

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

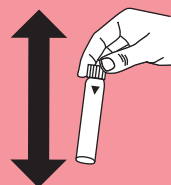
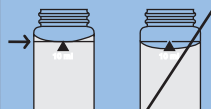
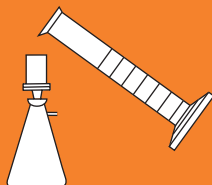
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(PT) Métodos Manual

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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

Display in the MD 100 / MD 110 / MD 200

Chemical Method

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

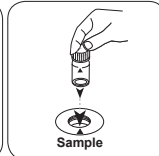
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500



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

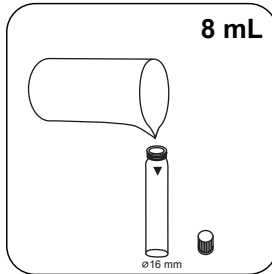
EN

Required material (partly optional):

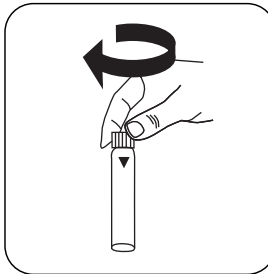
Reagents	Packaging Unit	Part Number
Chlorine HR (KI)	Tablet / 100	513000BT
Chlorine HR (KI)	Tablet / 250	513001BT
Acidifying GP	Tablet / 100	515480BT
Acidifying GP	Tablet / 250	515481BT
Set Chlorine HR (KI)/Acidifying GP 100 Pc. #	100 each	517721BT
Set Chlorine HR (KI)/Acidifying GP 250 Pc. #	250 each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

Determination of Chlorine HR (KI) with Tablet

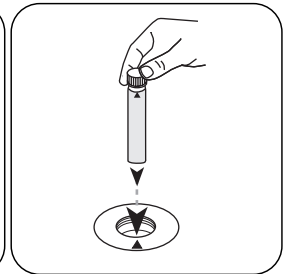
Select the method on the device.



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



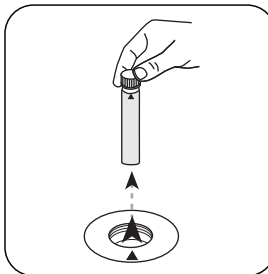
Close vial(s).



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



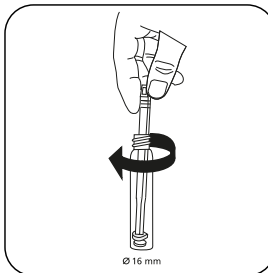
Press the **ZERO** button.



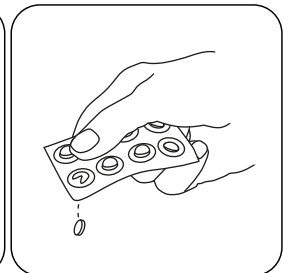
Remove **vial** from the sample chamber.



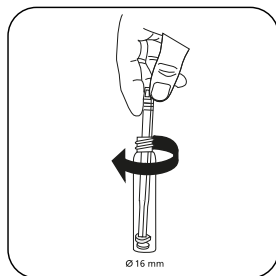
Add **Chlorine HR (KI) tablet**.



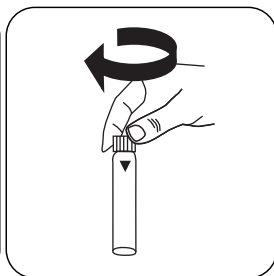
Crush tablet(s) by rotating slightly.



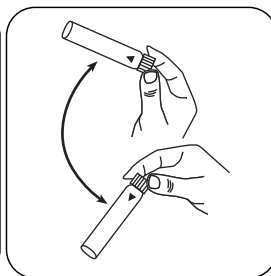
Add **ACIDIFYING GP tablet**.



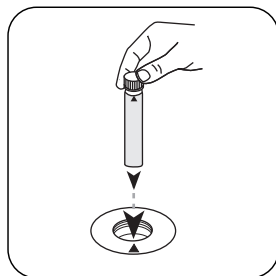
Crush tablet(s) by rotating slightly.



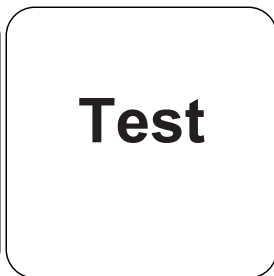
Close vial(s).



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

Chemische Methode

Säure / Indikator

Displayanzeige im MD 100 MD 110 / MD 200

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.

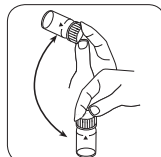


Küvette(n) verschließen.

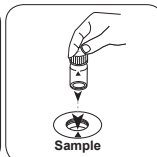


Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.

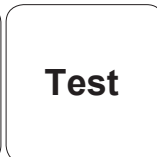
• • •



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

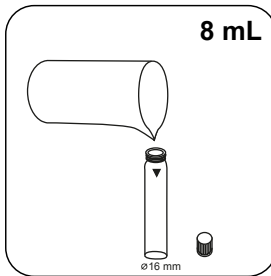
Benötigtes Material (zum Teil optional):

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

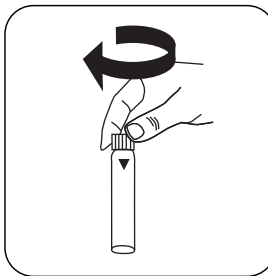


Durchführung der Bestimmung Chlor HR (KI) mit Tablette

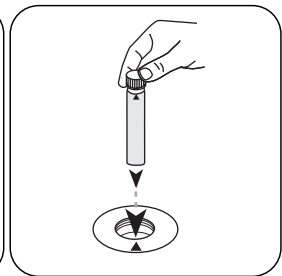
Die Methode im Gerät auswählen.



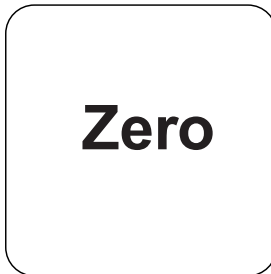
16-mm-Küvette mit **8 mL Probe** füllen.



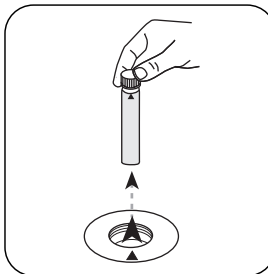
Küvette(n) verschließen.



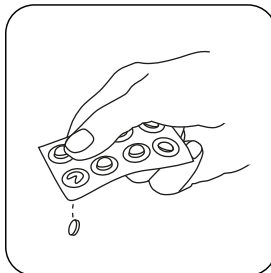
Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.



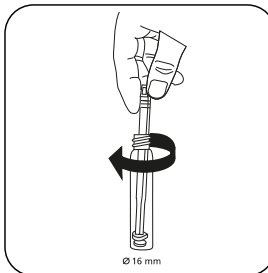
Taste **ZERO** drücken.



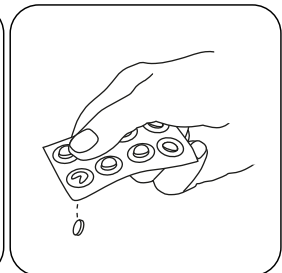
Die **Küvette** aus dem Messschacht nehmen.



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

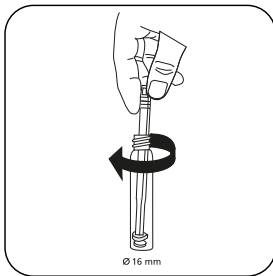


Tablette(n) unter leichter Drehung zerdrücken.

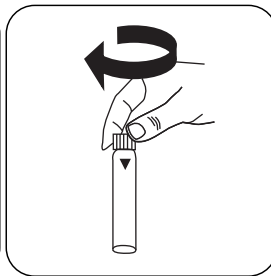


Eine **ACIDIFYING GP Tablette** zugeben.

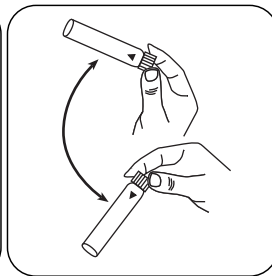
DE



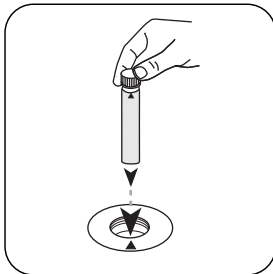
Tablette(n) unter leichter Drehung zerdrücken.



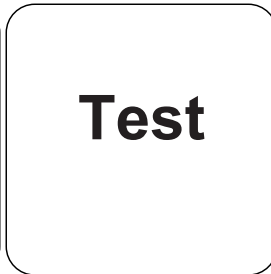
Küvette(n) verschließen.



Tablette(n) durch Umschwenken lösen.



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



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

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 $K_{a4.3}$ con tableta

Seleccionar el método en el aparato.

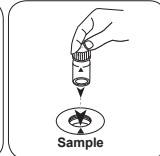
Para este método no es necesario realizar medición CERO en los aparatos siguientes: XD 7000, XD 7500



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):

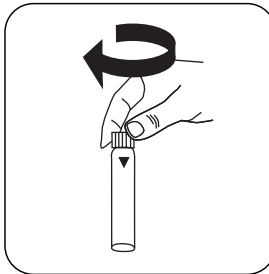
Reactivos	Unidad de embalaje	No. de referencia
Cloro HR (KI)	Tabletas / 100	513000BT
Cloro HR (KI)	Tabletas / 250	513001BT
Acidificante GP	Tabletas / 100	515480BT
Acidificante GP	Tabletas / 250	515481BT
Juego cloro HR (KI)/acidificante GP [#]	100 cada	517721BT
Juego cloro HR (KI)/acidificante GP [#]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

Ejecución de la determinación Cloro HR (KI) con tableta

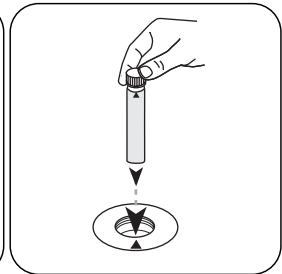
Seleccionar el método en el aparato.



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



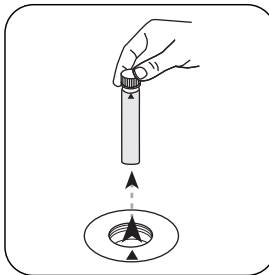
Cerrar la(s) cubeta(s).



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



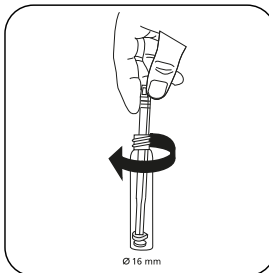
Pulsar la tecla **ZERO**.



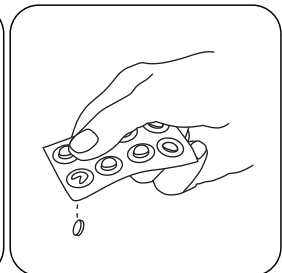
Extraer la **cubeta** del compartimiento de medición.



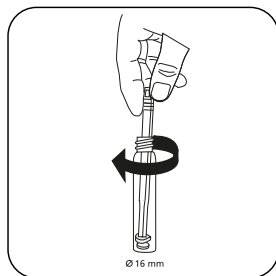
Añadir tableta **Chlorine HR (KI)**.



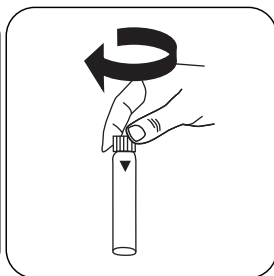
Triturar la(s) tableta(s) girando ligeramente.



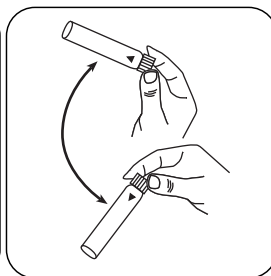
Añadir tableta **ACIDIFYING GP**.



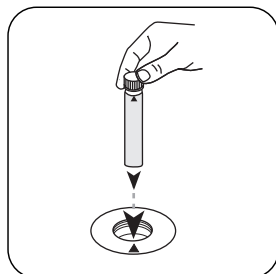
Triturar la(s) tableta(s) girando ligeramente.



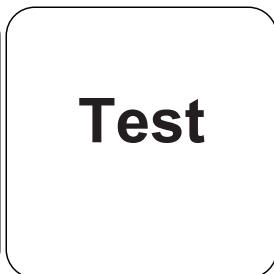
Cerrar la(s) cubeta(s).



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 → KS4.3 T

Numéro de méthode → 20

Code à barres pour reconnaître la méthode → [Barcode]

Plage de mesure → 0.1 - 4 mmol/l $K_{S4.3}$

Méthode chimique → Acide / Indicateur

Affichage dans le MD 100 / MD 110 / MD 200 → S:4.3

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 → FR

État de révision → 01/20

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

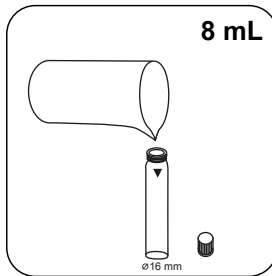
FR

Matériel requis (partiellement optionnel):

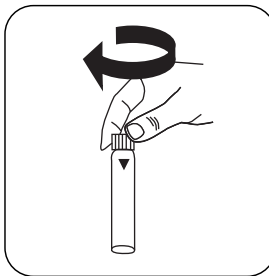
Réactifs	Pack contenant	Code
Chlore HR (KI)	Pastilles / 100	513000BT
Chlore HR (KI)	Pastilles / 250	513001BT
Acidifiants PT	Pastilles / 100	515480BT
Acidifiants PT	Pastilles / 250	515481BT
Kit chlore HR (KI)/acidifiant GP#	100 chacun	517721BT
Kit chlore HR (KI)/acidifiant GP#	250 chacun	517722BT
Chlore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

Réalisation de la quantification Chlore HR (KI) avec pastille

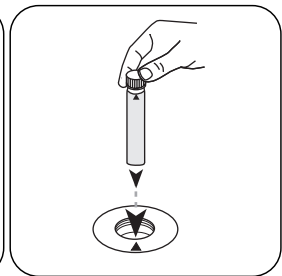
Sélectionnez la méthode sur l'appareil.



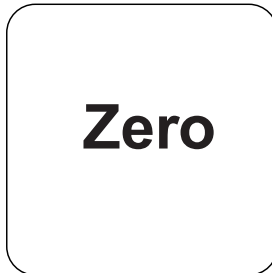
Remplissez une cuvette de 16 mm de **8 mL** d'échantillon.



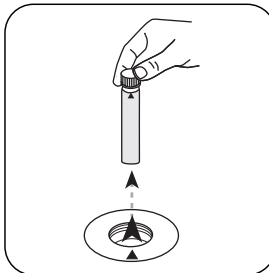
Fermez la(les) cuvette(s).



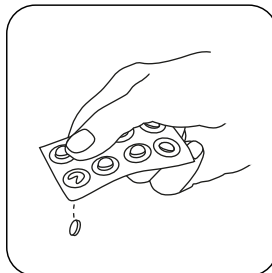
Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.



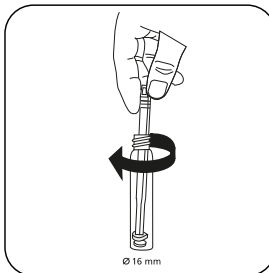
Appuyez sur la touche **ZERO**.



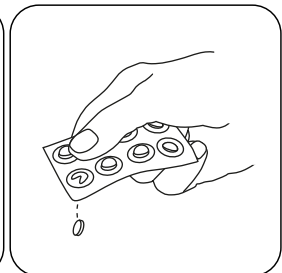
Retirez la **cuvette** de la chambre de mesure.



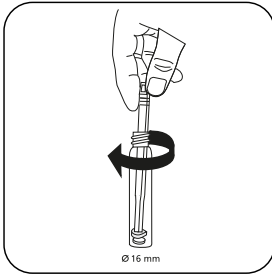
Ajoutez une **pastille de Chlorine HR (KI)**.



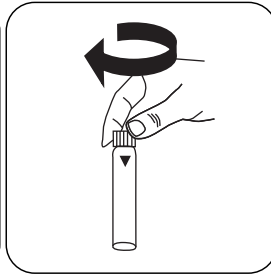
Écrasez la(les) pastille(s) en la(les) tournant un peu.



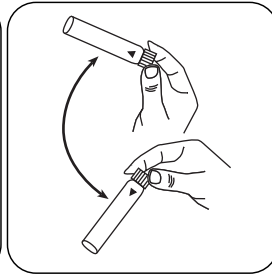
Ajoutez une **pastille de ACIDIFYING GP**.



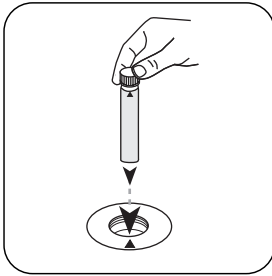
Écrasez la(les) pastille(s)
en la(les) tournant un peu.



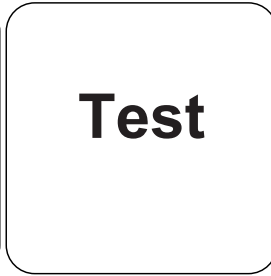
Fermez la(les) cuvette(s).



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.

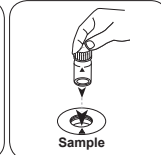
Con i seguenti dispositivi, per questo metodo non è necessario eseguire una misurazione ZERO: XD 7000, XD 7500



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.

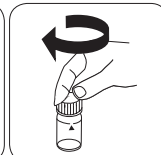
• • •



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

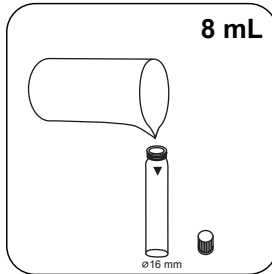
Materiale

Materiale richiesto (in parte facoltativo):

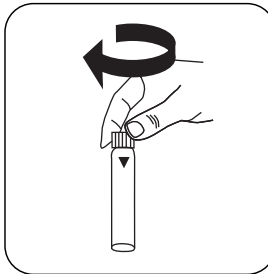
Reagenti	Unità di imballaggio	N. ordine
Cloro HR (KI)	Pastiglia / 100	513000BT
Cloro HR (KI)	Pastiglia / 250	513001BT
Acidificante GP	Pastiglia / 100	515480BT
Acidificante GP	Pastiglia / 250	515481BT
Set Cloro HR (KI)/Acidificante GP [#]	ciascuna 100	517721BT
Set Cloro HR (KI)/Acidificante GP [#]	ciascuna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

Esecuzione della rilevazione Cloro HR (KI) con pastiglia

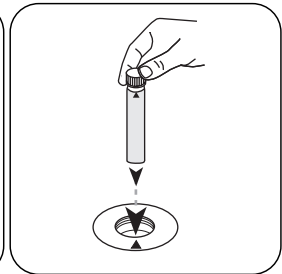
Selezionare il metodo nel dispositivo.



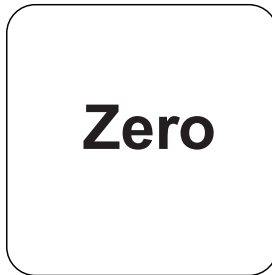
Riempire una cuvetta da 16 mm con **8 mL di campione**.



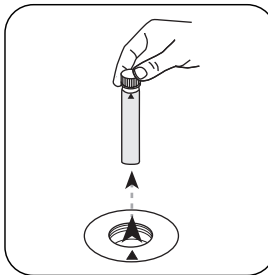
Chiudere la/e cuvetta/e.



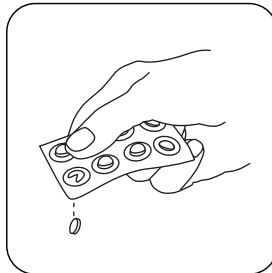
Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.



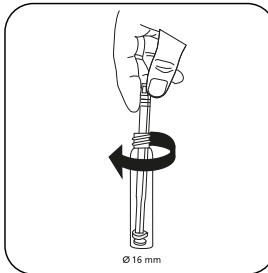
Premere il tasto **ZERO**.



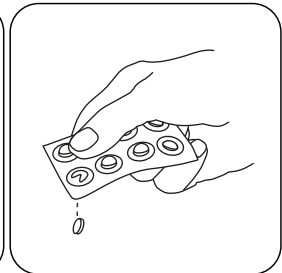
Prelevare la **cuvetta** dal vano di misurazione.



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



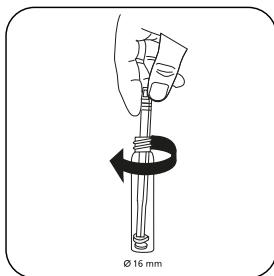
Frantumare la/e pastiglia/e con una leggera rotazione.



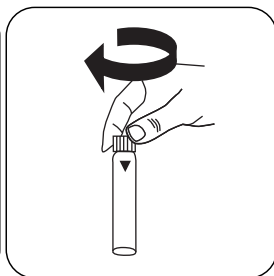
Aggiungere una **pastiglia ACIDIFYING GP**.



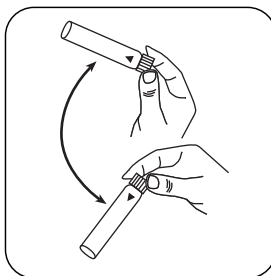
IT



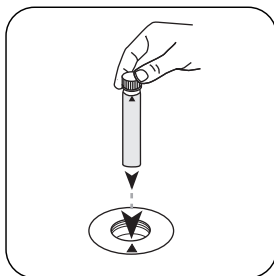
Frantumare la/e pastiglia/e con una leggera rotazione.



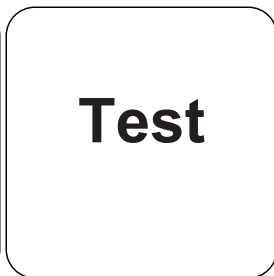
Chiudere la/e cuvetta/e.



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

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 fotómetro 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 $K_{S_{4.3}}$
SpectroDirect, XD 7000, XD 7500	ø 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

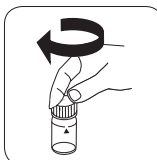
Realização da determinação Capacidade de acidez $K_{s4.3}$ com pastilha

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).

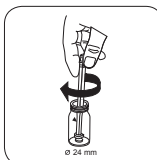


Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

• • •



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

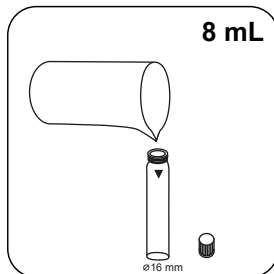
Material necessário (parcialmente opcional):

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

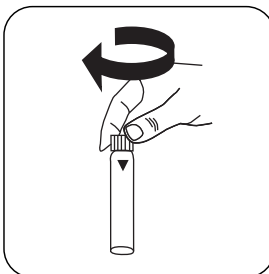


Realização da determinação Cloro HR (KI) com pastilha

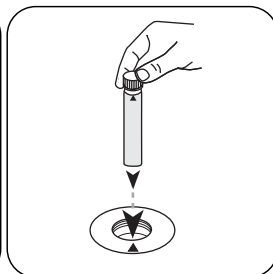
Escolher o método no equipamento.



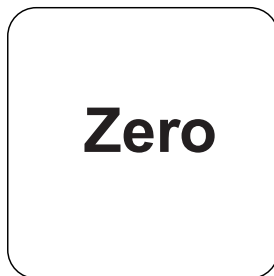
Encher a célula de 16 mm com **8 mL de amostra**.



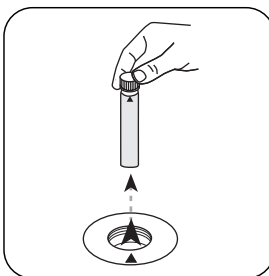
Fechar a(s) célula(s).



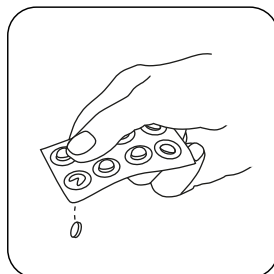
Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.



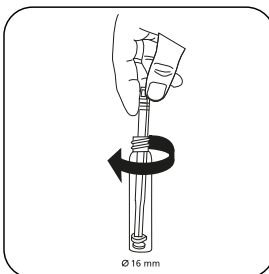
Premir a tecla **ZERO**.



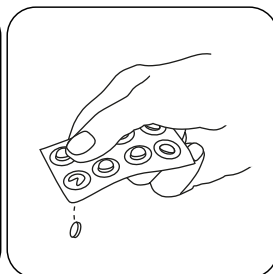
Retirar a **célula** do compartimento de medição.



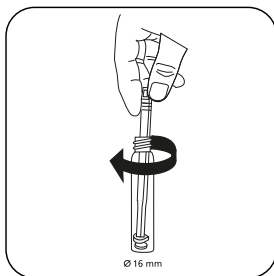
Pastilha Chlorine HR (KI).



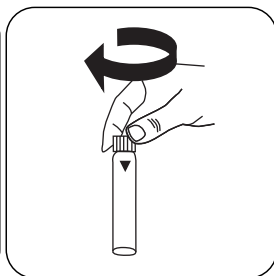
Esmagar a(s) pastilha(s) rodando ligeiramente.



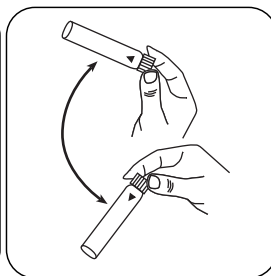
Pastilha ACIDIFYING GP.



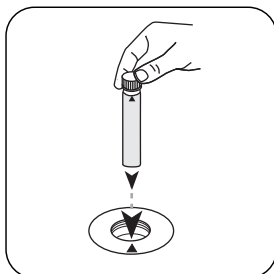
Esmagar a(s) pastilha(s) rodando ligeiramente.



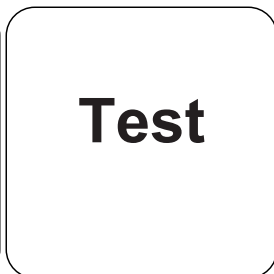
Fechar a(s) célula(s).



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

Chemische methode

Zuur / Indicator

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

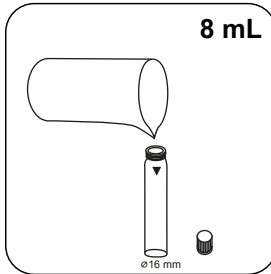
Reagentia

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

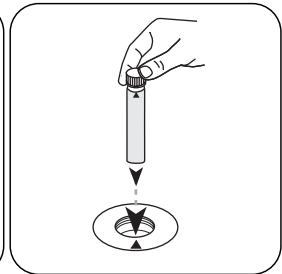
De methode in het apparaat selecteren.



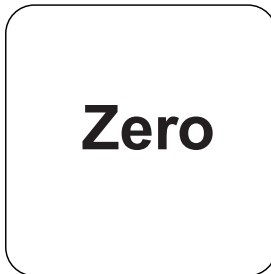
Spoelbakje van 16 mm met **8 mL** staal vullen.



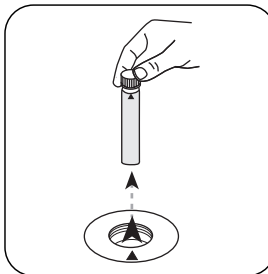
De spoelbakjes afsluiten.



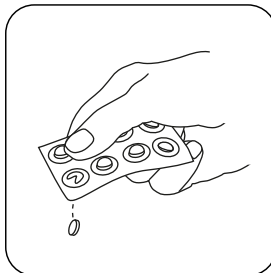
Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letteren.



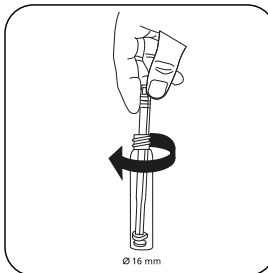
De toets **NUL** indrukken.



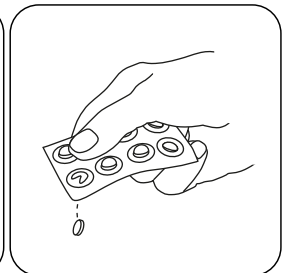
Het **spoelbakje** uit de meetschacht nemen.



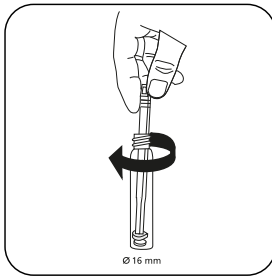
Een **Chloor HR (KI) tablet** toevoegen.



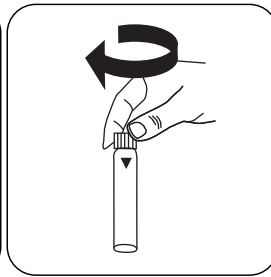
De tabletten onder lichte rotatie verpletteren.



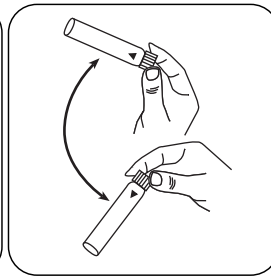
Een **ACIDIFYING GP tablet** toevoegen.



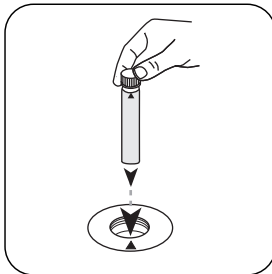
De tabletten onder lichte rotatie verpletteren.



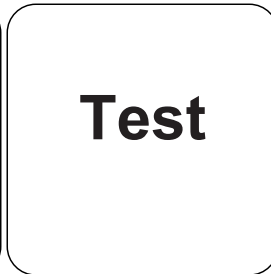
De spoelbakjes afsluiten.



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

屏幕显示: MD 100 / MD 110 / MD 200

化学方法

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。

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

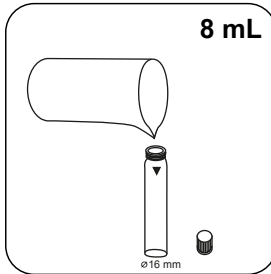
所需材料 (部分可選) :

ZH

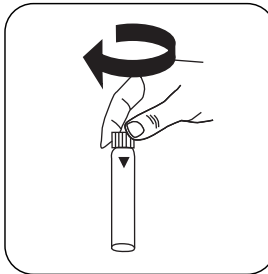
试剂	包装单位	货号
氯 HR (KI)	片剂 / 100	513000BT
氯 HR (KI)	片剂 / 250	513001BT
酸化 GP	片剂 / 100	515480BT
酸化 GP	片剂 / 250	515481BT
套件氯 HR (KI)/酸化 GP#	各100次	517721BT
套件氯 HR (KI)/酸化 GP#	各250次	517722BT
氯 HR (KI)	片剂 / 100	501210
氯 HR (KI)	片剂 / 250	501211

进行测定 HR (KI) 氯片剂

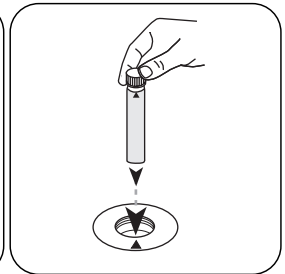
选择设备中的方法。



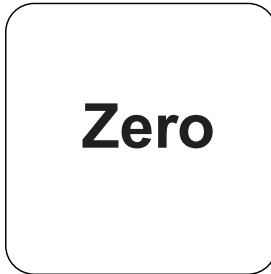
用 **8 mL** 样本填充 16 mm 比色杯。



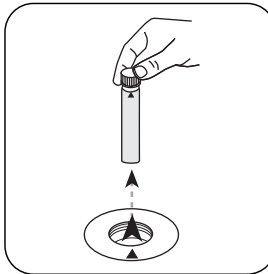
密封比色杯。



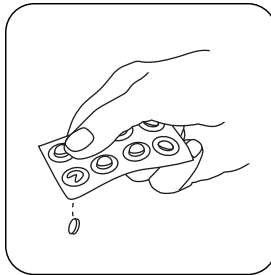
将样本比色杯放入测量轴中。注意定位。



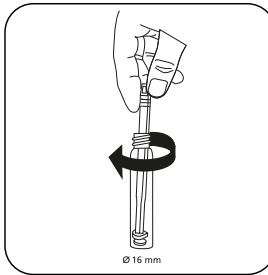
按下 **ZERO** 按钮。



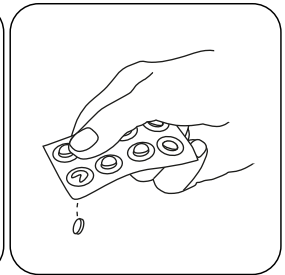
从测量轴上取下比色杯。



加入 **Chlorine HR (KI)** 片剂。



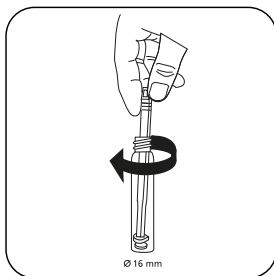
用轻微的扭转压碎片剂。



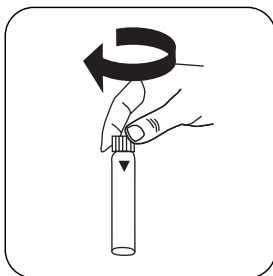
加入 **ACIDIFYING GP** 片剂。



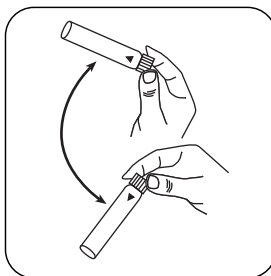
ZH



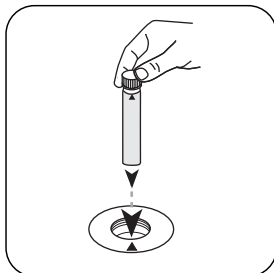
用轻微的扭转压碎片剂。



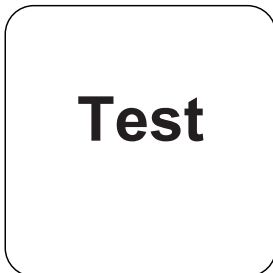
密封比色杯。



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

ZH

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