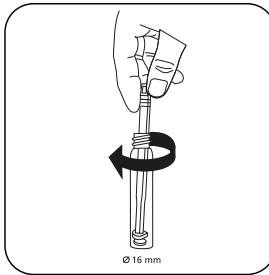
按下 ZERO 按钮。



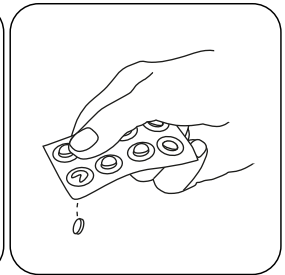
从测量轴上取下比色杯。



加入 Chlorine HR (KI) 片剂。



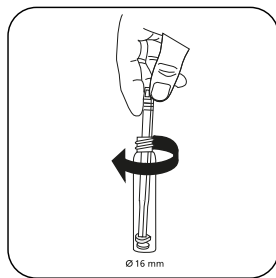
用轻微的扭转压碎片剂。



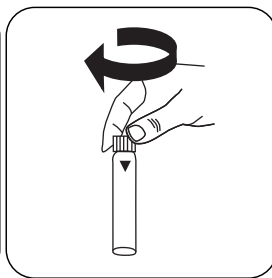
加入 ACIDIFYING GP 片剂。



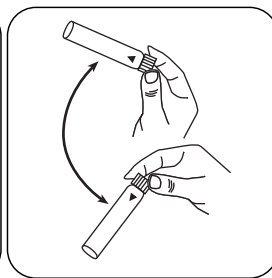
ZH



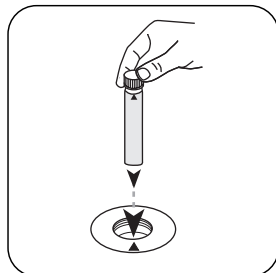
用轻微的扭转压碎片剂。



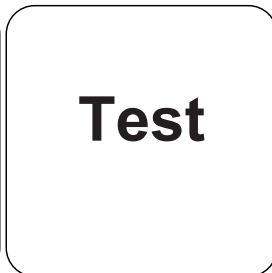
密封比色杯。



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。

结果在显示屏上显示为 mg / l 氯。

化学方法

碘化钾 / 酸法

附錄

干扰说明

持续干扰

- 存在于样本中的所有氧化剂都像氯一样反应，导致多重结果。

方法验证

检出限	1.29 mg/L
测定下限	3.86 mg/L
测量上限	200 mg/L
灵敏度	83.96 mg/L / Abs
置信范围	1.14 mg/L
标准偏差	0.45 mg/L
变异系数	0.45 %

源于

EN ISO 7393-3

*i含搅拌棒, 10cm

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