

# Lovibond® Water Testing

Tintometer® Group



## Manual of Methods

MD 100 • MD 110 • MD 200

### Chloride

**EN Manual of Methods**

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**ES Manual de Métodos**

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**IT Manuale dei Metodi**

Pagina 44

**NL Handboek Methoden**

Zijde 64

**DE Methodenhandbuch**

Seite 14

**FR Méthodes Manuel**

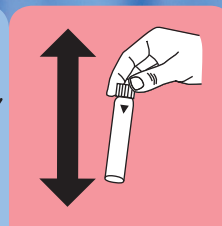
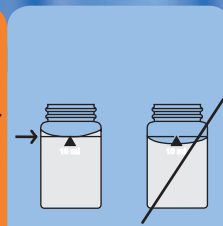
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**PT Métodos Manual**

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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	$\lambda$	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  $K_{S4.3}$  with Tablet**

Select the method on the device

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



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

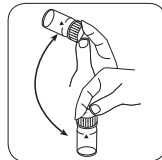


Close vial(s).



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

• • •



Dissolve tablet(s) by inverting.

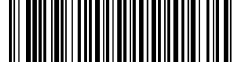


Place **sample vial** in the sample chamber. • Pay attention to the positioning.



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

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

**Chloride T****M90****0.5 - 25 mg/L Cl<sup>-</sup>****CL-1****Silver Nitrate / Turbidity****Material**

EN

Required material (partly optional):

<b>Reagents</b>	<b>Packaging Unit</b>	<b>Part Number</b>
Chloride T1	Tablet / 100	515910BT
Chloride T1	Tablet / 250	515911BT
Chloride T2	Tablet / 100	515920BT
Chloride T2	Tablet / 250	515921BT
Set Chloride T1/T 2 100 Pc.#	100 each	517741BT
Set Chloride T1/T 2 250 Pc.#	250 each	517742BT

**Preparation**

1. Highly alkaline water should – if necessary – be neutralised before any analysis with Nitric acid.

**Notes**

1. High concentrations of electrolytes and organic compounds have different effects on the precipitation reaction.

## Determination of Chloride with Tablet

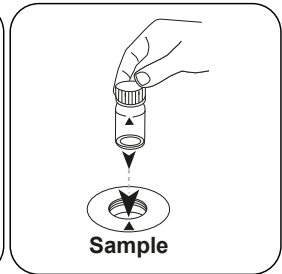
Select the method on the device.



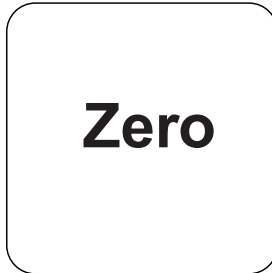
Fill 24 mm vial with **10 mL sample**.



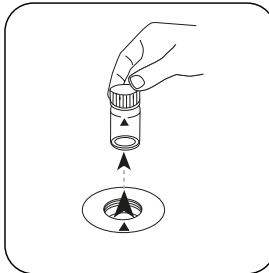
Close vial(s).



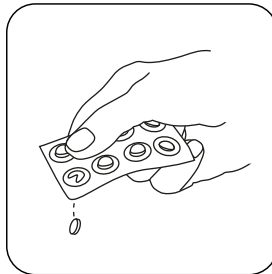
Place **sample vial** in the sample chamber. Pay attention to the positioning.



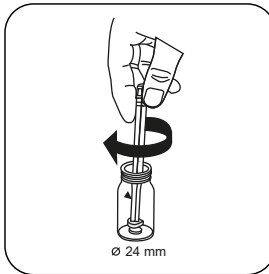
Press the **ZERO** button.



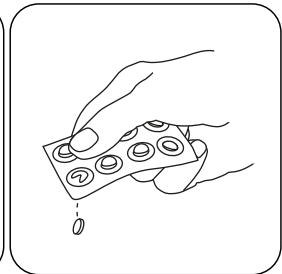
Remove the vial from the sample chamber.



Add **CHLORIDE T1 tablet**.



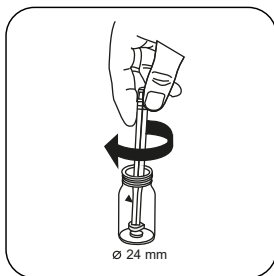
Crush tablet(s) by rotating slightly and dissolve.



Add **CHLORIDE T2 tablet**.



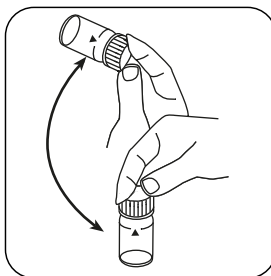
EN



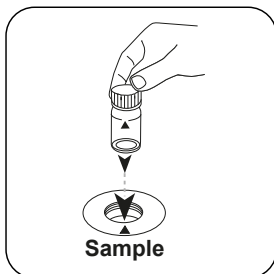
Crush tablet(s) by rotating slightly.



Close vial(s).



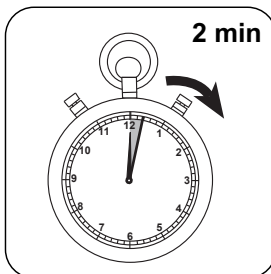
Dissolve tablet(s) by inverting.



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



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



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

Once the reaction period is finished, the measurement takes place automatically. The result in mg/L Chloride appears on the display.

## Analyses

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

Unit	Cite form	Scale Factor
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

EN

## Chemical Method

Silver Nitrate / Turbidity

## Appendix

## Interferences

### Persistent Interferences

1. Ions that also form deposits with Silver nitrate in acidic media, such as Bromides, Iodides and Thiocyanates, cause interference.
2. Individual particles are not attributable to the presence of chloride. Chloride causes a finely distributed turbidity with a milky appearance. **Disturbance through heavy shaking or stirring leads to bigger sized particles, which can cause lower readings.**
3. Cyanide, Iodine and Bromine also are determined as chloride. Chromate and dichromate interfere and should be reduced to the chromic state or removed.

### Derived from

DIN 38405

\* including stirring rod, 10 cm



Chloride T

M93

5 - 250 mg/L Cl<sup>-</sup> 1)

CL-2

Silver Nitrate / Turbidity

**Material**

EN

Required material (partly optional):

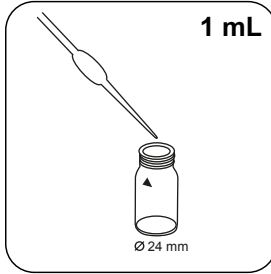
Reagents	Packaging Unit	Part Number
Chloride T1	Tablet / 100	515910BT
Chloride T1	Tablet / 250	515911BT
Chloride T2	Tablet / 100	515920BT
Chloride T2	Tablet / 250	515921BT
Set Chloride T1/T 2 100 Pc.#	100 each	517741BT
Set Chloride T1/T 2 250 Pc.#	250 each	517742BT
ValidCheck DW Anions Multistandard Cl/F/NO <sub>3</sub> / PO <sub>4</sub> /SO <sub>4</sub>	1 pc.	48399312

The following accessories are required.

Accessories	Packaging Unit	Part Number
Pipette, 1000 µl	1 pc.	365045
Pipette tips, 0,1-1 ml (white), 1000 pc.	1 pc.	419073

## Determination of Chloride with Tablet

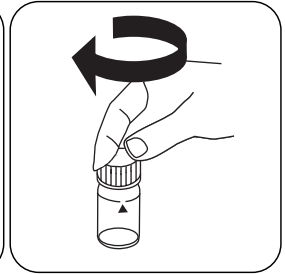
Select the method on the device.



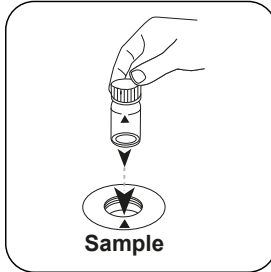
Put **1 mL sample** in the vial.



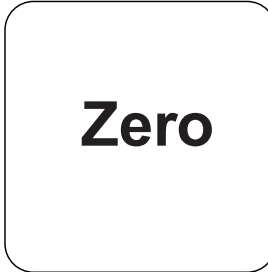
Fill up vial with **deionised water** to the **10 mL mark**.



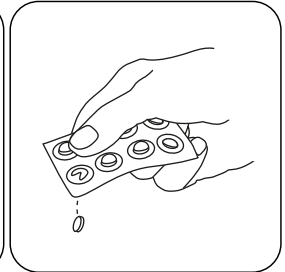
Close vial(s).



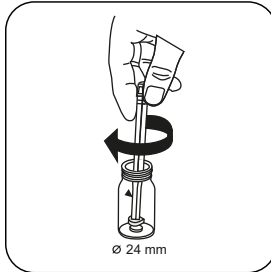
Place **sample vial** in the sample chamber. Pay attention to the positioning.



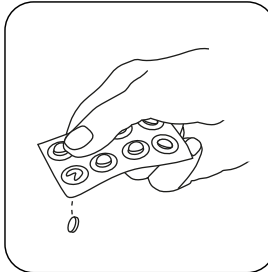
Press the **ZERO** button.



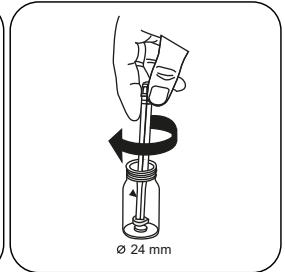
Add **CHLORIDE T1 tablet**.



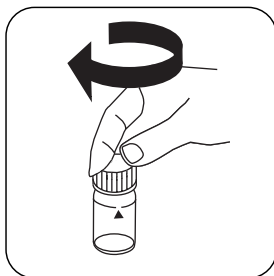
Crush tablet(s) by rotating slightly and dissolve.



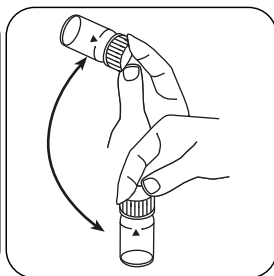
Add **CHLORIDE T2 tablet**.



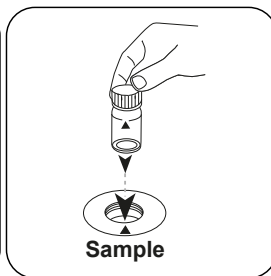
Crush tablet(s) by rotating slightly.



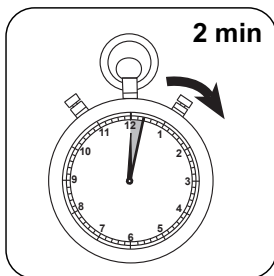
Close vial(s).



Dissolve tablet(s) by inverting.

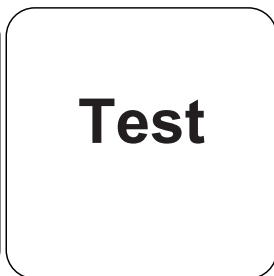


Place **sample vial** in the sample chamber. Pay attention to the positioning.



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

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




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

## Chemical Method

Silver Nitrate / Turbidity

<sup>9</sup> high range by dilution | \* 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	$\lambda$	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

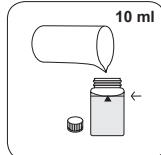
Revisionsstand

DE Methodenhandbuch 01/20

Durchführung der  
Messung**Durchführung der Bestimmung Säurekapazität  $K_{s4,3}$  mit Tablette**

Die Methode im Gerät auswählen.

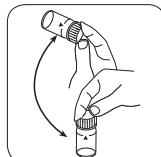
Für diese Methode muss bei folgenden Geräten keine ZERO-Messung durchgeführt werden: XD 7000, XD 7500

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

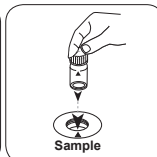
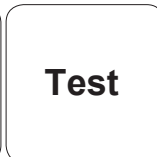
Küvette(n) verschließen.

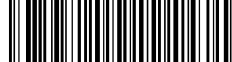
Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.

• • •



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  $K_{s4,3}$ .

**Chlorid T****M90****0,5 - 25 mg/L Cl<sup>-</sup>****CL-1****Silbernitrat / Trübung**

DE

**Material**

Benötigtes Material (zum Teil optional):

<b>Reagenzien</b>	<b>Form/Menge</b>	<b>Bestell-Nr.</b>
Chloride T1	Tablette / 100	515910BT
Chloride T1	Tablette / 250	515911BT
Chloride T2	Tablette / 100	515920BT
Chloride T2	Tablette / 250	515921BT
Set Chloride T1/T2 #	je 100	517741BT
Set Chloride T1/T2 #	je 250	517742BT

**Vorbereitung**

1. Stark alkalische Wässer sollten vor der Analyse ggf. mit Salpetersäure neutralisiert werden.

**Anmerkungen**

1. Höhere Konzentrationen von Elektrolyten und organischen Verbindungen haben unterschiedliche Effekte auf die Fällungsreaktion.

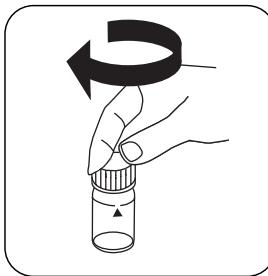


## Durchführung der Bestimmung Chlorid mit Tablette

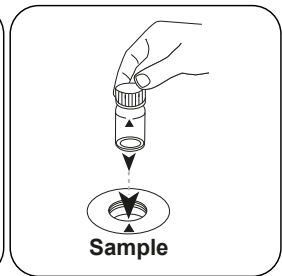
Die Methode im Gerät auswählen.



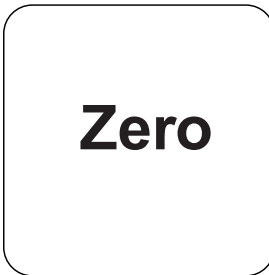
24-mm-Küvette mit **10 mL Probe** füllen.



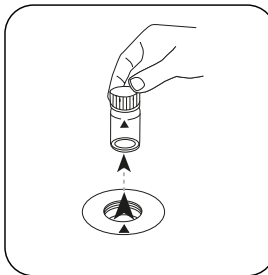
Küvette(n) verschließen.



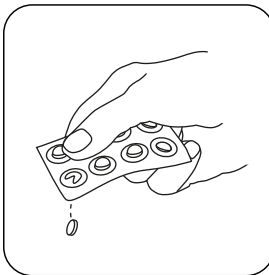
Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.



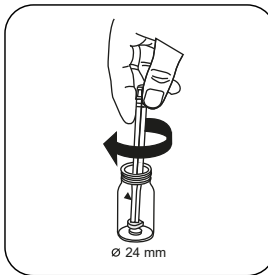
Taste **ZERO** drücken.



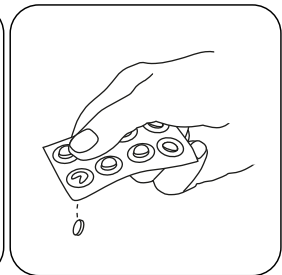
Küvette aus dem Messschacht nehmen.



Eine **CHLORIDE T1 Tablette** zugeben.



Die Tablette(n) unter leichter Drehung zerdrücken und lösen.

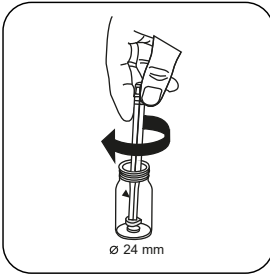


Eine **CHLORIDE T2 Tablette** zugeben.

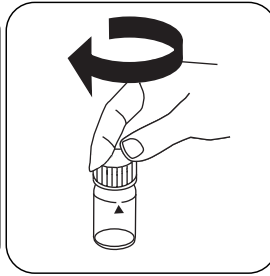




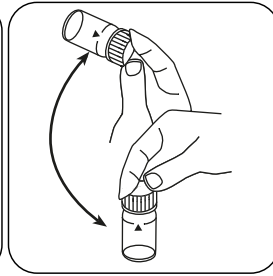
DE



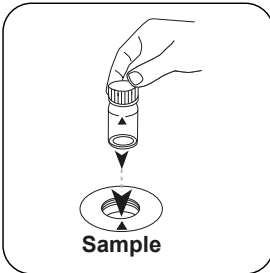
Tablette(n) unter leichter Drehung zerdrücken.



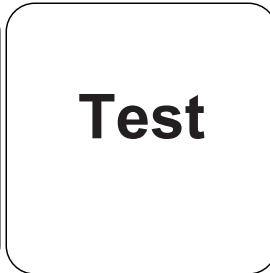
Küvette(n) verschließen.



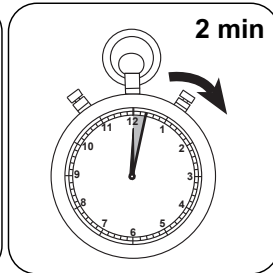
Tablette(n) durch Umschwenken lösen.



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



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



**2 Minute(n) Reaktionszeit** abwarten.

Nach Ablauf der Reaktionszeit erfolgt automatisch die Messung.

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

## Auswertung

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

Einheit	Zitierform	Umrechnungsfaktor
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

DE

## Chemische Methode

Silbernitrat / Trübung

## Appendix

## Störungen

### Permanente Störungen

1. Ionen, welche ebenfalls Niederschläge mit Silbernitrat in saurem Milieu bilden, wie z.B. Bromid, Iodid, Thiocyanat, stören.
2. Einzelne Partikel sind nicht auf das Vorhandensein von Chlorid zurückzuführen. Chlorid verursacht eine fein verteilte Trübung mit milchigem Aussehen. **Starke Turbulenzen durch kräftiges Rühren oder Schütteln verursachen größere Flocken, die zu Minderbefunden führen können.**
3. Cyanid, Jod und Brom werden ebenfalls als Chlorid bestimmt. Chromat und Dichromat stören und sollten reduziert oder entfernt werden.

### Abgeleitet von

DIN 38405

\* inklusive Rührstab

Chlorid T

M93

5 - 250 mg/L Cl<sup>-</sup> 1)

CL-2

Silbernitrat / Trübung

**Material**

DE

Benötigtes Material (zum Teil optional):

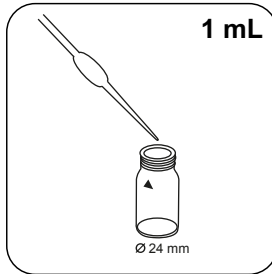
Reagenzien	Form/Menge	Bestell-Nr.
Chloride T1	Tablette / 100	515910BT
Chloride T1	Tablette / 250	515911BT
Chloride T2	Tablette / 100	515920BT
Chloride T2	Tablette / 250	515921BT
Set Chloride T1/T2 #	je 100	517741BT
Set Chloride T1/T2 #	je 250	517742BT
ValidCheck DW Anions Multistandard	1 St.	48399312

Es wird außerdem folgendes Zubehör benötigt.

Zubehör	Verpackungseinheit	Bestell-Nr.
Pipette, 1000 µl	1 St.	365045
Pipettenspitzen, 0,1-1 ml (blau), 1000 Stück	1 St.	419073

## Durchführung der Bestimmung Chlorid mit Tablette

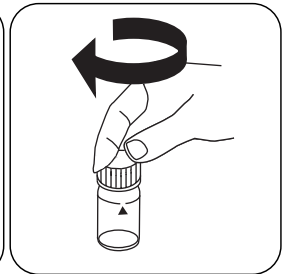
Die Methode im Gerät auswählen.



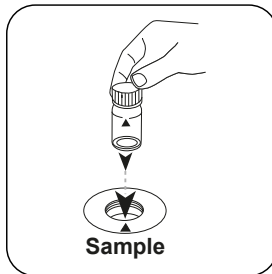
**1 mL Probe** in die Küvette geben.



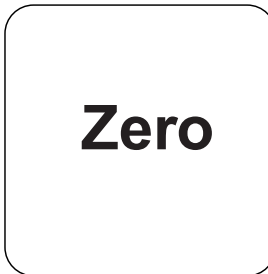
Küvette bis zur **10-mL-Marke** mit **VE-Wasser** auffüllen.



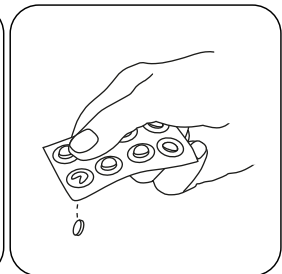
Küvette(n) verschließen.



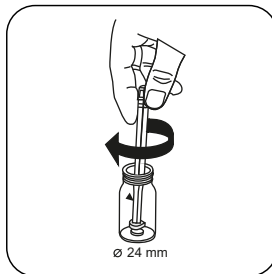
Die **Probeküvette** in den Messschacht stellen. Positionierung beachten.



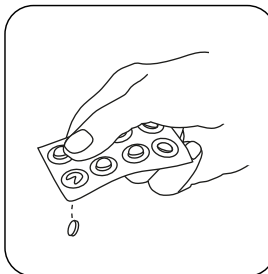
Taste **ZERO** drücken.



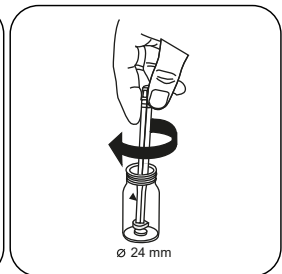
Eine **CHLORIDE T1** Tablette zugeben.



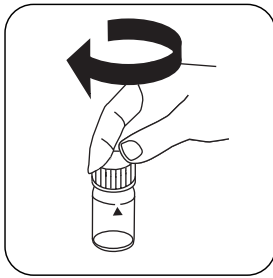
Die Tablette(n) unter leichter Drehung zerdrücken und lösen.



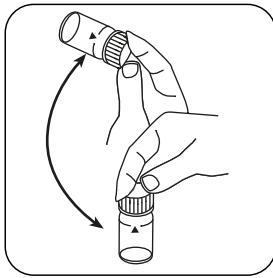
Eine **CHLORIDE T2** Tablette zugeben.



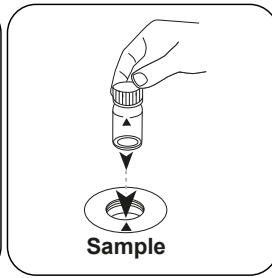
Tablette(n) unter leichter Drehung zerdrücken.



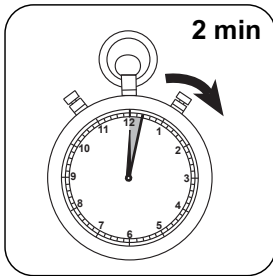
Küvette(n) verschließen.



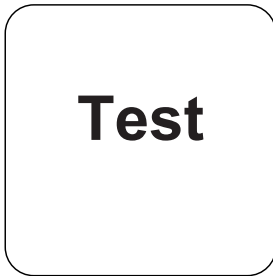
Tablette(n) durch Umschwenken lösen.



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



**2 Minute(n) Reaktionszeit** abwarten.



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

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


## Chemische Methode

Silbernitrat / Trübung

<sup>9</sup> Hoher Messbereich durch Verdünnung | <sup>\*</sup> inklusive Rührstab

DE

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  $K_{S4.3}$   
Ácido / Indicador

20  
S:4.3

**Método químico**

**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	$\lambda$	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.

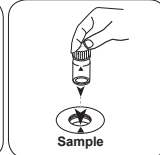
Para este método no es necesario realizar medición CERO en los aparatos siguientes: XD 7000, XD 7500



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!

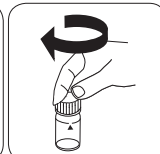
• • •



Añadir **tableta ALKA-M-PHOTOMETER**.

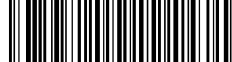


Triturar la(s) tableta(s) girando ligeramente.



Cerrar la(s) cubeta(s).



**Cloruro T****M90****0.5 - 25 mg/L Cl<sup>-</sup>****CL-1****Nitrato de plata / Turbidez****Material**

ES

Material requerido (parcialmente opcional):

<b>Reactivos</b>	<b>Unidad de embalaje</b>	<b>No. de referencia</b>
Cloruro T1	Tabletas / 100	515910BT
Cloruro T1	Tabletas / 250	515911BT
Cloruro T2	Tabletas / 100	515920BT
Cloruro T2	Tabletas / 250	515921BT
Juego cloruro T1/T2 #	100 cada	517741BT
Juego cloruro T1/T2 #	250 cada	517742BT

**Preparación**

1. Las muestras muy alcalinas deberán neutralizarse con ácido nítrico antes de la determinación.

**Notas**

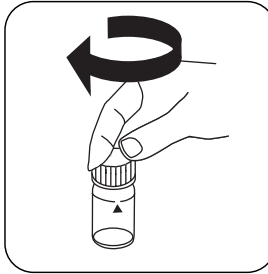
1. Las grandes concentraciones de electrolitos y sustancias orgánicas producen efectos diferentes en la reacción de precipitación.

## Ejecución de la determinación Cloruro con tableta

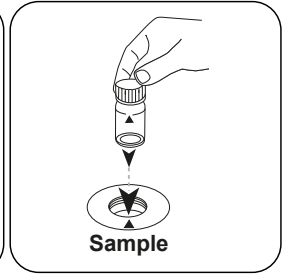
Seleccionar el método en el aparato.



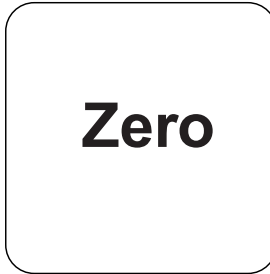
Llenar la cubeta de 24 mm con **10 mL de muestra** .



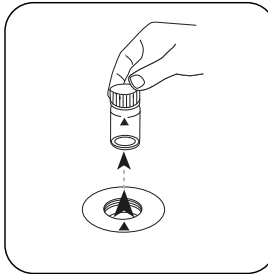
Cerrar la(s) cubeta(s).



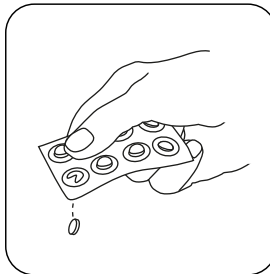
Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!



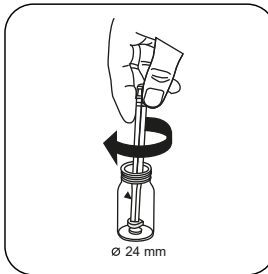
Pulsar la tecla **ZERO**.



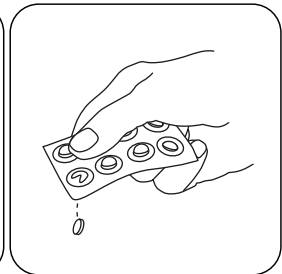
Extraer la cubeta del compartimiento de medición.



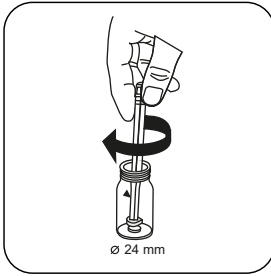
Añadir tableta **CHOLORIDE T1**.



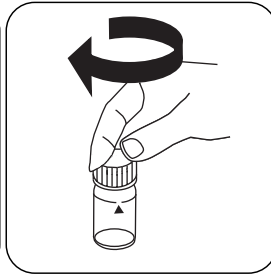
Triturar la(s) tableta(s) girando ligeramente y disolver.



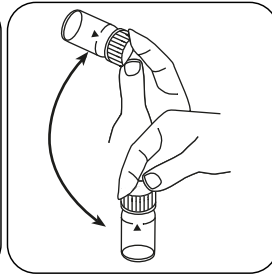
Añadir tableta **CHLORIDE T2**.



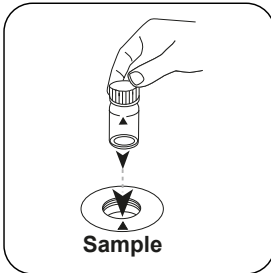
Triturar la(s) tableta(s) girando ligeramente.



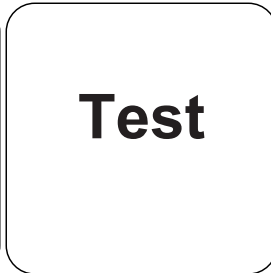
Cerrar la(s) cubeta(s).



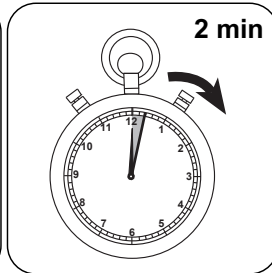
Disolver la(s) tableta(s) girando.



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



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



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

Finalizado el periodo de reacción se realizará la determinación automáticamente.

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

## Evaluación

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

Unidad	Conversión	Factor de conversión
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

ES

## Método químico

Nitrato de plata / Turbidez

## Apéndice

### Interferencia

#### Interferencias persistentes

1. Los iones que precipiten en un medio ácido con nitrato de plata como, por ejemplo, bromuros, yoduros y tiocianatos, provocarán alteraciones en el análisis.
2. Si hay partículas individuales en la muestra no se deberán a la presencia de cloruro. Los cloruros provocan un enturbiamiento fino de la solución, produciendo un aspecto lechoso. **Las grandes turbulencias producidas por agitación intensa o sacudidas provocan copos mayores, que podrían disminuir los resultados.**
3. El cianuro, el yodo y el bromo también se determinan como el cloruro. El cromato y el dicromato causan interferencias y se deben reducir al estado crómico o se deben retirar.

#### Derivado de

DIN 38405

**Cloruro T****M93****5 - 250 mg/L Cl<sup>-</sup> 1)****CL-2****Nitrato de plata / Turbidez****Material**

ES

Material requerido (parcialmente opcional):

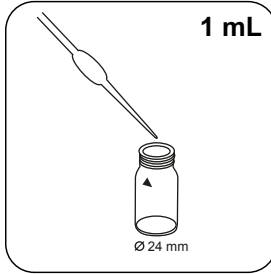
<b>Reactivos</b>	<b>Unidad de embalaje</b>	<b>No. de referencia</b>
Cloruro T1	Tabletas / 100	515910BT
Cloruro T1	Tabletas / 250	515911BT
Cloruro T2	Tabletas / 100	515920BT
Cloruro T2	Tabletas / 250	515921BT
Juego cloruro T1/T2 #	100 cada	517741BT
Juego cloruro T1/T2 #	250 cada	517742BT
ValidCheck DW Anions Multistandard	1 Cantidad	48399312

Se requieren los siguientes accesorios.

<b>Accesorios</b>	<b>Unidad de embalaje</b>	<b>No. de referencia</b>
Pipette, 1000 µl	1 Cantidad	365045
Puntas de pipetas, 0,1-1 ml (azules) 1.000 unidades	1 Cantidad	419073

## Ejecución de la determinación Cloruro con tableta

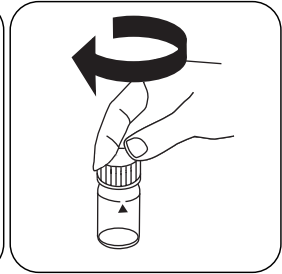
Seleccionar el método en el aparato.



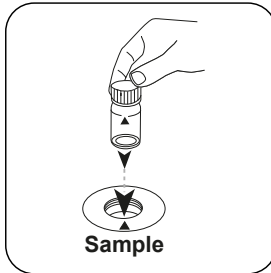
Añadir **1 mL de muestra** en la cubeta.



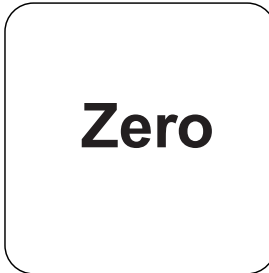
Llenar la cubeta con **agua desionizada** hasta la **marca de 10 mL**.



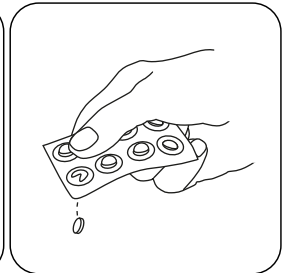
Cerrar la(s) cubeta(s).



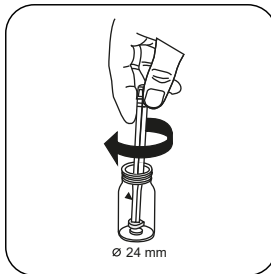
Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!



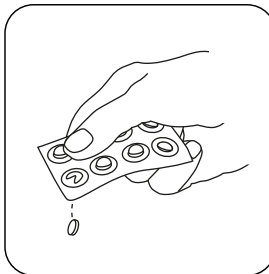
Pulsar la tecla **ZERO**.



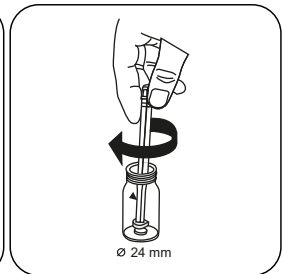
Añadir **tableta CHLORIDE T1**.



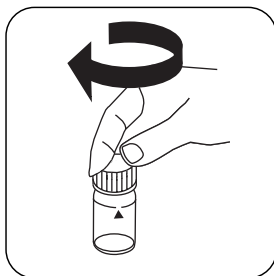
Triturar la(s) **tableta(s)** girando ligeramente y disolver.



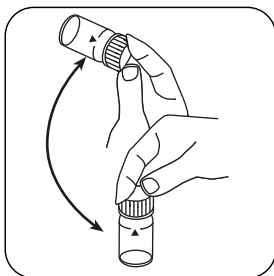
Añadir **tableta CHLORIDE T2**.



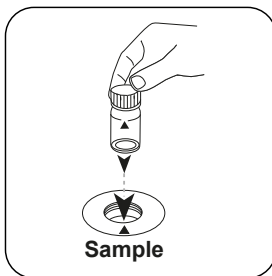
Triturar la(s) **tableta(s)** girando ligeramente.



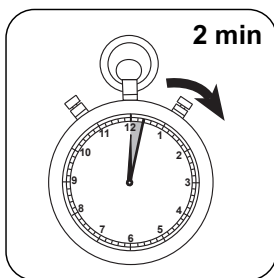
Cerrar la(s) cubeta(s).



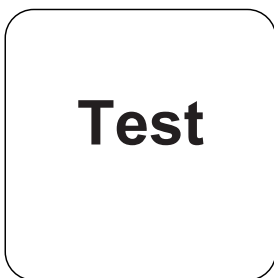
Disolver la(s) tableta(s) girando.



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



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



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

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

## Método químico


Nitrato de plata / Turbidez

<sup>9</sup> Campo de medición elevado con dilución

ES



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	$\lambda$	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.

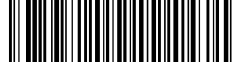
• • •

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

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



Fermez la(les) cuvette(s).

**Chlorure T****M90****0.5 - 25 mg/L Cl<sup>-</sup>****CL-1****Nitrate d'argent/turbidité**

FR

**Matériel**

Matériel requis (partiellement optionnel):

Réactifs	Pack contenant	Code
Chlorure T1	Pastilles / 100	515910BT
Chlorure T1	Pastilles / 250	515911BT
Chlorure T2	Pastilles / 100	515920BT
Chlorure T2	Pastilles / 250	515921BT
Kit chlorure T1/T2 *	100 chacun	517741BT
Kit chlorure T1/T2 *	250 chacun	517742BT

**Préparation**

1. Avant l'analyse, neutralisez éventuellement les eaux fortement alcalines en utilisant de l'acide nitrique.

**Indication**

1. Les concentrations supérieures d'électrolytes et de composés organiques ont différents effets sur le précipité.

## Réalisation de la quantification Chlorure avec pastille

Sélectionnez la méthode sur l'appareil.



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



Fermez la(les) cuvette(s).



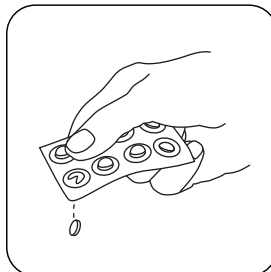
Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.



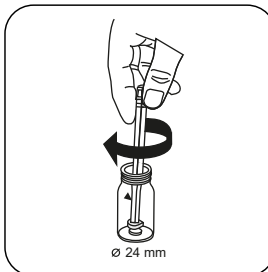
Appuyez sur la touche **ZERO**.



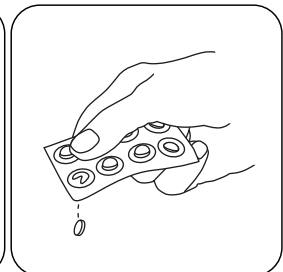
Retirez la cuvette de la chambre de mesure.



Ajoutez une **pastille de CHLORIDE T1**.



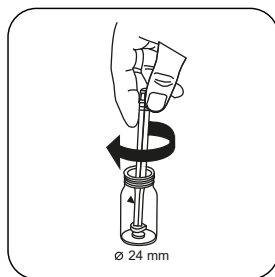
Écrasez et dissolvez la(les) pastille(s) en la(les) tournant un peu.



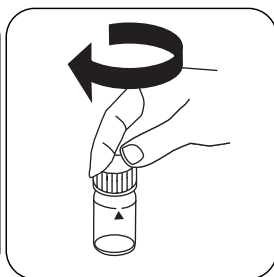
Ajoutez une **pastille de CHLORIDE T2**.



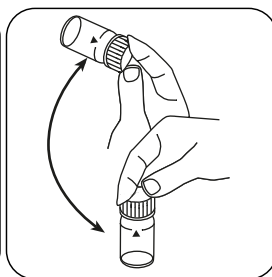
FR



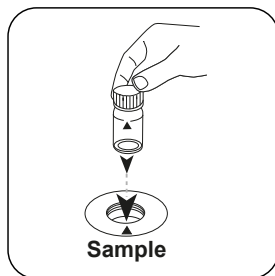
Écrasez la(les) pastille(s)  
en la(les) tournant un peu.



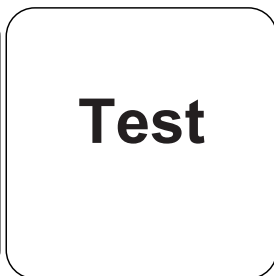
Fermez la(les) cuvette(s).



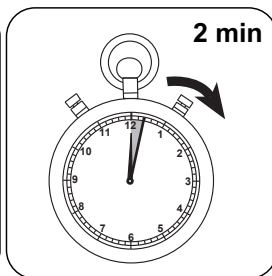
Dissolvez la(les) pastille(s)  
en mettant le tube plusieurs  
fois à l'envers.



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



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



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

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

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

## Analyses

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

Unité	Formes de citation	Facteur de conversion
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

FR

## Méthode chimique

Nitrate d'argent/turbidité

## Appendice

### Interférences

#### Interférences persistantes

1. Les ions qui réagissent également avec le nitrate d'argent dans un milieu acide pour former des précipités, comme par ex. le bromure, l'iode ou le thiocyanate perturbent également les résultats.
2. Certaines particules ne s'expliquent pas par la présence de chlorure. Le chlorure cause une fine turbidité répartie d'aspect laiteux. **Les fortes turbulences causées en mélangeant ou en agitant fortement entraînent la formation d'une floculation susceptible de diminuer les résultats.**
3. Les cyanures, l'iode et le brome sont également déterminés comme chlorures. Le chromate et le dichromate interfèrent et devraient être réduits à l'état chromatique ou supprimés.

#### Dérivé de

DIN 38405

†# agitateur inclus

**Chlorure T****M93****5 - 250 mg/L Cl<sup>-</sup> 1)****CL-2****Nitrate d'argent/turbidité**

FR

**Matériel**

Matériel requis (partiellement optionnel):

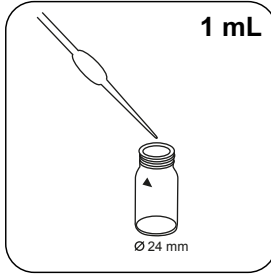
<b>Réactifs</b>	<b>Pack contenant</b>	<b>Code</b>
Chlorure T1	Pastilles / 100	515910BT
Chlorure T1	Pastilles / 250	515911BT
Chlorure T2	Pastilles / 100	515920BT
Chlorure T2	Pastilles / 250	515921BT
Kit chlorure T1/T2 *	100 chacun	517741BT
Kit chlorure T1/T2 *	250 chacun	517742BT
ValidCheck DW Anions Multistandard	1 Pièces	48399312

Les accessoires suivants sont requis.

<b>Accessoires</b>	<b>Pack contenant</b>	<b>Code</b>
Pipette, 1000 µl	1 Pièces	365045
Pointes de pipette, 0,1-1 ml (bleu) 1000 pièces	1 Pièces	419073

## Réalisation de la quantification Chlorure avec pastille

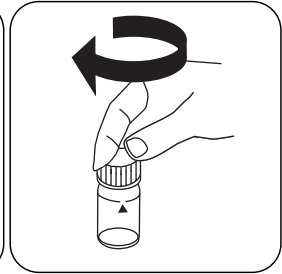
Sélectionnez la méthode sur l'appareil.



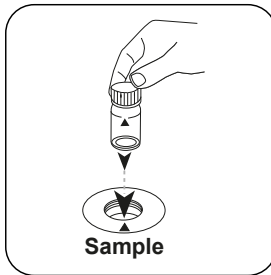
Versez **1 mL d'échantillon** dans la cuvette.



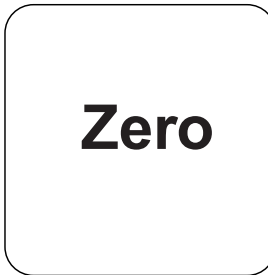
Remplissez la cuvette jusqu'au **repère de 10 mL** en y versant l'eau **déminéralisée**.



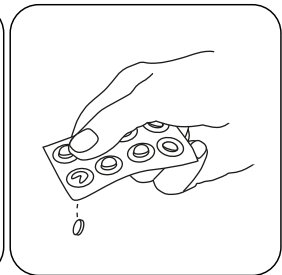
Fermez la(les) cuvette(s).



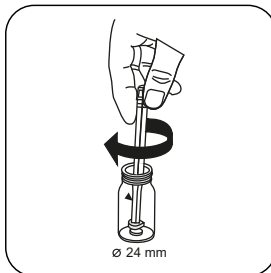
Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.



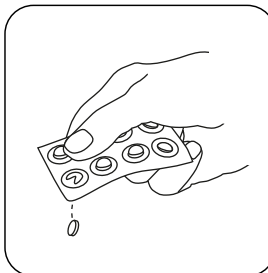
Appuyez sur la touche **ZERO**.



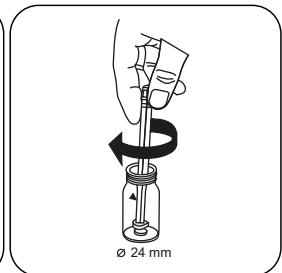
Ajoutez une **pastille de CHLORIDE T1**.



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



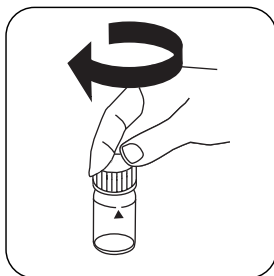
Ajoutez une **pastille de CHLORIDE T2**.



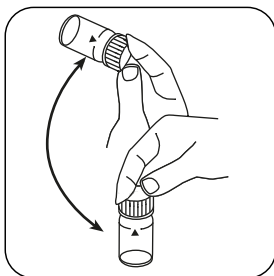
Écrasez la(les) pastille(s) en la(les) tournant un peu.



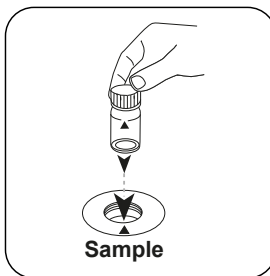
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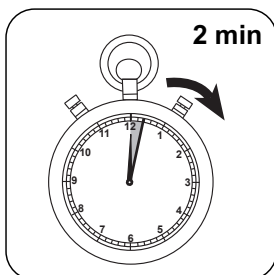
Fermez la(les) cuvette(s).



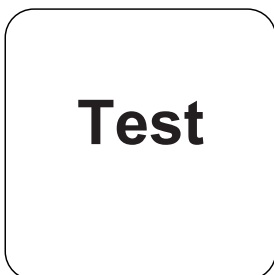
Dissolvez la(les) pastille(s) en mettant le tube plusieurs fois à l'envers.



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



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



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

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

## Méthode chimique

Nitrate d'argent/turbidité

<sup>9</sup> Gamme haute par dilution | <sup>10</sup> 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	$\lambda$	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.

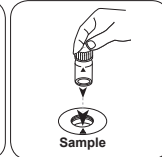
Con i seguenti dispositivi, per questo metodo non è necessario eseguire una misurazione ZERO: XD 7000, XD 7500



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

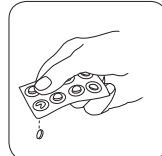


Chiudere la/e cuvetta/e.

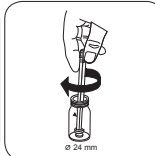


Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.

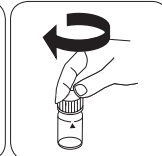
• • •



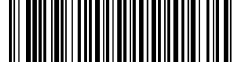
Aggiungere una **pastiglia ALKA-M-PHOTOMETER**.



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



Chiudere la/e cuvetta/e.

**Cloruro T****M90****0.5 - 25 mg/L Cl<sup>-</sup>****CL-1****Nitrato d'argento / torbidità**

IT

**Materiale**

Materiale richiesto (in parte facoltativo):

<b>Reagenti</b>	<b>Unità di imballaggio</b>	<b>N. ordine</b>
Cloruro T1	Pastiglia / 100	515910BT
Cloruro T1	Pastiglia / 250	515911BT
Cloruro T2	Pastiglia / 100	515920BT
Cloruro T2	Pastiglia / 250	515921BT
Set Cloruro T1/T2 *	ciascuna 100	517741BT
Set Cloruro T1/T2 *	ciascuna 250	517742BT

**Preparazione**

1. Le acque fortemente alcaline dovrebbero essere neutralizzate prima dell'analisi, eventualmente con acido nitrico.

**Note**

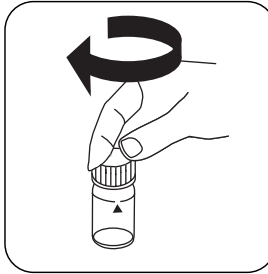
1. Concentrazioni particolarmente elevate di elettroliti e composti organici hanno effetti diversi sulla reazione di precipitazione.

## Esecuzione della rilevazione Cloruro con pastiglia

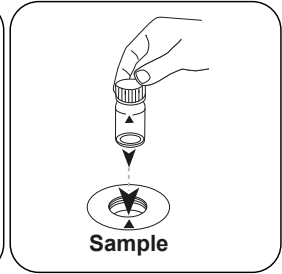
Selezionare il metodo nel dispositivo.



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



Chiudere la/e cuvetta/e.



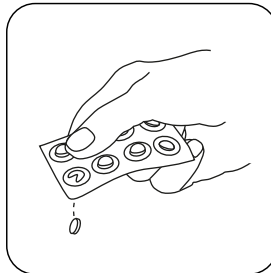
Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.



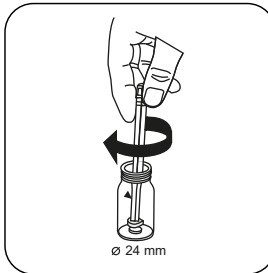
Premere il tasto **ZERO**.



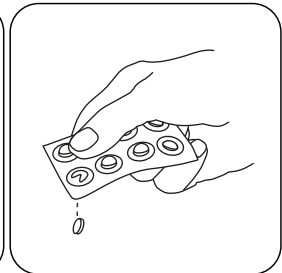
Prelevare la cuvetta dal vano di misurazione.



Aggiungere **una pastiglia CHLORIDE T1**.



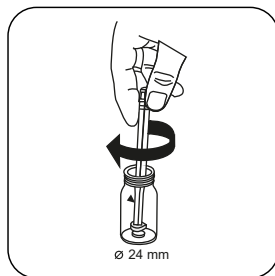
Frantumare e far sciogliere la/e pastiglia/e con una leggera rotazione.



Aggiungere **una pastiglia CHLORIDE T2**.



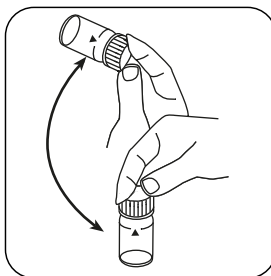
IT



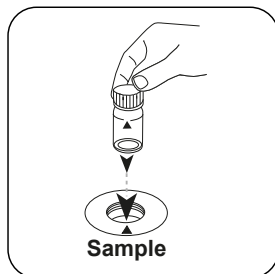
Frantumare la/e pastiglia/e con una leggera rotazione.



Chiudere la/e cuvetta/e.



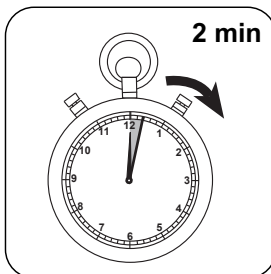
Far sciogliere la/e pastiglia/e agitando.



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



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



Attendere un **tempo di reazione di 2 minuti**.

Allo scadere del tempo di reazione viene effettuata automaticamente la misurazione. Sul display compare il risultato in mg/L di Cloruro.

## Valutazione

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

Unità di misura	Forma di citazione	Fattore di conversione
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

IT

## Metodo chimico

Nitrato d'argento / torbidità

## Appendice

### Interferenze

#### Interferenze permanenti

1. Gli ioni che in ambiente acido formano precipitati con il nitrato d'argento, ad es. bromuro, ioduro e tiocianato, provocano interferenze.
2. Singole particelle non sono imputabili alla presenza di cloruro. Il cloruro provoca un intorbidimento distribuito finemente dall'aspetto lattiginoso. **Miscelando o agitando eccessivamente si producono forti turbolenze che provocano la formazione di fiocchi di grandi dimensioni, la cui conseguenza potrebbero essere risultati troppo bassi.**
3. Il cianuro, lo iodio e il bromo vengono determinati anch'essi come cloruro. Il cromato e il bicromato interferiscono e devono essere ridotti allo stato cromico o rimossi.

#### Derivato di

DIN 38405

<sup>ii</sup>\*Bacchetta compresa



**Cloruro T****M93****5 - 250 mg/L Cl<sup>-</sup> 1)****CL-2****Nitrato d'argento / torbidità**

IT

**Materiale**

Materiale richiesto (in parte facoltativo):

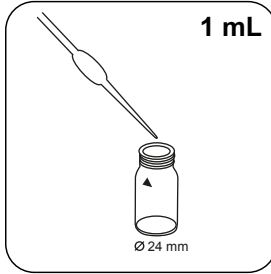
<b>Reagenti</b>	<b>Unità di imballaggio</b>	<b>N. ordine</b>
Cloruro T1	Pastiglia / 100	515910BT
Cloruro T1	Pastiglia / 250	515911BT
Cloruro T2	Pastiglia / 100	515920BT
Cloruro T2	Pastiglia / 250	515921BT
Set Cloruro T1/T2 #	ciascuna 100	517741BT
Set Cloruro T1/T2 #	ciascuna 250	517742BT
ValidCheck DW Anions Multistandard	1 pz.	48399312

Sono necessari inoltre i seguenti accessori.

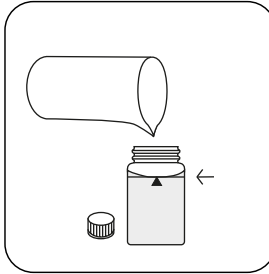
<b>Accessori</b>	<b>Unità di imballaggio</b>	<b>N. ordine</b>
Pipette, 1000 µl	1 pz.	365045
Puntali per pipette, 0,1-1 ml (blu), 1000 pezzi	1 pz.	419073

## Esecuzione della rilevazione Cloruro con pastiglia

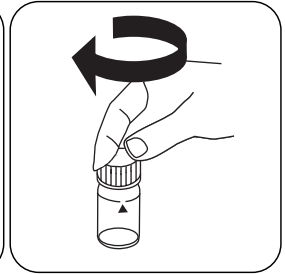
Selezionare il metodo nel dispositivo.



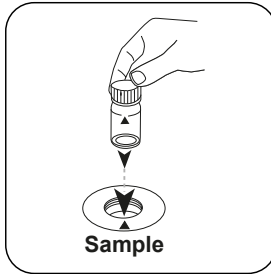
Immettere **1 mL di campione** nella cuvetta.



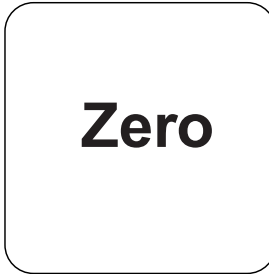
Immettere **acqua demineralizzata** nella cuvetta fino a raggiungere la **tacca dei 10 mL**.



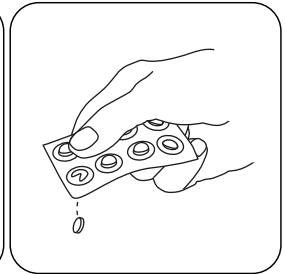
Chiudere la/e cuvetta/e.



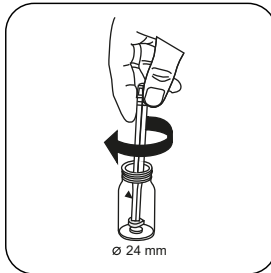
Posizionare la **cuvetta del campione** nel vano di misurazione. Fare attenzione al posizionamento.



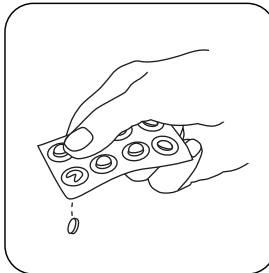
Premere il tasto **ZERO**.



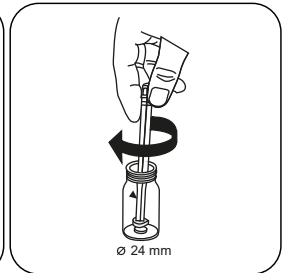
Aggiungere **una pastiglia CHLORIDE T1**.



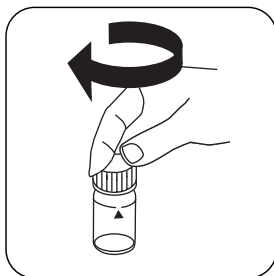
Frantumare e far sciogliere la/e pastiglia/e con una leggera rotazione.



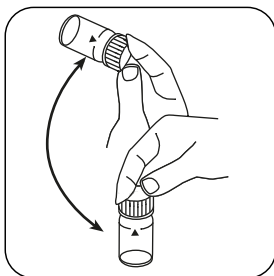
Aggiungere **una pastiglia CHLORIDE T2**.



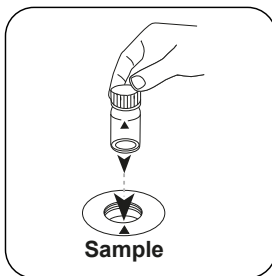
Frantumare la/e pastiglia/e con una leggera rotazione.



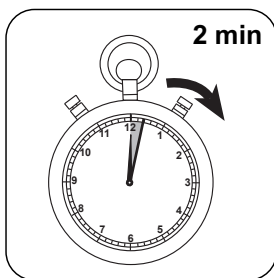
Chiudere la/e cuvetta/e.



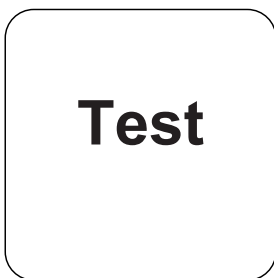
Far sciogliere la/e pastiglia/e agitando.



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



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



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


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

## Metodo chimico

Nitrato d'argento / torbidità

<sup>3</sup> Elevato intervallo di misurazione grazie alla diluizione | <sup>4</sup> Bacchetta compressa

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	$\lambda$	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**

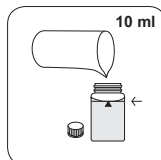
PT Métodos Manual 01/20

Efetuar a medição

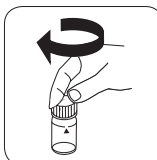
### Realização da determinação Capacidade de acidez $K_{s4.3}$ com pastilha

Escolher o método no equipamento.

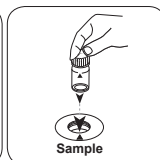
Para este método não tem de ser efetuada uma medição ZERO nos seguintes equipamentos: XD 7000, XD 7500



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

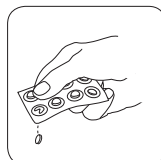


Fechar a(s) célula(s).

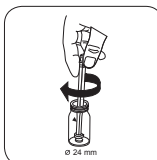


Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

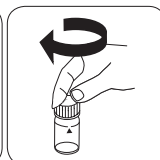
• • •



Pastilha ALKA-M-PHOTO-METER.



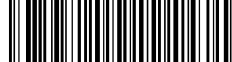
Esmagar a(s) pastilha(s) rodando ligeiramente.



Fechar a(s) célula(s).

PT Métodos Manual 01/20

PT



Cloreto T

M90

0.5 - 25 mg/L Cl<sup>-</sup>

CL-1

Silver Nitrate / Turbidity

PT

## Material

Material necessário (parcialmente opcional):

Reagentes	Unidade de Embalagem	Código do Produto
Cloretos T1	Pastilhas / 100	515910BT
Cloretos T1	Pastilhas / 250	515911BT
Cloretos T2	Pastilhas / 100	515920BT
Cloretos T2	Pastilhas / 250	515921BT
Conjunto Cloreto T1/T2 #	cada 100	517741BT
Conjunto Cloreto T1/T2 #	cada 250	517742BT

## Preparação

1. As águas fortemente alcalinas devem ser eventualmente neutralizadas com ácido nítrico antes da análise.

## Notas

1. As concentrações maiores de eletrólitos e os composto orgânicos têm efeitos diferentes sobre a reação de precipitação.

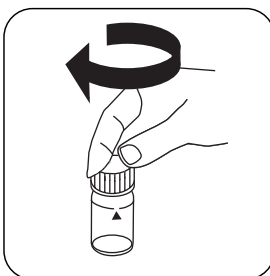


## Realização da determinação Cloreto com pastilha

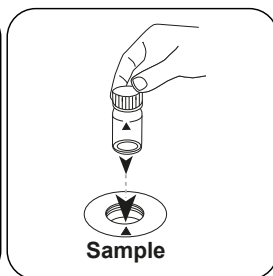
Escolher o método no equipamento.



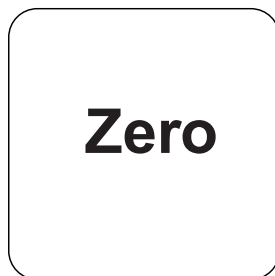
Encher a célula de 24 mm com **10 mL de amostra**.



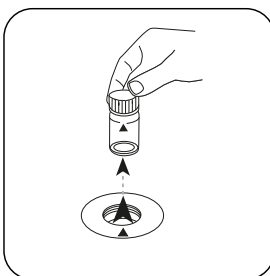
Fechar a(s) célula(s).



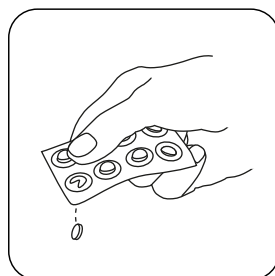
Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.



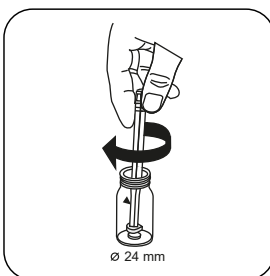
Premir a tecla **ZERO**.



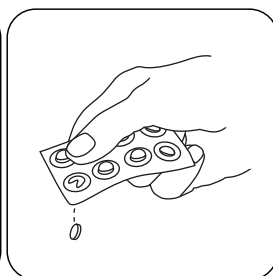
Retirar a célula do compartimento de medição.



**Pastilha CHOLORIDE T1.**

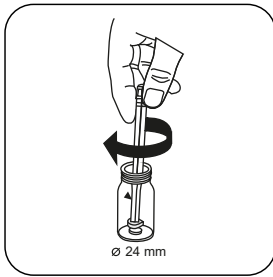


Esmagar a(s) pastilha(s) rodando ligeiramente e dissolver.

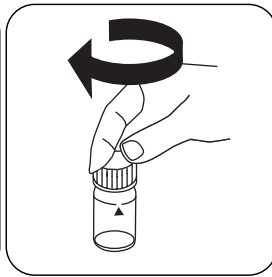


**Pastilha CHLORIDE T2.**

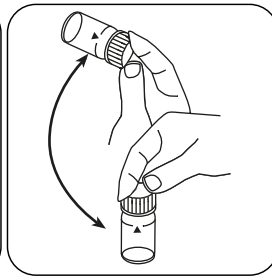




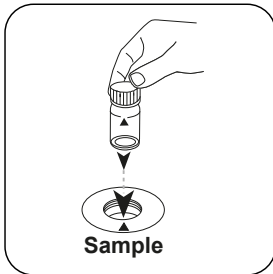
Esmagar a(s) pastilha(s) rodando ligeiramente.



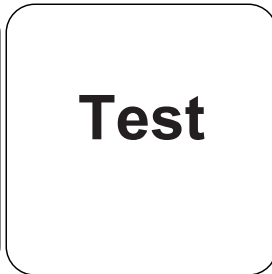
Fechar a(s) célula(s).



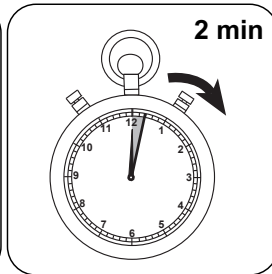
Dissolver a(s) pastilha(s) girando.



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



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



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

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

No visor aparece o resultado em mg/L Cloreto.

## Análises

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

Unidade	Forma de citação	Fator de conversão
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

PT

## Método Químico

Silver Nitrate / Turbidity

## Apêndice

### Texto de Interferências

#### Interferências Persistentes

1. Os iões que formam igualmente precipitações com nitrato de prata em meio ácido, como p. ex. brometo, iodeto, tiocianato, interferem.
2. A presença de algumas partículas não remete para a presença de cloreto. O cloreto causa uma turvação finamente distribuída com aspeto leitoso. **Fortes turbulências através de uma forte agitação ou vibração causam flocos maiores que podem levar a resultados demasiado baixos.**
3. Cianeto, iodo e bromo também são determinados como cloreto. O cromato e o dicromato interferem e devem ser reduzidos ao estado crómico ou removidos.

#### Derivado de

DIN 38405

\*incluindo vareta de agitação

**Cloreto T****M93****5 - 250 mg/L Cl<sup>-</sup> 1)****CL-2****Silver Nitrate / Turbidity**

PT

**Material**

Material necessário (parcialmente opcional):

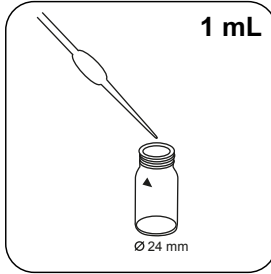
<b>Reagentes</b>	<b>Unidade de Embalagem</b>	<b>Código do Produto</b>
Cloretos T1	Pastilhas / 100	515910BT
Cloretos T1	Pastilhas / 250	515911BT
Cloretos T2	Pastilhas / 100	515920BT
Cloretos T2	Pastilhas / 250	515921BT
Conjunto Cloreto T1/T2 #	cada 100	517741BT
Conjunto Cloreto T1/T2 #	cada 250	517742BT
ValidCheck DW Anions Multistandard	1 pc.	48399312

São necessários os seguintes acessórios.

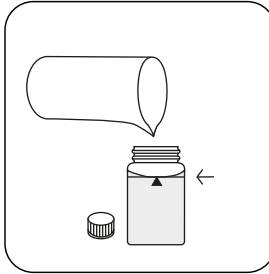
<b>Acessórios</b>	<b>Unidade de Embalagem</b>	<b>Código do Produto</b>
Pipette, 1000 µl	1 pc.	365045
Pontas de pipeta, 0,1-1 ml (azul), 1000 peças	1 pc.	419073

## Realização da determinação Cloreto com pastilha

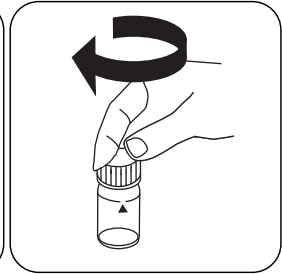
Escolher o método no equipamento.



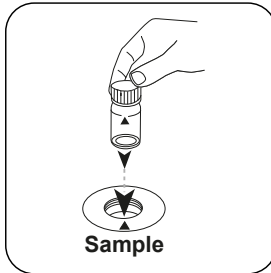
Adicionar **1 mL de amostra** à célula.



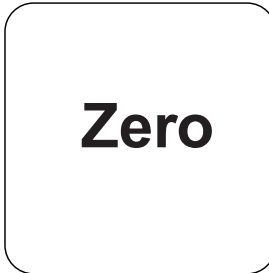
Encher a célula até à **marca de 10 mL** com **água desmineralizada**.



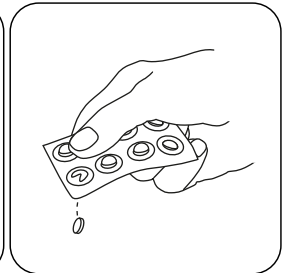
Fechar a(s) célula(s).



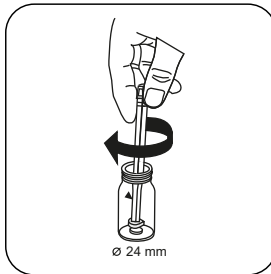
Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.



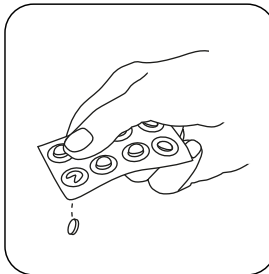
Premir a tecla **ZERO**.



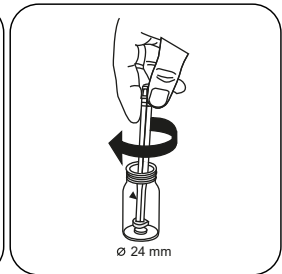
**Pastilha CHLORIDE T1.**



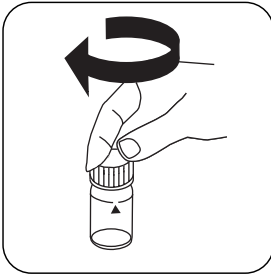
Esmagar a(s) pastilha(s) rodando ligeiramente e dissolver.



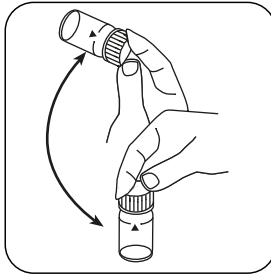
**Pastilha CHLORIDE T2.**



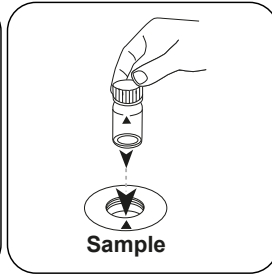
Esmagar a(s) pastilha(s) rodando ligeiramente.



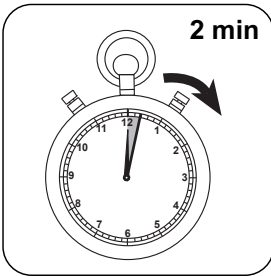
Fechar a(s) célula(s).



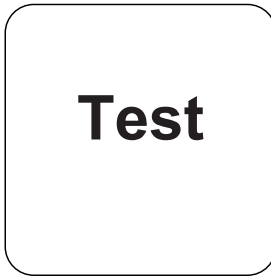
Dissolver a(s) pastilha(s) girando.



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



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



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

No visor aparece o resultado em mg/L Cloreto.

## Método Químico

Silver Nitrate / Turbidity

<sup>3</sup>Faixa de medição alta devido à diluição | <sup>4</sup>incluindo vareta de agitação

PT

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	$\lambda$	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<sub>S<sub>4.3</sub></sub> 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**

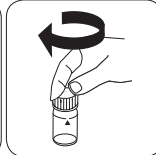
**Uitvoering van de bepaling Zuurcapaciteit  $K_{s4,3}$  met tablet**

De methode in het apparaat selecteren.

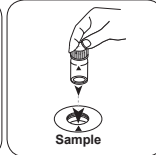
Voor deze methode moet bij de volgende apparaten geen nulmeting worden uitgevoerd:  
XD 7000, XD 7500



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

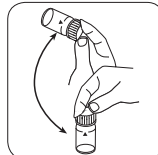


De spoelbakjes afsluiten.

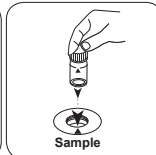


Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.

• • •



Tabletten oplossen door om te draaien



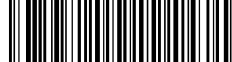
Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letten.



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

De display toont het resultaat als Zuurcapaciteit  $K_{s4,3}$ .





Chloride T

M90

0.5 - 25 mg/L Cl<sup>-</sup>

CL-1

Zilvernitraat / Troebelheid

NL

## Reagentia

Benodigd materiaal (deels optioneel):

Reagentia	Verpakkingseenheid	Bestelnr.
Chloride T1	Tablet / 100	515910BT
Chloride T1	Tablet / 250	515911BT
Chloride T2	Tablet / 100	515920BT
Chloride T2	Tablet / 250	515921BT
Set chloride T1/T2 #	per 100	517741BT
Set chloride T1/T2 #	per 250	517742BT

## Vorbereiding

1. Sterk alkalisch water moet vóór de analyse indien nodig met salpeterzuur worden geneutraliseerd.

## Aantekeningen

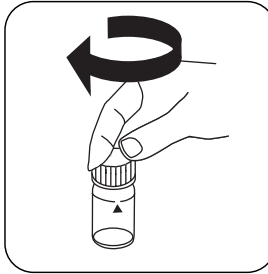
1. Hogere concentraties van elektrolyten en organische verbindingen hebben verschillende invloeden op de neerslagreactie.

## Uitvoering van de bepaling Chloride met tablet

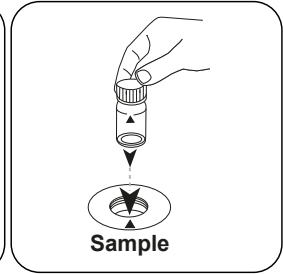
De methode in het apparaat selecteren.



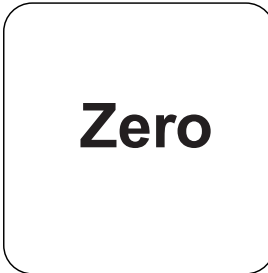
Spoelbakje van 24 mm met 10 mL staal vullen.



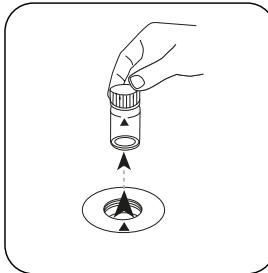
De spoelbakjes afsluiten.



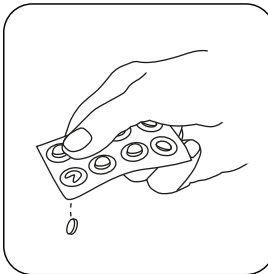
Het **staalspoelbakje** in de meetschacht plaatsen. Op de positionering letter.



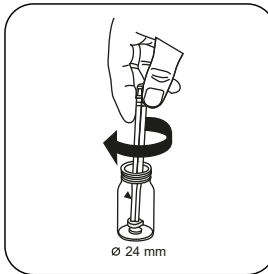
De toets **NUL** indrukken.



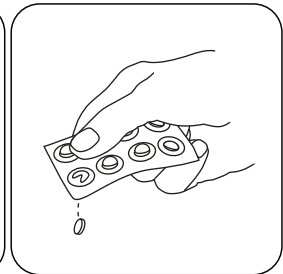
Het spoelbakje uit de meetschacht nemen.



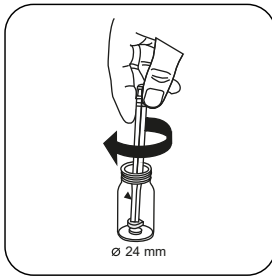
Een **CHLOOR T1 tablet** toevoegen.



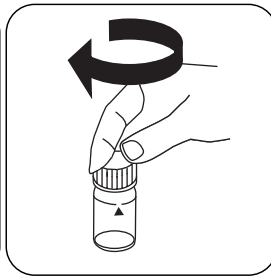
De tabletten onder lichte rotatie verpletteren en oplossen.



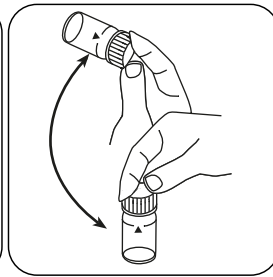
Een **CHLOOR T2 tablet** toevoegen.



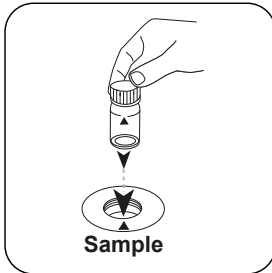
De tabletten onder lichte rotatie verpletteren.



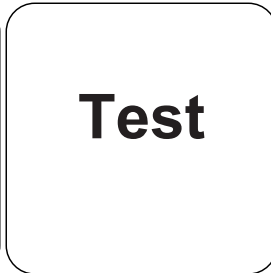
De spoelbakjes afsluiten.



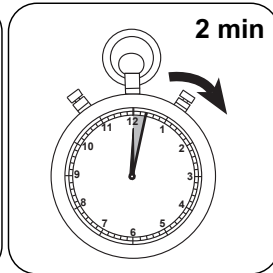
Tabletten oplossen door om te draaien



Het **staal spoelbakje** in de meetschacht plaatsen. Op de positionering letten.



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



De reactietijd van **2 minuten** afwachten.

Na afloop van de reactietijd wordt de meting automatisch uitgevoerd.

De display toont het resultaat in mg/L Chloride.

## Evaluatie

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

Eenheid	Dagvaardingsformulier	Omrekeningsfactor
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

NL

## Chemische methode

Zilvernitraat / Troebelheid

## Aanhangsel

## Verstoringen

### Permanente verstoringen

1. Ionen, die ook in een zure omgeving met zilvernitraat neerslaan, zoals bromide, jodide, thiocynaat, storen.
2. Individuele deeltjes zijn niet te wijten aan de aanwezigheid van chloride. Chloride veroorzaakt een fijn verdeelde troebelheid met een melkachtig uiterlijk. **Sterke turbulenties door krachtig roeren of schudden veroorzaken grotere vlokken, die tot mindere bevindingen kunnen leiden.**
3. Cyanide, jodium en broom worden ook als chlorine bepaald. Chromaat en dichromaat storen en moeten worden verminderd of verwijderd.

### Afgeleid van

DIN 38405

\* met inbegrip van de mengstaaf

Chloride T

M93

5 - 250 mg/L Cl<sup>-</sup> 1)

CL-2

Zilvernitraat / Troebelheid

NL

**Reagentia**

Benodigd materiaal (deels optioneel):

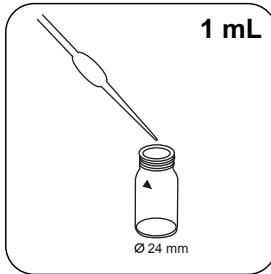
Reagentia	Verpakkingseenheid	Bestelnr.
Chloride T1	Tablet / 100	515910BT
Chloride T1	Tablet / 250	515911BT
Chloride T2	Tablet / 100	515920BT
Chloride T2	Tablet / 250	515921BT
Set chloride T1/T2 #	per 100	517741BT
Set chloride T1/T2 #	per 250	517742BT
ValidCheck DW Anions Multistandard	1 St.	48399312

De volgende toebehoren zijn eveneens vereist.

Toebehoren	Verpakkingseenheid	Bestelnr.
Pipette, 1000 µl	1 St.	365045
Pipettips, 0,1-1 ml (blauw), 1000 stuks	1 St.	419073

## Uitvoering van de bepaling Chloride met tablet

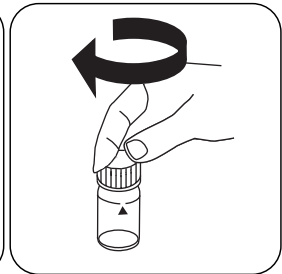
De methode in het apparaat selecteren.



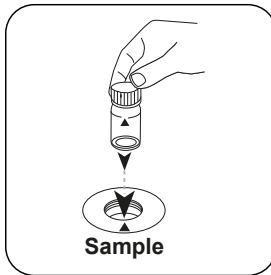
1 mL staal aan het spoelbakje toevoegen.



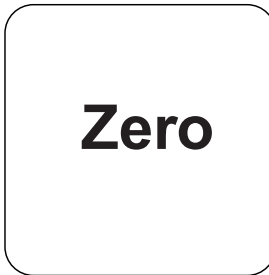
Het spoelbakje tot aan de **markering van 10 mL** met **gedeïoniseerd water** vullen.



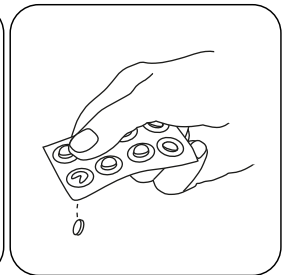
De spoelbakjes afsluiten.



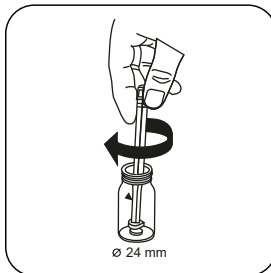
Het **staal**spoelbakje in de meetschacht plaatsen. Op de positionering letten.



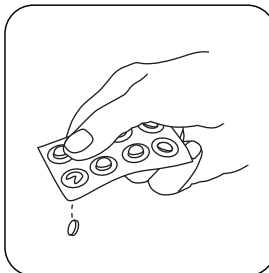
De toets **NUL** indrukken.



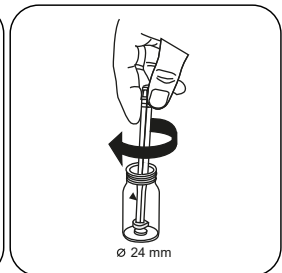
Een **CHLOOR T1** tablet toevoegen.



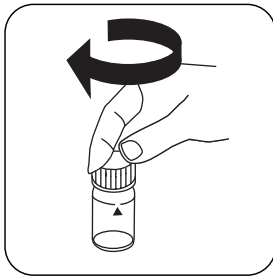
De tabletten onder lichte rotatie verpletteren en oplossen.



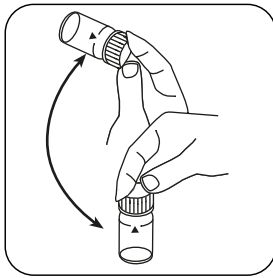
Een **CHLOOR T2** tablet toevoegen.



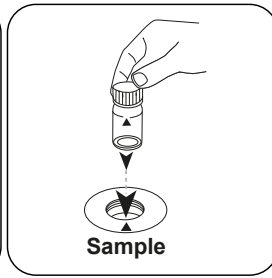
De tabletten onder lichte rotatie verpletteren.



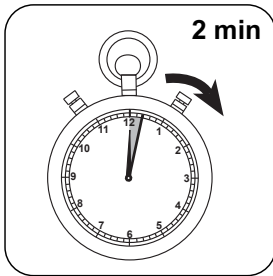
De spoelbakjes afsluiten.



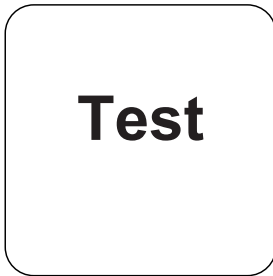
Tabletten oplossen door om te draaien



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



De reactietijd van **2 minuten** afwachten.



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

De display toont het resultaat in mg/L Chloride.

## Chemische methode

Zilvernitraat / Troebelheid

<sup>§</sup> hoog meetbereik als gevolg van verdunning | \* met inbegrip van de mengstaaf

NL



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	$\lambda$	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

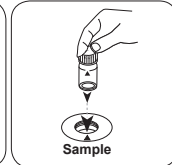
CN 方法手冊 01/20

开始测量

进行测定  $K_{s4.3}$  片剂酸容量

选择设备中的方法。

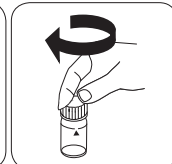
对于这种方法，在以下设备上不能进行 ZERO 测量：XD 7000, XD 7500

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



T 氯化物

M90

0.5 - 25 mg/L Cl<sup>-</sup>

CL-1

硝酸银/浊度

材料

所需材料 ( 部分可选 ) :

ZH

试剂	包装单位	货号
氯化物 T1	片剂 / 100	515910BT
氯化物 T1	片剂 / 250	515911BT
氯化物 T2	片剂 / 100	515920BT
氯化物 T2	片剂 / 250	515921BT
套件氯化物 T1/T2 #	各100次	517741BT
套件氯化物 T1/T2 #	各250次	517742BT

## 准备

1. 如有必要，强碱性水应在分析前用硝酸中和。

## 备注

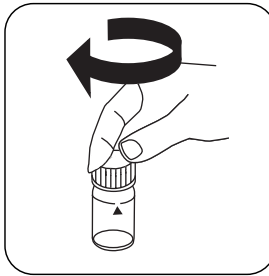
1. 较高浓度的电解质和有机化合物对沉淀反应有不同的影响。

## 进行测定 氯化物片剂

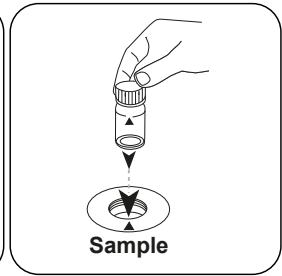
选择设备中的方法。



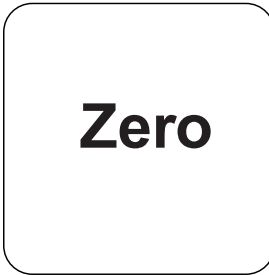
用 10 mL 样本填充 24 mm 比色杯。



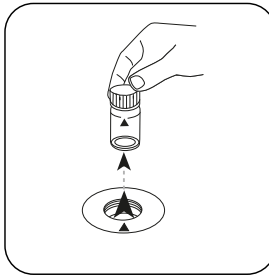
密封比色杯。



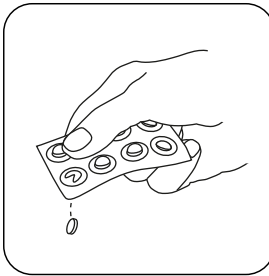
将样本比色杯放入测量轴中。注意定位。



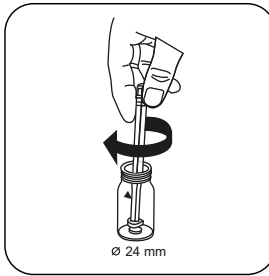
按下 ZERO 按钮。



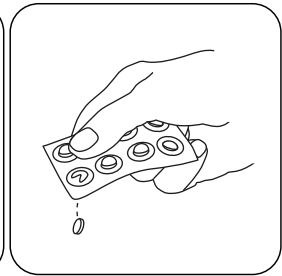
从测量轴上取下比色杯。



加入 CHLORIDE T1 片剂。

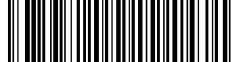


用轻微的扭转压碎片剂并溶解。

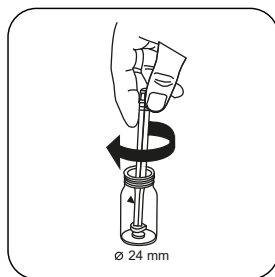


加入 CHLORIDE T2 片剂。

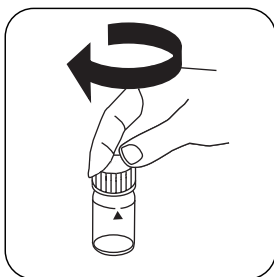
ZH



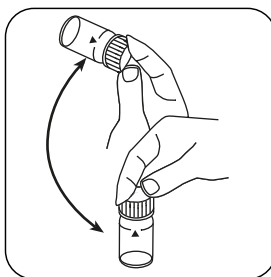
ZH



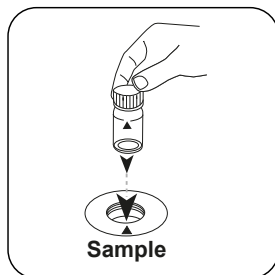
用轻微的扭转压碎片剂。



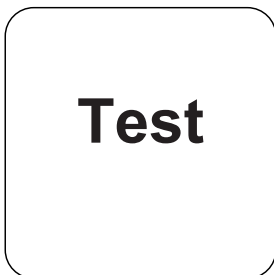
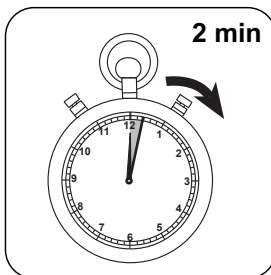
密封比色杯。



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。等待 **2 分钟** 反应时间。

反应时间结束后，自动进行测量。

结果在显示屏上显示为 mg/l 氯化物。

## 分析

下表中输出数据也可转换为其他格式表示.

单位	参考表格	因素
mg/l	Cl <sup>-</sup>	1
mg/l	NaCl	1.65

## 化学方法

硝酸银/浊度

## 附录

### 干扰说明

#### 持续干扰

1. 在酸性介质中也可以与硝酸银形成沉淀的离子如溴化物、碘化物、硫氰酸盐会产生干扰。
2. 单个颗粒不是由于氯化物的存在造成的。氯化物引起细微的分散浑浊和乳白色的外观。剧烈搅拌或晃动引起的强湍流导致较大的片状物，这可能导致较低的结果。
3. 氰化物、碘和溴也被确定为氯化物。铬酸盐和重铬酸盐有干扰作用，应还原为三价铬状态或去除。

#### 源于

DIN 38405

\*i含搅拌棒, 10cm

T 氯化物

M93

5 - 250 mg/L Cl<sup>-</sup> 1)

CL-2

硝酸银/浊度

材料

所需材料 ( 部分可選 ) :

ZH

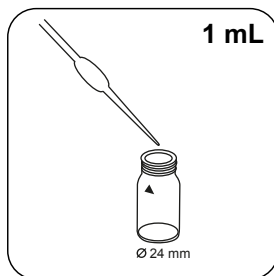
试剂	包装单位	货号
氯化物 T1	片剂 / 100	515910BT
氯化物 T1	片剂 / 250	515911BT
氯化物 T2	片剂 / 100	515920BT
氯化物 T2	片剂 / 250	515921BT
套件氯化物 T1/T2 #	各100次	517741BT
套件氯化物 T1/T2 #	各250次	517742BT
ValidCheck DW Anions Multistandard	1 片	48399312

它還需要以下配件。

附件	包装单位	货号
Pipette, 1000 µl	1 片	365045
移液器吸头, 0.1-1 ml ( 蓝色 ) , 1000 件	1 片	419073

## 进行测定 氯化物片剂

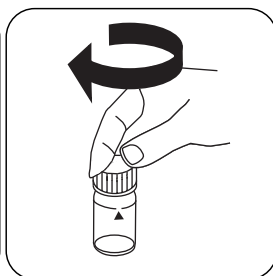
选择设备中的方法。



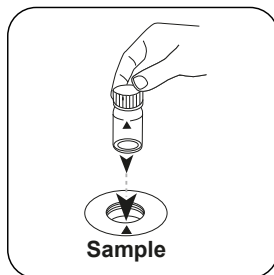
添加 1 mL 样本到比色杯中。



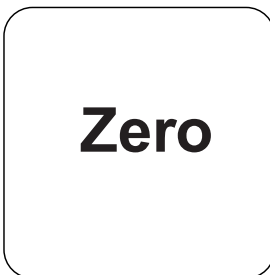
用去离子水将比色杯填充至 10 mL 刻度处。



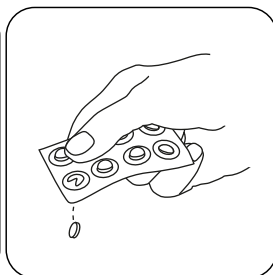
密封比色杯。



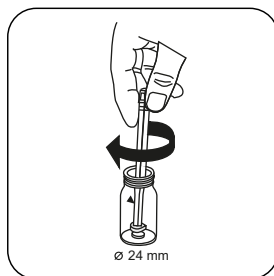
将样本比色杯放入测量轴中。注意定位。



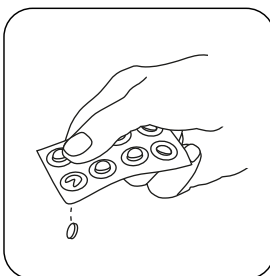
按下 ZERO 按钮。



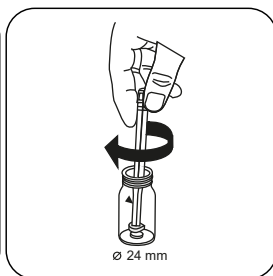
加入 CHLORIDE T1 片剂。



用轻微的扭转压碎片剂并溶解。



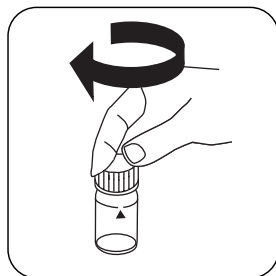
加入 CHLORIDE T2 片剂。



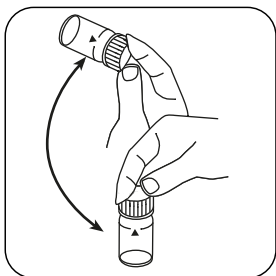
用轻微的扭转压碎片剂。



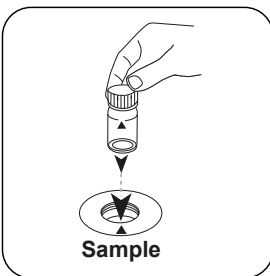
ZH



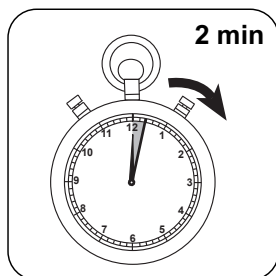
密封比色杯。



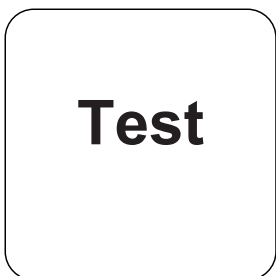
通过旋转溶解片剂。



将样本比色杯放入测量轴中。注意定位。



等待 2 分钟反应时间。



按下 **TEST (XD: START)** 按钮。

结果在显示屏上显示为 mg/l 氯化物。

## 化学方法

### 硝酸银/浊度

<sup>1</sup> 通过稀释进行高量程测定 | <sup>2</sup> 含搅拌棒, 10cm

ZH









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