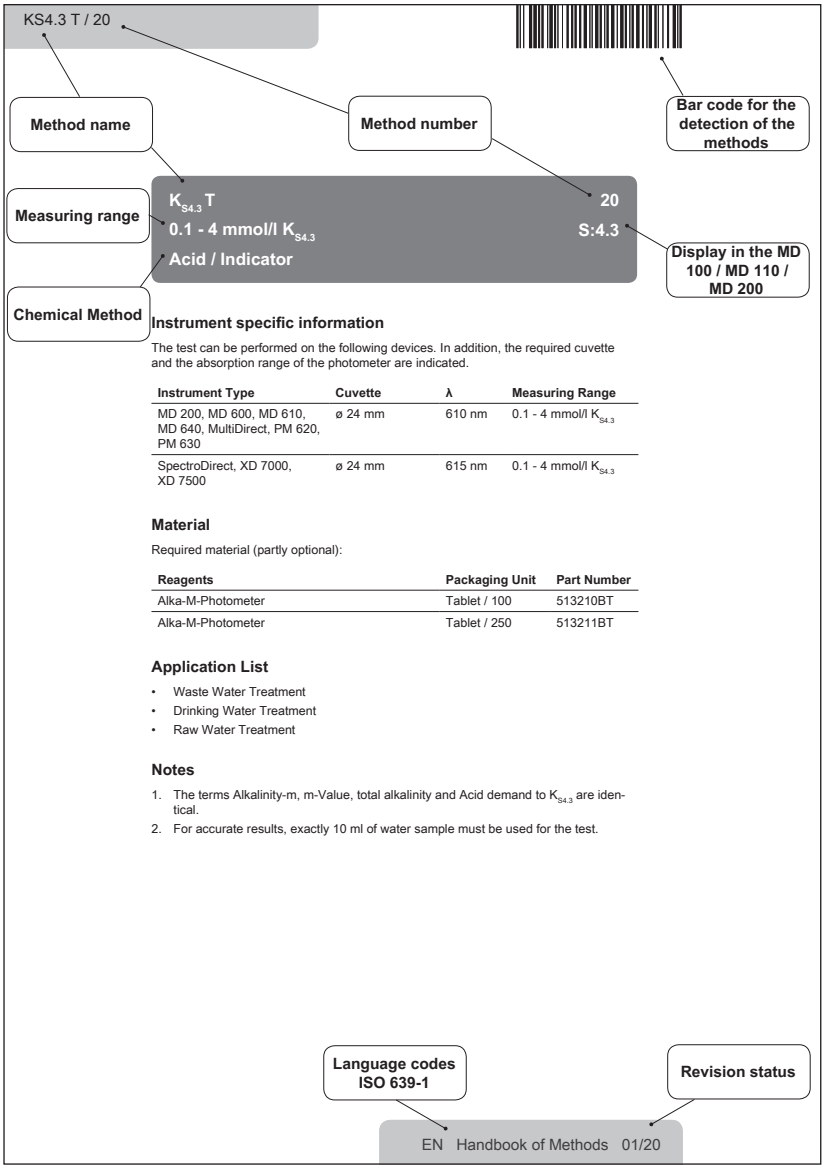
Lovibond® Water Testing

Tintometer® Group

Manual of Methods

MD50 • MD150

Chlorine Dioxide



Instrument specific information

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

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

Material

Required material (partly optional):

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

Application List

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

Notes

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

Performing test procedure

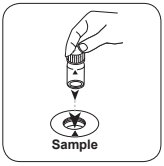
Implementation of the provision Acid capacity $K_{S4.3}$ with Tablet

Select the method on the device

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

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

Close vial(s).



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

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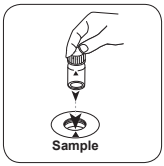
Dissolve tablet(s) by inverting.



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.

Chlorine dioxide PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

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Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Chlorine Free DPD F10	Powder / 100 pc.	530100
Chlorine Free DPD F10	Powder / 1000 pc.	530103
Glycine [f)]	Tablet / 100	512170BT
Glycine [f)]	Tablet / 250	512171BT
VARIO Glycine Reagent 10 %, 29 ml	29 mL	532210

Sampling

1. When preparing the sample, outgassing, e.g. through the pipette or shaking, must be avoided.
2. The analysis must take place immediately after taking the sample.

Preparation

1. Cleaning of vials:
   As many household cleaners (e.g. dishwasher detergent) contain reducing substances, this can lead to lower results with the determination of Chlorine dioxide. To avoid measurement errors, the glassware used should be free of chlorine consumption. To achieve this, all glassware should be placed in a sodium hypochlorite solution (0.1 g/L) for one hour and then rinsed thoroughly with deionised water.
2. Strong alkaline or acidic water samples must be adjusted between pH 6 and pH 7 before the analysis (use 0.5 mol/l Sulphuric acid or 1 mol/l Sodium hydroxide).

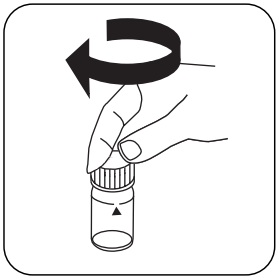
Determination of Chlorine Dioxide, in absence of chlorine with powder packs

Select the method on the device.

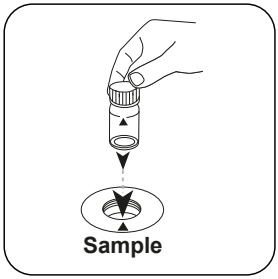
In addition, choose the test: without Chlorine

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

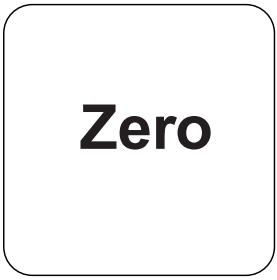
Fill 24 mm vial with **10 mL sample**.



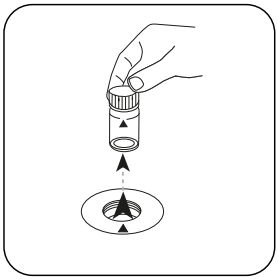
Close vial(s).



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

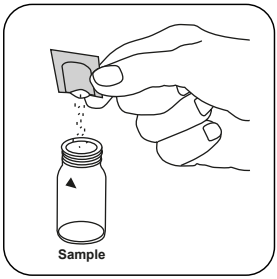


Press the **ZERO** button.

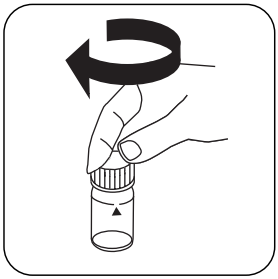


Remove the vial from the sample chamber.

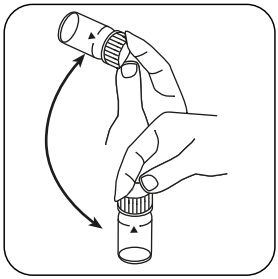
For devices that require **no ZERO measurement** , **start here**.



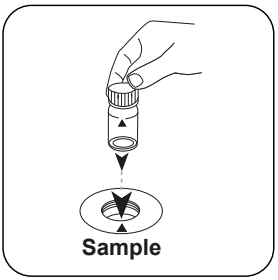
Add **Chlorine FREE-DPD / F10 powder pack**.

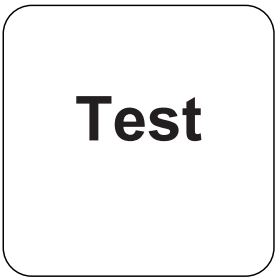


Close vial(s).



Invert several times to mix the contents (20 sec.).





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

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

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

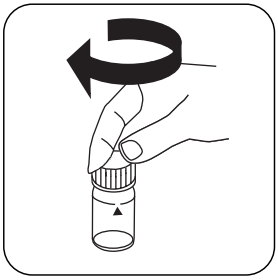
Determination of Chlorine Dioxide, in presence of chlorine with powder packs

Select the method on the device.

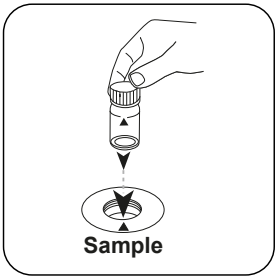
In addition, choose the test: in presence of Chlorine

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

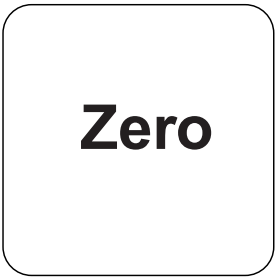
Fill 24 mm vial with **10 mL sample**.



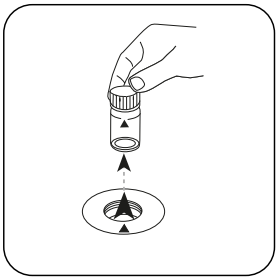
Close vial(s).



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

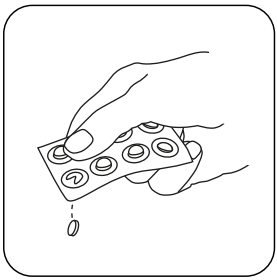


Press the **ZERO** button.

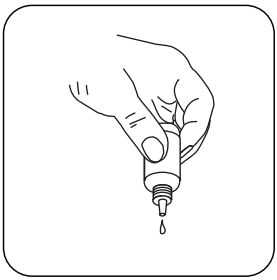


Remove the vial from the sample chamber.

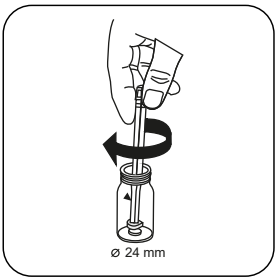
For devices that require **no ZERO measurement** , **start here**.



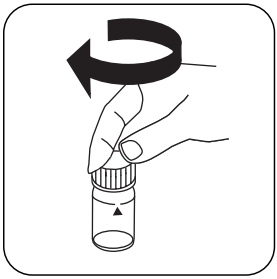
Add **GLYCINE tablet**.



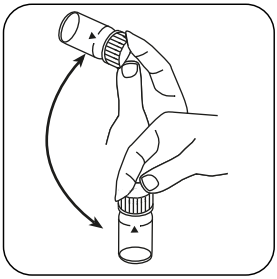
or add 4 drops GLYCINE Reagent.



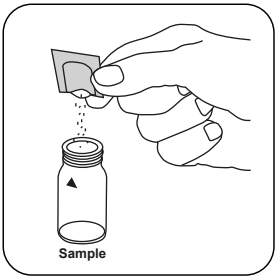
Crush tablet(s) by rotating slightly.



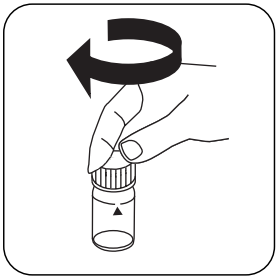
Close vial(s).



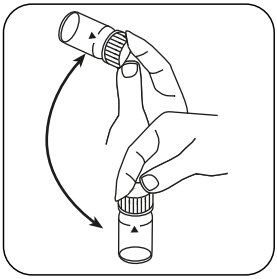
Dissolve tablet(s) by inverting.



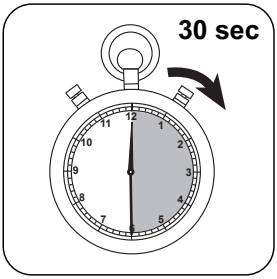
Add **Chlorine-Free-DPD/ F10 powder pack**.



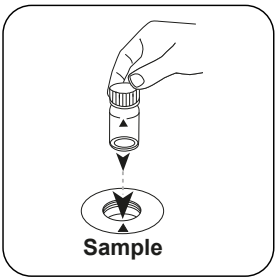
Close vial(s).

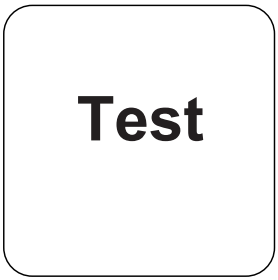


Invert several times to mix the contents (20 sec.).



Wait for **30 second(s) reaction time**.





EN

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

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

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

Chemical Method

DPD

Appendix

Interferences

Persistant Interferences

1. All oxidising agents in the samples lead to higher results.

Removeable Interferences

1. Concentrations above 3.8 mg/L chlorine dioxide can lead to results within the measuring range of up to 0 mg/L. In this case, the water sample must be diluted with water that is free from chlorine dioxide. 10 ml of the diluted sample should be mixed with the reagent and the measurement taken again (plausibility test).

Derived from

DIN 38408, Section 5

[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine

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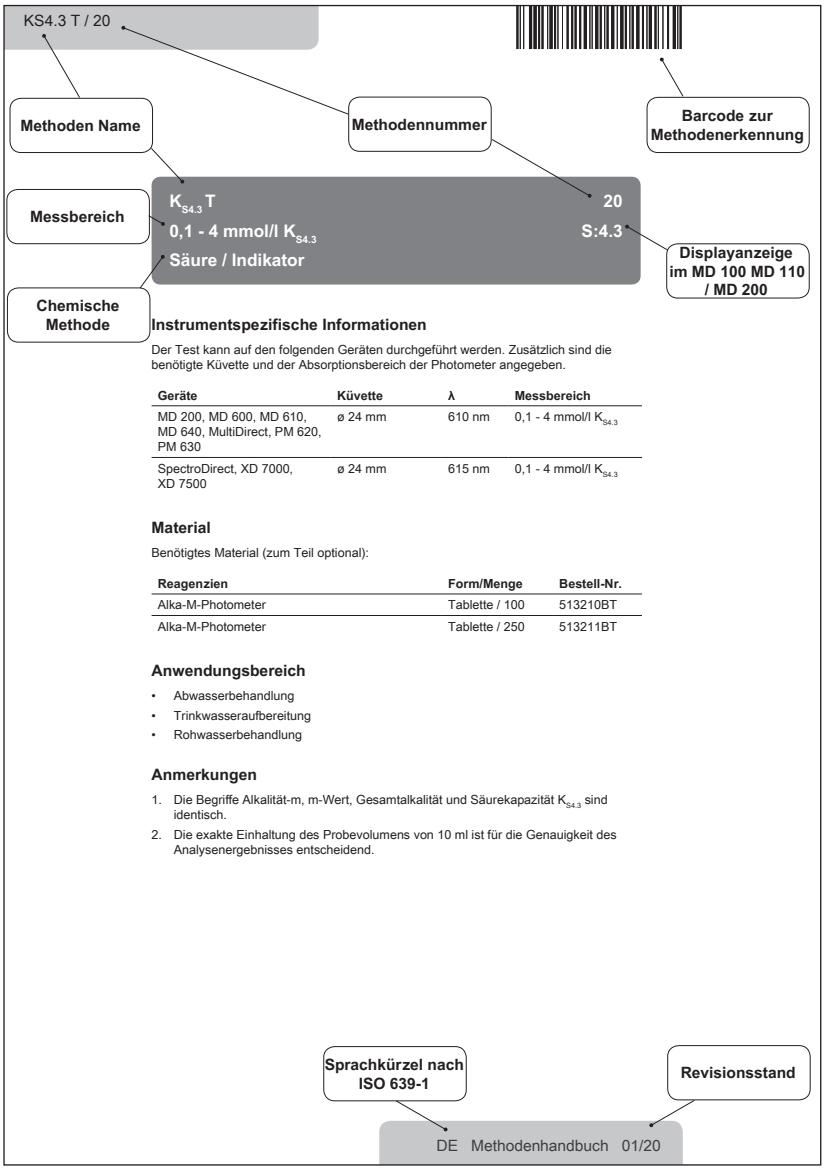

KS4.3 T / 20
Methoden Name
Methodennummer
Barcode zur Methodenerkennung
Messbereich
$K_{S4.3}$ T
20
0,1 - 4 mmol/l $K_{S4.3}$
S:4.3
Säure / Indikator
Displayanzeige im MD 100 MD 110 / MD 200
Chemische Methode
Instrumentspezifische Informationen
Der Test kann auf den folgenden Geräten durchgeführt werden. Zusätzlich sind die benötigte Küvette und der Absorptionsbereich der Photometer angegeben.
Geräte | Küvette | λ | Messbereich
MD 200, MD 600, MD 610, MD 640, MultiDirect, PM 620, PM 630 | ø 24 mm | 610 nm | 0,1 - 4 mmol/l $K_{S4.3}$
SpectroDirect, XD 7000, XD 7500 | ø 24 mm | 615 nm | 0,1 - 4 mmol/l $K_{S4.3}$
Material
Benötigtes Material (zum Teil optional):
Reagenzien | Form/Menge | Bestell-Nr.
Alka-M-Photometer | Tablette / 100 | 513210BT
Alka-M-Photometer | Tablette / 250 | 513211BT
Anwendungsbereich
• Abwasserbehandlung
• Trinkwasseraufbereitung
• Rohwasserbehandlung
Anmerkungen
1. Die Begriffe Alkalität-m, m-Wert, Gesamtalkalität und Säurekapazität $K_{S4.3}$ sind identisch.
2. Die exakte Einhaltung des Probevolumens von 10 ml ist für die Genauigkeit des Analysenergebnisses entscheidend.
Sprachkürzel nach ISO 639-1
Revisionsstand
DE Methodenhandbuch 01/20

Durchführung der Messung

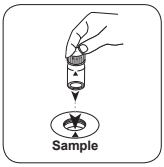
Durchführung der Bestimmung Säurekapazität $K_{S4.3}$ mit Tablette

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

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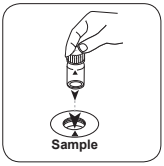
Tablette(n) durch Umschwenken lösen.



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

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

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

Chlordioxid PP M122

0,04 - 3,8 mg/L ClO_2 CLO2

DPD

DE

Material

Benötigtes Material (zum Teil optional):

Reagenzien	Form/Menge	Bestell-Nr.
Chlorine Free DPD F10	Pulver / 100 St.	530100
Chlorine Free DPD F10	Pulver / 1000 St.	530103
Glycine [f)]	Tablette / 100	512170BT
Glycine [f)]	Tablette / 250	512171BT
VARIO Glycin Reagenz 10%, 29 ml	29 mL	532210

Probenahme

1. Bei der Probenvorbereitung muss das Ausgasen, z.B. durch Pipettieren und Schütteln, vermieden werden.
2. Die Analyse muss unmittelbar nach der Probenahme erfolgen.

Vorbereitung

1. Reinigung der Küvetten:
   Da viele Haushaltsreiniger (z.B. Geschirrspülmittel) reduzierende Stoffe enthalten, kann es bei der Bestimmung von Chlordioxid zu Minderbefunden kommen. Um diesen Messfehler auszuschließen, sollten die Glasgeräte chlorzehrungsfrei sein. Dazu werden die Glasgeräte für eine Stunde unter Natriumhypochloritlösung (0,1 g/L) aufbewahrt und danach gründlich mit VE-Wasser (Vollentsalztes Wasser) gespült.
2. Stark alkalische oder saure Wässer müssen vor der Analyse in einen pH-Bereich zwischen 6 und 7 gebracht werden (mit 0,5 mol/l Schwefelsäure bzw. 1 mol/l Natronlauge).

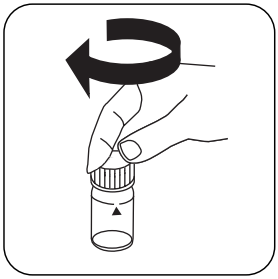
Durchführung der Bestimmung Chlordioxid, in Abwesenheit von Chlor, mit Pulverpäckchen

Die Methode im Gerät auswählen.

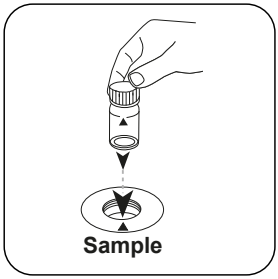
Wählen Sie zudem die Bestimmung: ohne Chlor

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

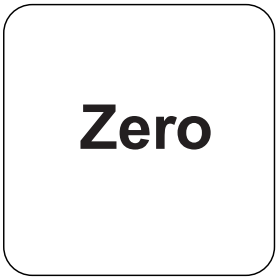
24-mm-Küvette mit **10 mL Probe** füllen.



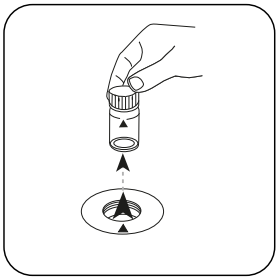
Küvette(n) verschließen.



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

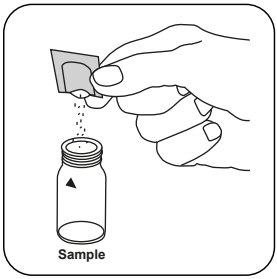


Taste **ZERO** drücken.

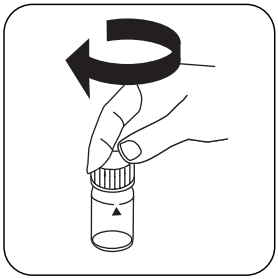


Küvette aus dem Messschacht nehmen.

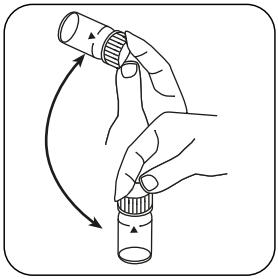
Bei Geräten, die **keine ZERO-Messung** erfordern, **hier beginnen**.



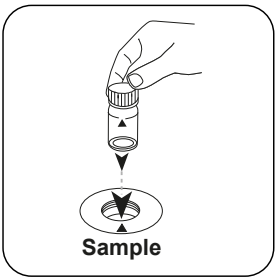
Ein **Chlorine FREE-DPD / F10 Pulverpäckchen** zugeben.



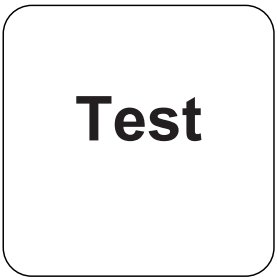
Küvette(n) verschließen.



Inhalt durch Umschwenken mischen (20 Sek.).



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



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

DE

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

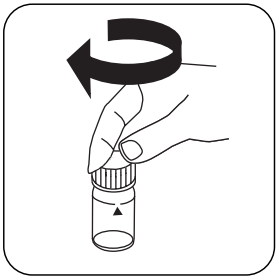
Durchführung der Bestimmung Chlordioxid, in Anwesenheit von Chlor, mit Pulverpäckchen

Die Methode im Gerät auswählen.

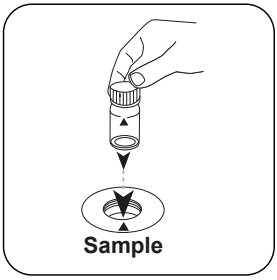
Wählen Sie zudem die Bestimmung: neben Chlor

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

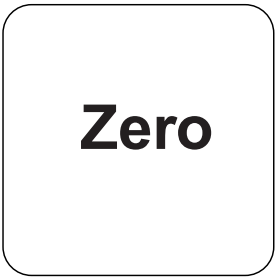
24-mm-Küvette mit **10 mL Probe** füllen.



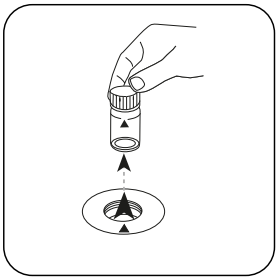
Küvette(n) verschließen.



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

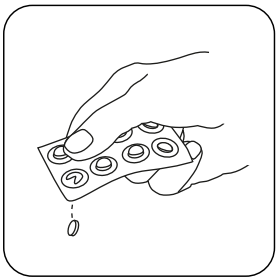


Taste **ZERO** drücken.

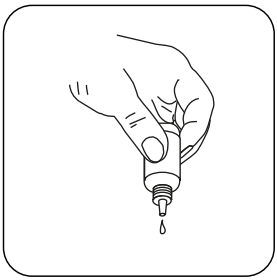


Küvette aus dem Messschacht nehmen.

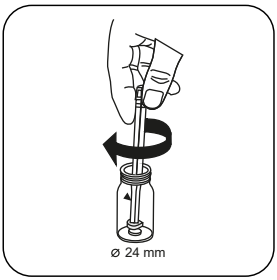
Bei Geräten, die **keine ZERO-Messung** erfordern, **hier beginnen**.



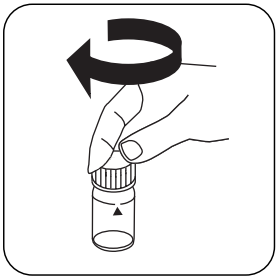
Eine **GLYCINE Tablette** zugeben.



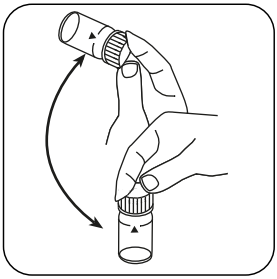
oder 4 Tropfen GLYCINE Reagenz zugeben.



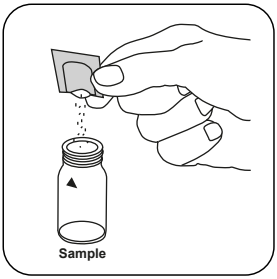
Tablette(n) unter leichter Drehung zerdrücken.



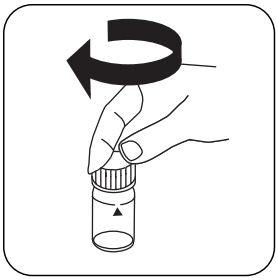
Küvette(n) verschließen.



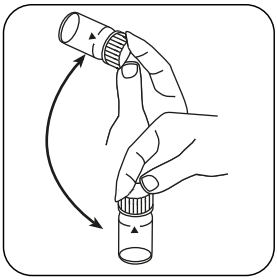
Tablette(n) durch Umschwenken lösen.



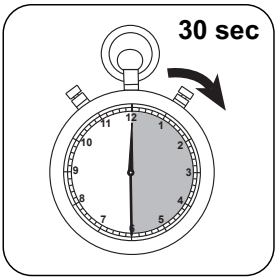
Ein **Chlorine-Free-DPD/ F10 Pulverpäckchen** zugeben.



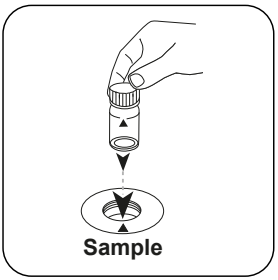
Küvette(n) verschließen.

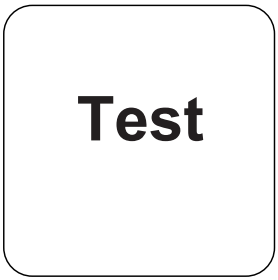


Inhalt durch Umschwenken mischen (20 Sek.).



30 Sekunden Reaktionszeit abwarten.





DE

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

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

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

Chemische Methode

DPD

Appendix

Störungen

Permanente Störungen

1. Alle in den Proben vorhandenen Oxidationsmittel führen zu Mehrbefunden.

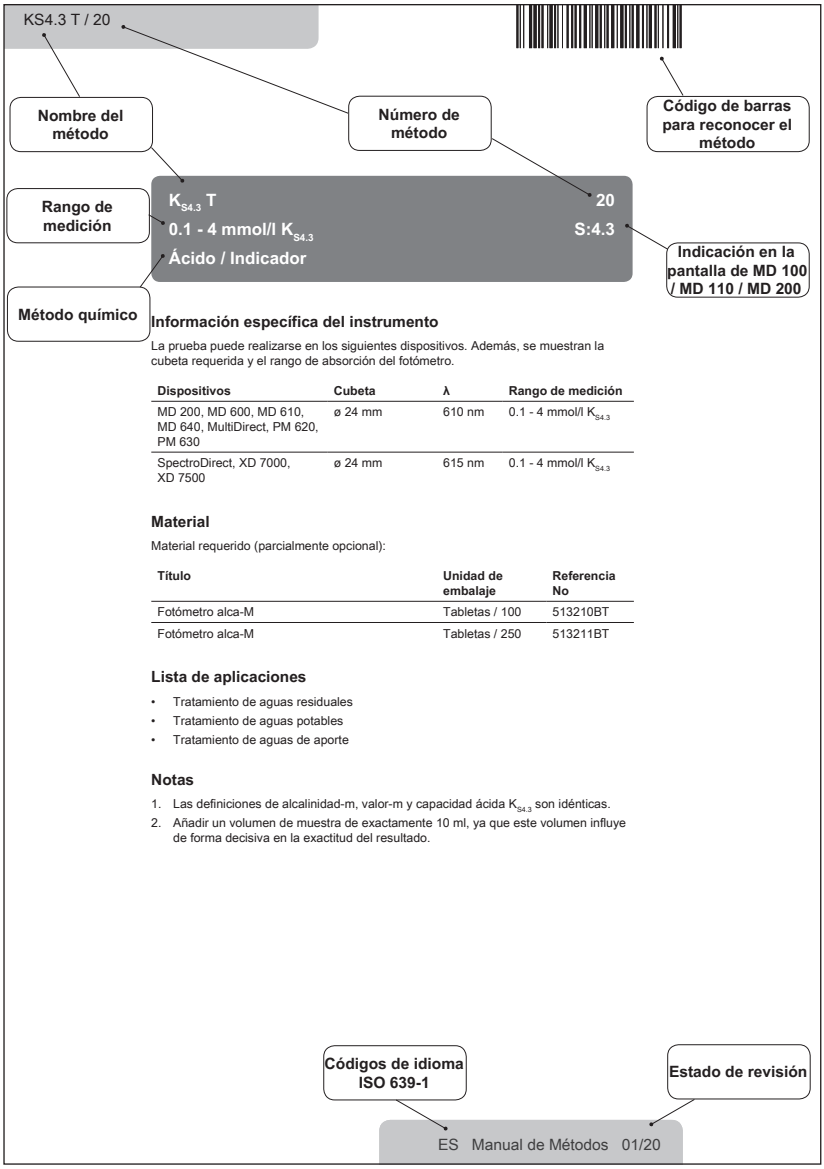
Ausschließbare Störungen

1. Konzentrationen über 3,8 mg/L Chlordioxid können zu Ergebnissen innerhalb des Messbereiches bis hin zu 0 mg/L führen. In diesem Fall ist die Wasserprobe mit chlordioxidfreiem Wasser zu verdünnen. 10 ml der verdünnten Probe werden mit Reagenz versetzt und die Messung wiederholt (Plausibilitätstest).

Abgeleitet von

DIN 38408, Teil 5

[9] Hilfsreagenz, wird zusätzlich für die Bestimmung Brom, Chlordioxid bzw. Ozon benötigt bei Anwesenheit von Chlor


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

Realización de la determinación

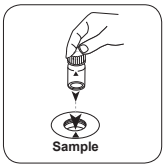
Ejecución de la determinación Capacidad ácida $K_{S4.3}$ con tableta

Seleccionar el método en el aparato.

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

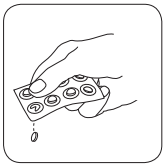
Llenar la cubeta de 24 mm con **10 ml de muestra** .

Cerrar la(s) cubeta(s).

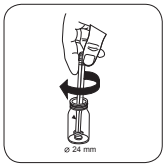


Poner la **cubeta de muestra** en el compartimiento de medición. ¡Debe tenerse en cuenta el posicionamiento!

• • •



Añadir **tableta ALKA-M-PHOTOMETER**.



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

Cerrar la(s) cubeta(s).

Dióxido de cloro PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

ES

Material

Material requerido (parcialmente opcional):

Reactivos	Unidad de embalaje	No. de referencia
Cloro libre DPD F10	Polvos / 100 Cantidad	530100
Cloro libre DPD F10	Polvos / 1000 Cantidad	530103
Glicina [f)]	Tabletas / 100	512170BT
Glicina [f)]	Tabletas / 250	512171BT
Reactivo de glicina VARIO 10 %, 29 ml	29 mL	532210

Muestreo

1. Evitar durante la preparación de la muestra la desgasificación, p. ej., al pipetar o agitar.
2. La determinación se ha de realizar inmediatamente después de la toma de la muestra.

Preparación

1. Limpieza de las cubetas:
   Muchos productos de limpieza (p. ej., detergentes de lavavajillas) poseen componentes reductores, que pueden reducir los resultados en la determinación del Dióxido de cloro. Para evitar estas alteraciones, los aparatos de vidrio deben estar exentos de componentes corrosivos al cloro. Para ello, deberá sumergir los aparatos de vidrio durante una hora en una solución de hipoclorito sódico (0,1 g/L), enjuagándolos minuciosamente a continuación con agua desionizada.
2. Las muestras acuosas muy ácidas o muy básicas se deberán neutralizar a un valor de pH entre 6 y 7 antes de realizar el análisis (con 0,5 mol/l de ácido sulfúrico o 1 mol/l de hidróxido sódico).

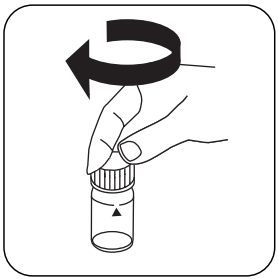
Ejecución de la determinación Dióxido de cloro con reactivo Powder Pack, en ausencia de cloro

Seleccionar el método en el aparato.

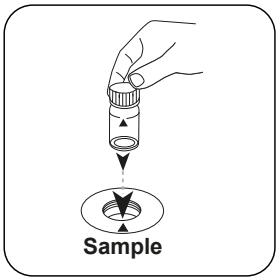
Seleccione además la determinación: en ausencia de cloro

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

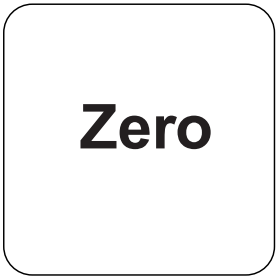
Llenar la cubeta de 24 mm con **10 mL de muestra** .



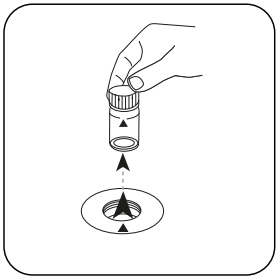
Cerrar la(s) cubeta(s).



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

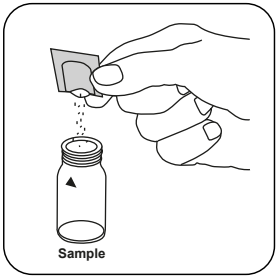


Pulsar la tecla **ZERO**.



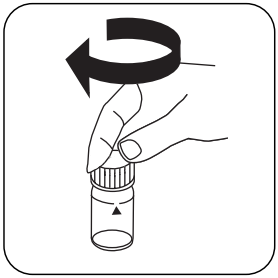
Extraer la cubeta del compartimiento de medición.

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

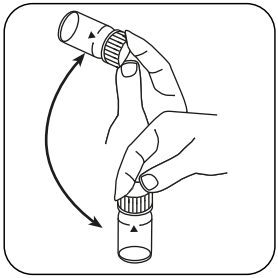


Añadir un **sobre de polvos Chlorine FREE-DPD / F10**

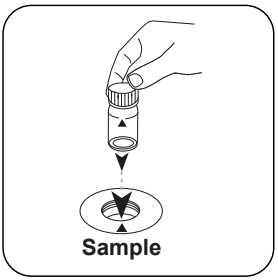
.

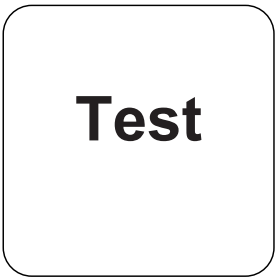


Cerrar la(s) cubeta(s).



Mezclar el contenido girando (20 sec.).





ES

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

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

A continuación se visualizará el resultado en mg/L Dióxido de cloro.

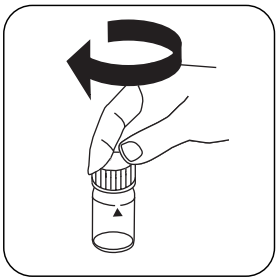
Ejecución de la determinación Dióxido de cloro con reactivo Powder Pack, en presencia de cloro

Seleccionar el método en el aparato.

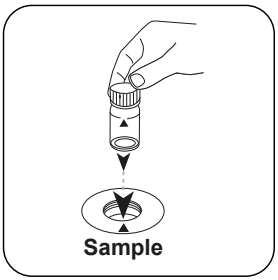
Seleccione además la determinación: junto a cloro

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

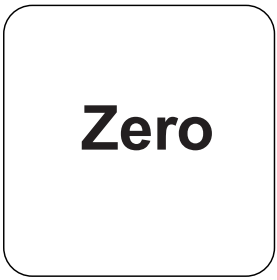
Llenar la cubeta de 24 mm con **10 mL de muestra** .



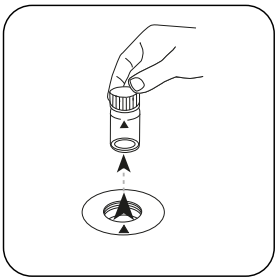
Cerrar la(s) cubeta(s).



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

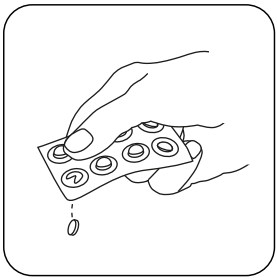


Pulsar la tecla **ZERO**.

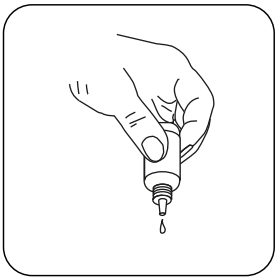


Extraer la cubeta del compartimiento de medición.

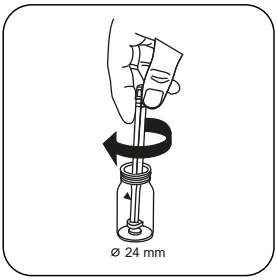
Para los aparatos que **no requieran medición CERO** , **empezar aquí**.



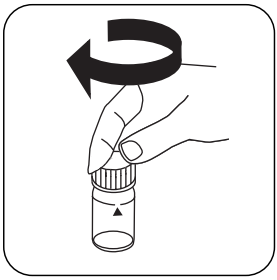
Añadir **tableta GLYCINE**.



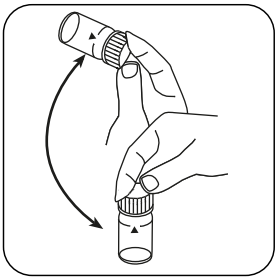
o añadir 4 gotas de GLYCINE Reagent.



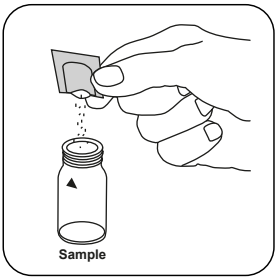
Triturar la(s) tableta(s) girando ligeramente.



Cerrar la(s) cubeta(s).

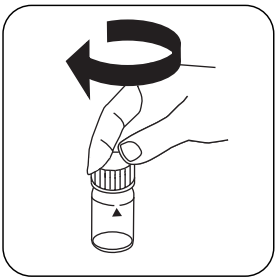


Disolver la(s) tableta(s) girando.

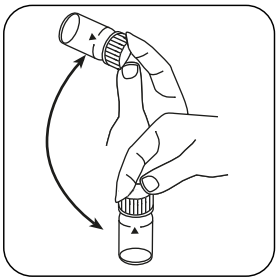


Añadir un **sobre de polvos Chlorine-Free-DPD/ F10** .

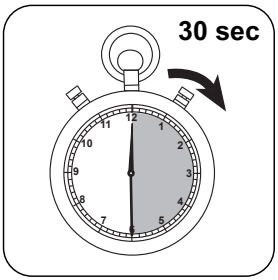
ES



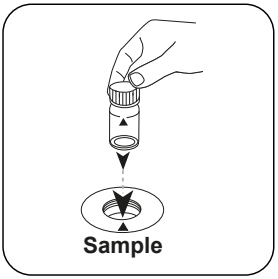
Cerrar la(s) cubeta(s).



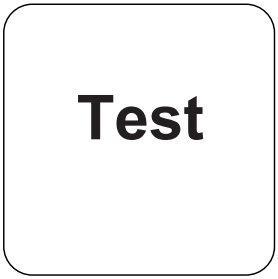
Mezclar el contenido girando (20 sec.).



Esperar **30 segundos como periodo de reacción**.



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



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

A continuación se visualizará el resultado en mg/L Dióxido de cloro.

Método químico

DPD

Apéndice

Interferencia

Interferencias persistentes

1. Todos los elementos oxidantes existentes en la muestra producen un resultado más elevado.

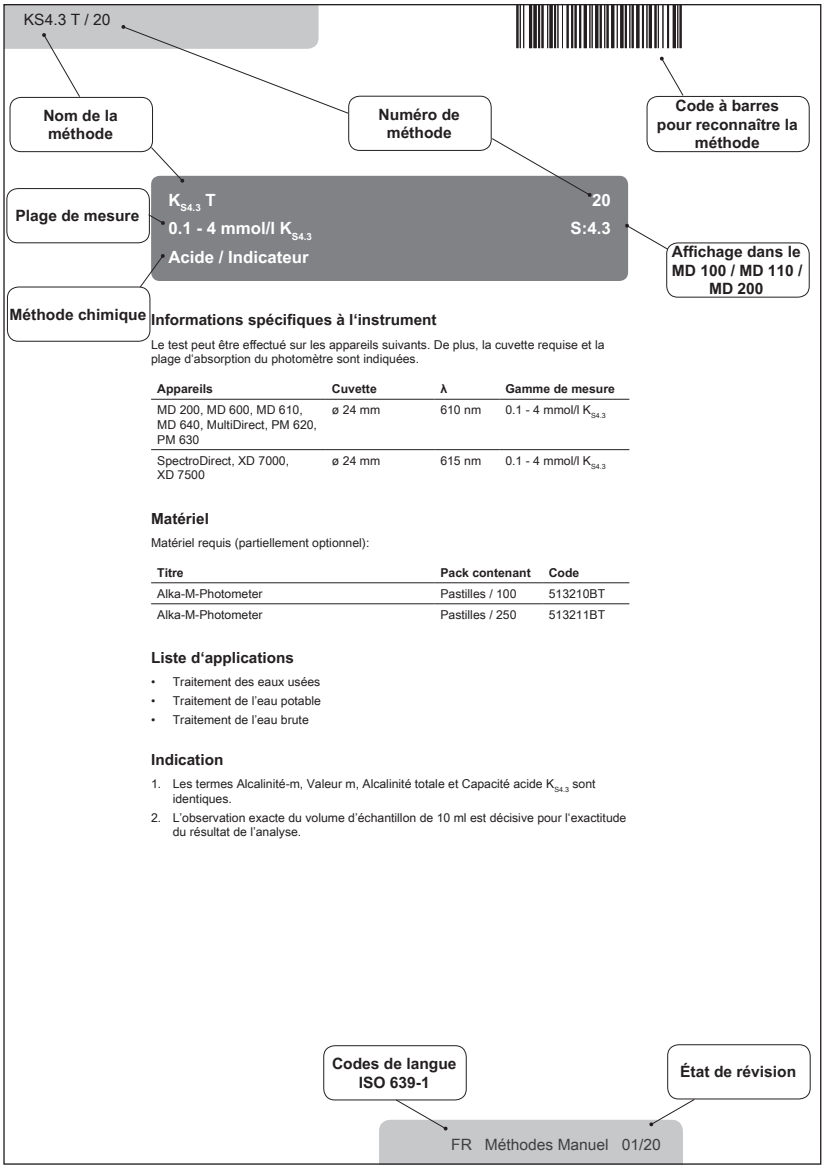
Interferencias extraibles

1. Las concentraciones de dióxido de cloro mayores a 3,8 mg/L pueden conducir a resultados de dentro del campo de medición hasta 0 mg/L. En este caso, se deberá diluir la muestra acuosa con agua libre de dióxido de cloro. Se mezclan 10 ml de muestra diluida con reactivo y se repite la medición (prueba de plausibilidad).

Derivado de

DIN 38408, parte 5

[f] Reactivo auxiliar, necesario adicionalmente para la determinación de bromo, dióxido de cloro y ozono en presencia de cloro



Informations spécifiques à l'instrument

Le test peut être effectué sur les appareils suivants. De plus, la cuvette requise et la plage d'absorption du photomètre sont indiquées.

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

Matériel

Matériel requis (partiellement optionnel):

Titre	Pack contenant	Code
Alka-M-Photometer	Pastilles / 100	513210BT
Alka-M-Photometer	Pastilles / 250	513211BT

Liste d'applications

- Traitement des eaux usées
- Traitement de l'eau potable
- Traitement de l'eau brute

Indication

1. Les termes Alcalinité-m, Valeur m, Alcalinité totale et Capacité acide $K_{S4.3}$ sont identiques.
2. L'observation exacte du volume d'échantillon de 10 ml est décisive pour l'exactitude du résultat de l'analyse.

Procédure du test

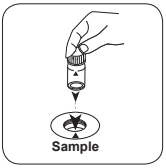
Réalisation de la quantification Capacité acide $K_{S4.3}$ avec pastille

Sélectionnez la méthode sur l'appareil.

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

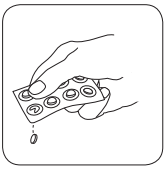
Remplissez une cuvette de 24 mm de **10 ml d'échantillon**.

Fermez la(les) cuvette(s).

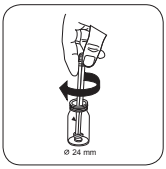


Placez la **cuvette réservée à l'échantillon** dans la chambre de mesure. Attention à la positionner correctement.

• • •



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



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

Fermez la(les) cuvette(s).

Dioxyde de chlore PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

FR

Matériel

Matériel requis (partiellement optionnel):

Réactifs	Pack contenant	Code
Chlore libre DPD F10	Poudre / 100 Pièces	530100
Chlore libre DPD F10	Poudre / 1000 Pièces	530103
Glycine [f)]	Pastilles / 100	512170BT
Glycine [f)]	Pastilles / 250	512171BT
Réactif VARIO Glycine 10 %, 29 ml	29 mL	532210

Échantillonnage

1. Lors de la préparation de l'échantillon, il faudra éviter le dégazage, par ex. par pipetage ou agitation.
2. L'analyse devra avoir lieu immédiatement après le prélèvement de l'échantillon.

Préparation

1. Nettoyage des cuvettes :
   Beaucoup de produits de nettoyage domestiques (par ex. liquide vaisselle) contenant des agents réducteurs, il est possible que lors de la quantification du Dioxyde de chlore, les résultats soient plus bas. Pour exclure ces erreurs, les instruments en verre utilisés devraient être insensibles aux effets du chlore. Pour ce faire, il convient de laisser les instruments en verre pendant une heure dans une solution d'hypochlorite de sodium (0,1 g/L) et de bien les rincer ensuite à l'eau déminéralisée (eau entièrement dessalée).
2. Avant l'analyse, les eaux fortement alcalines ou acides devraient être ajustées sur un pH compris entre 6 et 7 (avec 0,5 mol/l d'acide sulfurique ou 1 mol/l de soude caustique).

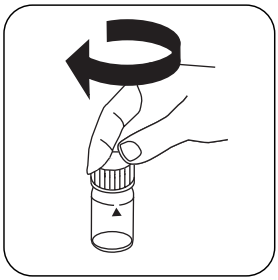
Réalisation de la quantification Dioxyde de chlore, en l'absence de chlore avec sachets de poudre

Sélectionnez la méthode sur l'appareil.

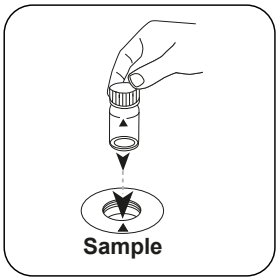
Sélectionnez également la quantification : sans chlore

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

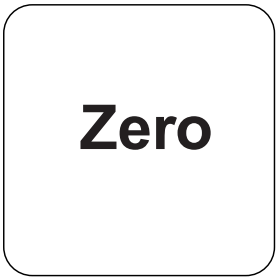
Remplissez une cuvette de 24 mm de **10 mL d'échantillon**.



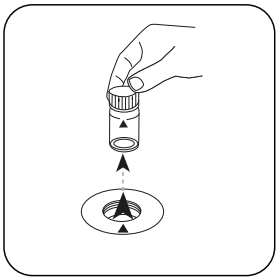
Fermez la(les) cuvette(s).



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

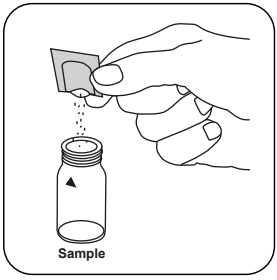


Appuyez sur la touche **ZERO**.

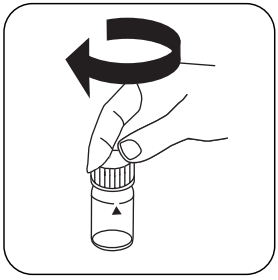


Retirez la cuvette de la chambre de mesure.

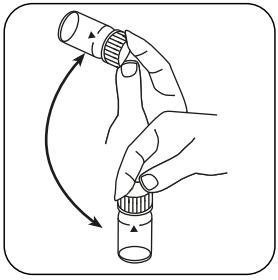
Sur les appareils ne nécessitant **aucune mesure ZÉRO** , **commencez ici**.



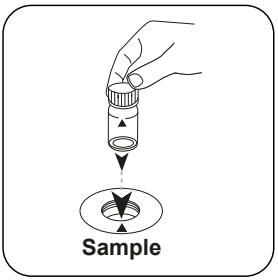
Ajoutez un **sachet de poudre Chlorine FREE-DPD / F10**.

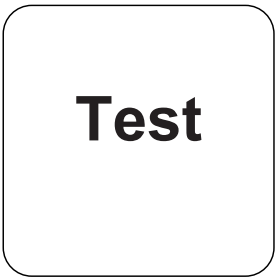


Fermez la(les) cuvette(s).



Retourner plusieurs fois pour mélanger le contenu (20 sec.) .





FR

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

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

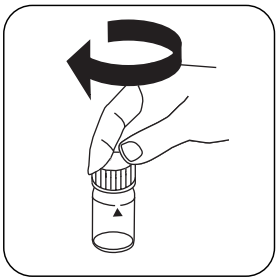
Le résultat s'affiche à l'écran en mg/L dioxyde de chlore.

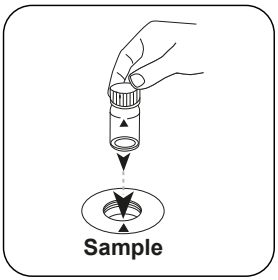
Réalisation de la quantification Dioxyde de chlore, en présence de chlore avec sachets de poudre

Sélectionnez la méthode sur l'appareil.

Sélectionnez également la quantification : en présence de chlore

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

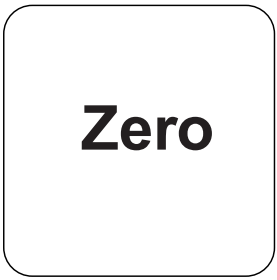




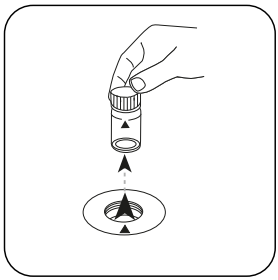
Remplissez une cuvette de 24 mm de **10 mL d'échantillon**.

Fermez la(les) cuvette(s).

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

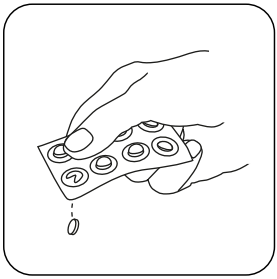


Appuyez sur la touche **ZERO**.

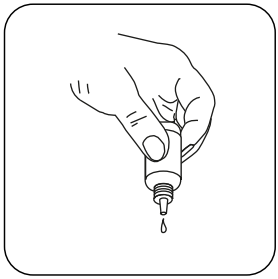


Retirez la cuvette de la chambre de mesure.

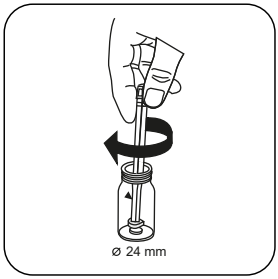
Sur les appareils ne nécessitant **aucune mesure ZÉRO** , **commencez ici**.



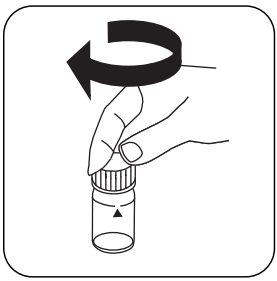
Ajoutez une **pastille de GLYCINE**.



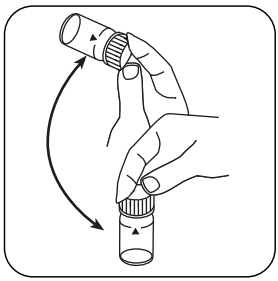
ou ajoutez 4 gouttes de GLYCINE Reagent.



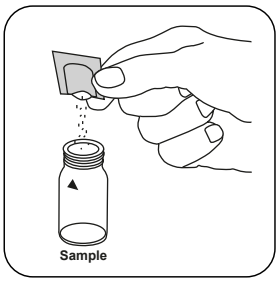
Écrasez la(les) pastille(s) en la(les) tournant un peu.



Fermez la(les) cuvette(s).

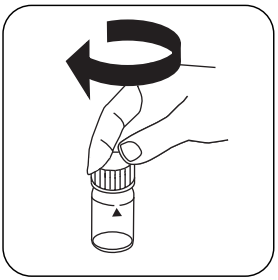


Dissolvez la(les) pastille(s) en mettant le tube plusieurs fois à l'envers.

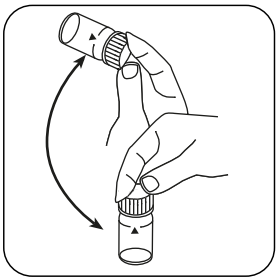


Ajoutez un **sachet de poudre Chlorine-Free-DPD/ F10**.

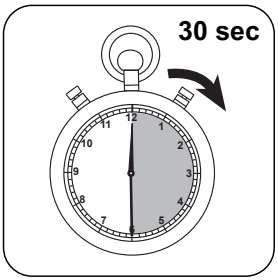
FR



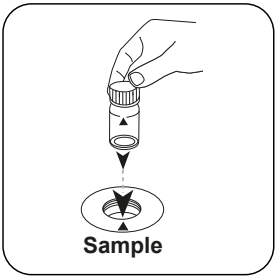
Fermez la(les) cuvette(s).



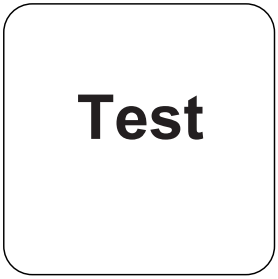
Retourner plusieurs fois pour mélanger le contenu (20 sec.) .



Attendez la fin du **temps de réaction de 30 secondes** .



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



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

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

Méthode chimique

DPD

Appendice

Interférences

Interférences persistantes

1. Les agents oxydants contenus dans les échantillons entraînent tous des résultats plus élevés.

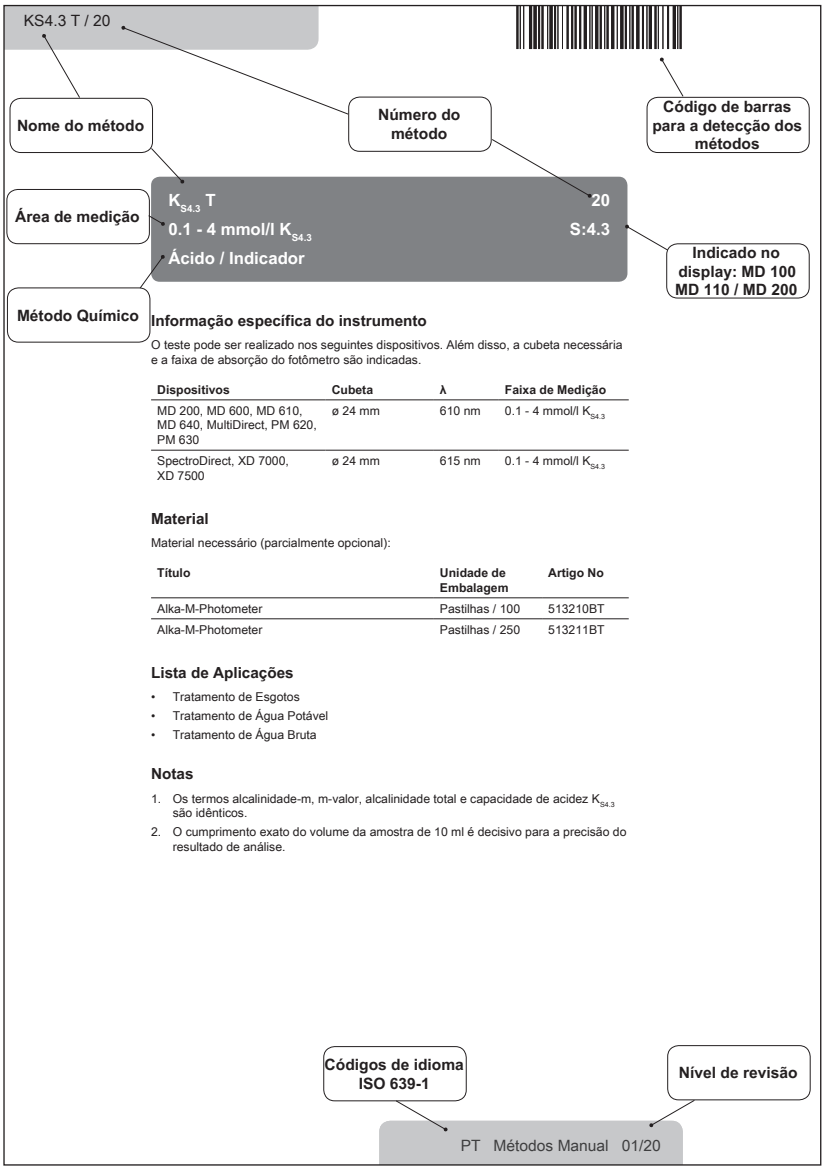
Interférences exclues

1. Les concentrations de dioxyde de chlore supérieures à 3,8 mg/L peuvent provoquer des résultats dans la plage de mesure allant jusqu'à 0 mg/L. Dans ce cas, diluez l'échantillon d'eau en utilisant de l'eau exempte de dioxyde de chlore. Le réactif est ajouté à 10 ml d'échantillon dilué. Ensuite, la mesure est répétée (test de plausibilité).

Dérivé de

DIN 38408, 5è partie

[f]nécessaire pour la détermination de brome, dioxyde de chlore et ozone en présence de chlore


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

Efetuar a medição

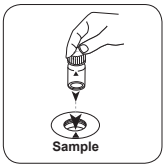
Realização da determinação Capacidade de acidez $K_{S4.3}$ com pastilha

Escolher o método no equipamento.

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

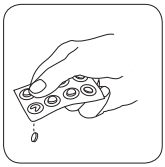
Encher a célula de 24 mm com **10 ml de amostra** .

Fechar a(s) célula(s).

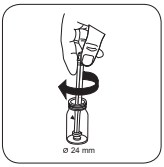


Colocar a **célula de amostra** no compartimento de medição. Observar o posicionamento.

• • •



Pastilha ALKA-M-PHOTOMETER.



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

Fechar a(s) célula(s).

Dióxido de cloro PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

PT

Material

Material necessário (parcialmente opcional):

Reagentes	Unidade de Embalagem	Código do Produto
Sem cloro DPD F10	Pó / 100 pc.	530100
Sem cloro DPD F10	Pó / 1000 pc.	530103
Glicina [f)]	Pastilhas / 100	512170BT
Glicina [f)]	Pastilhas / 250	512171BT
VARIO Glycine Reagente 10 %, 29 ml	29 mL	532210

Amostragem

1. Na preparação da amostra é preciso evitar a libertação de gases, p. ex. através da pipetagem e agitação.
2. A análise tem de ser efetuada logo após a recolha da amostra.

Preparação

1. Limpeza das células:
   Uma vez que muitos produtos de limpeza domésticos (p. ex. lava-louça) contêm substâncias redutoras, na determinação de Dióxido de cloro pode haver demasiadas reduções. Para excluir este erro de medição, os equipamentos de vidro não deviam ter a capacidade de absorção de cloro. Para esse efeito, os equipamentos de vidro são guardados por uma hora sob solução de hipoclorito de sódio (0,1 g/L) e depois devem ser bem enxaguados com água desmineralizada.
2. As águas fortemente alcalinas ou ácidas devem, antes da análise, ser ajustadas para um valor pH entre 6 e 7 (com 0,5 mol/l de ácido sulfúrico ou 1 mol/l soda cáustica).

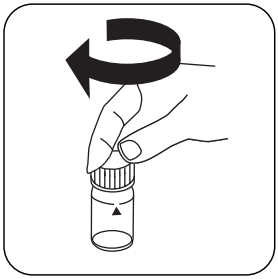
Realização da determinação Dióxido de Cloro, na ausência de cloro com pacotes de pó

Escolher o método no equipamento.

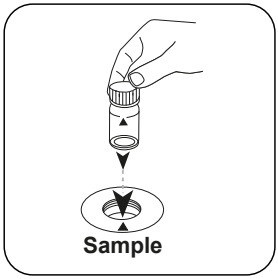
Escolha ainda a determinação: sem Cloro

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

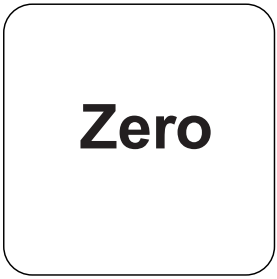
Encher a célula de 24 mm com **10 mL de amostra** .



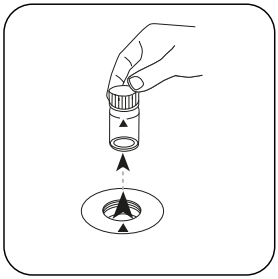
Fechar a(s) célula(s).



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

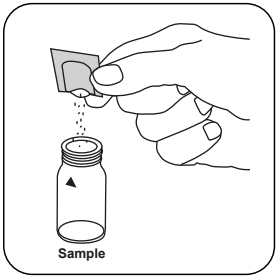


Premir a tecla **ZERO**.

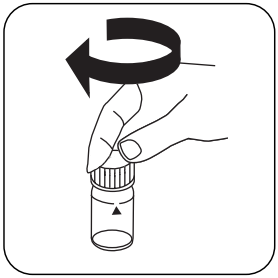


Retirar a célula do compartimento de medição.

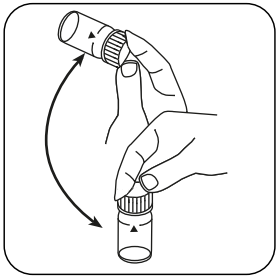
Nos equipamentos que **não requerem uma medição ZERO** , **deve começar aqui**.



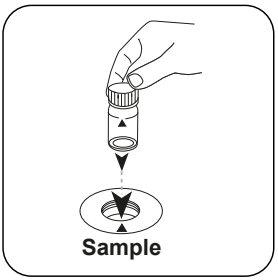
Adicionar um **pacote de pó Chlorine FREE-DPD / F10** .



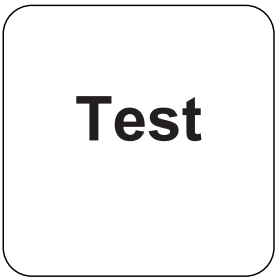
Fechar a(s) célula(s).



Misturar o conteúdo girando (20 sec.).



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



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

PT

No visor aparece o resultado em mg/L Dióxido de Cloro.

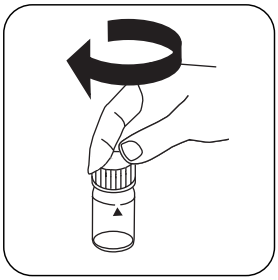
Realização da determinação Dióxido de Cloro, na presença de cloro com pacotes de pó

Escolher o método no equipamento.

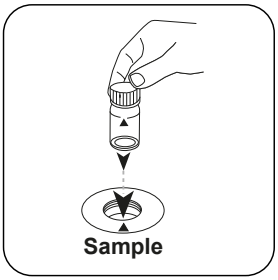
Escolha ainda a determinação: na presença de Cloro

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

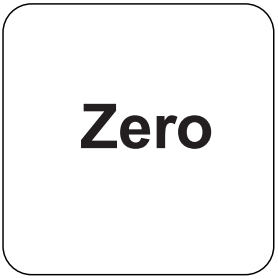
Encher a célula de 24 mm com **10 mL de amostra** .



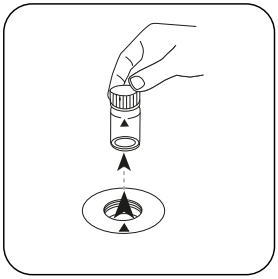
Fechar a(s) célula(s).



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

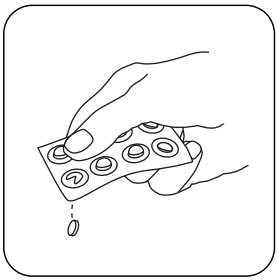


Premir a tecla **ZERO**.

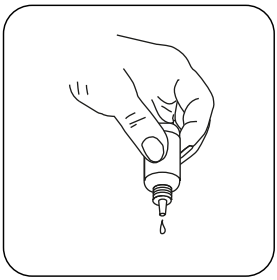


Retirar a célula do compartimento de medição.

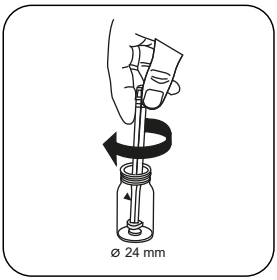
Nos equipamentos que **não requerem uma medição ZERO** , **deve começar aqui**.



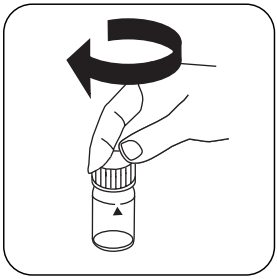
Pastilha GLYCINE.



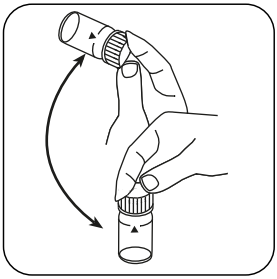
ou adicionar 4 gotas GLYCINE Reagent.



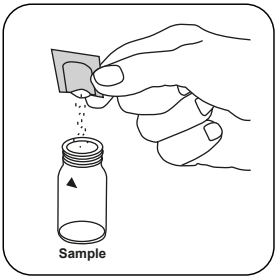
Esmagar a(s) pastilha(s) rodando ligeiramente.



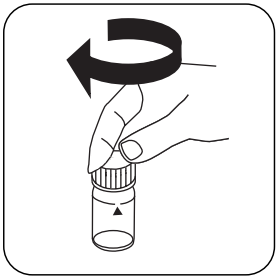
Fechar a(s) célula(s).



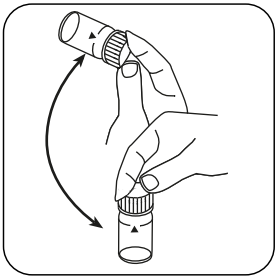
Dissolver a(s) pastilha(s) girando.



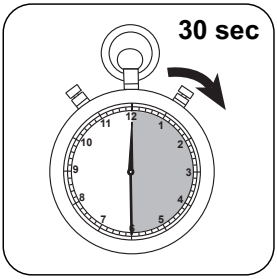
Adicionar um **pacote de pó Chlorine-Free-DPD/ F10** .



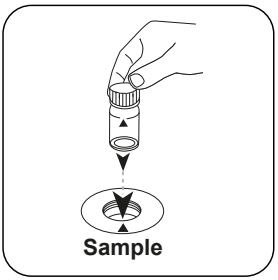
Fechar a(s) célula(s).

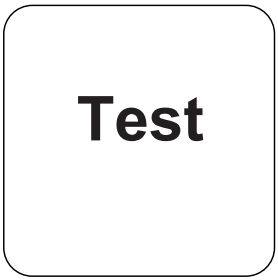


Misturar o conteúdo girando (20 sec.).



Aguardar **30 segundos de tempo de reação**.





PT

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

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

No visor aparece o resultado em mg/L Dióxido de Cloro.

Método Químico

DPD

Apêndice

Texto de Interferências

Interferências Pesistentes

1. Todos os oxidantes presentes nas amostras levam a resultados demasiado altos.

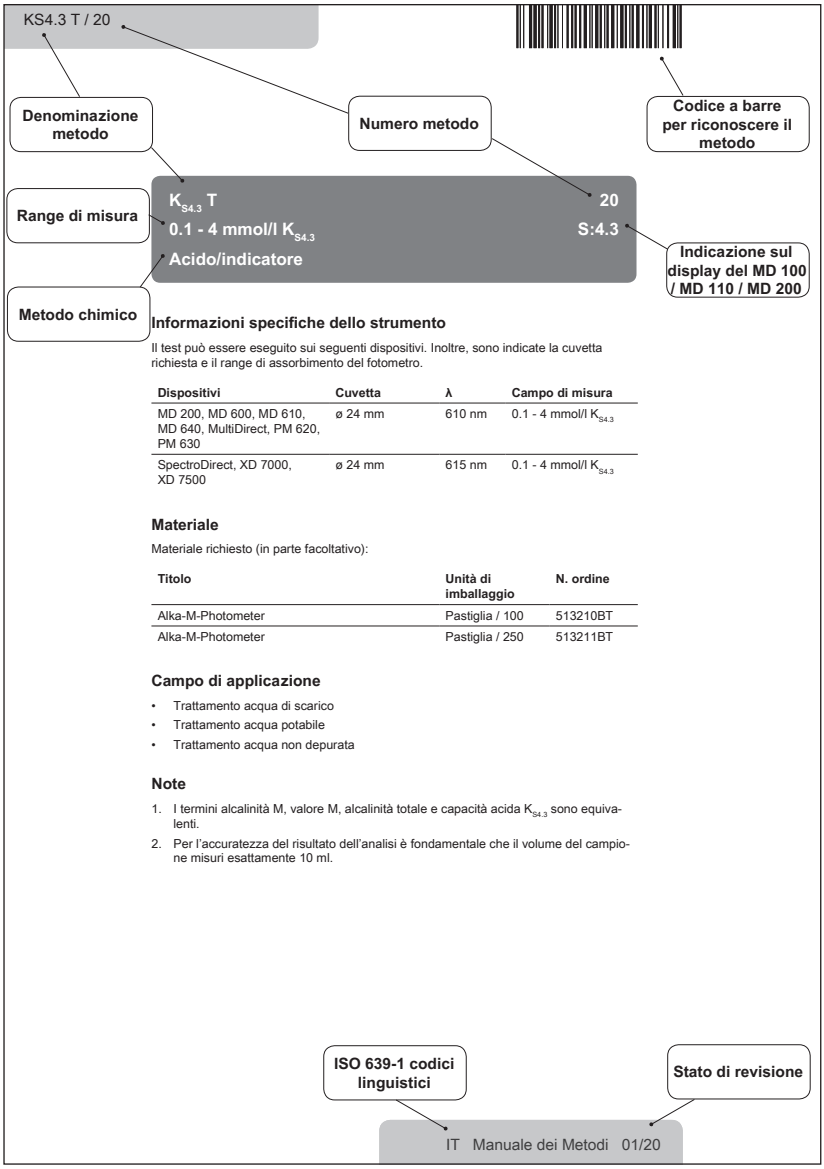
Interferências Removíveis

1. Concentrações de dióxido de cloro superiores a 3,8 mg/L podem causar resultados dentro da área de medição até 0 mg/L. Neste caso, deve diluir a amostra de água em água sem dióxido de cloro. 10 ml da amostra diluída é colocada em reagente e a medição é repetida (teste de plausibilidade).

Derivado de

DIN 38408, Parte 5

[f]Reagente auxiliar, é adicionalmente necessário para a determinação de bromo, dióxido de cloro ou ozônio na presença de cloro



Informazioni specifiche dello strumento

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

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

Materiale

Materiale richiesto (in parte facoltativo):

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

Campo di applicazione

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

Note

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

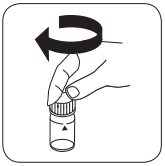
Svolgimento della misurazione

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

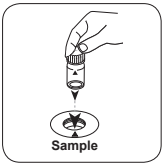
Selezionare il metodo nel dispositivo.

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

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



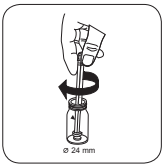
Chiudere la/e cuvetta/e.



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

• • •

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



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

Chiudere la/e cuvetta/e.

Biossido di cloro PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

IT

Materiale

Materiale richiesto (in parte facoltativo):

Reagenti	Unità di imballaggio	N. ordine
Cloro libero DPD F10	Polvere / 100 pz.	530100
Cloro libero DPD F10	Polvere / 1000 pz.	530103
Glicina [f)]	Pastiglia / 100	512170BT
Glicina [f)]	Pastiglia / 250	512171BT
VARIO Glicina Reagente VARIO 10 %, 29 ml	29 mL	532210

Prelievo del campione

1. Nella preparazione del campione occorre evitare la degassificazione, ad es. utilizzando pipette e agitando.
2. L'analisi deve essere eseguita subito dopo il prelievo del campione.

Preparazione

1. Pulizia delle cuvette:
   Poiché molti detergenti ad uso domestico (ad es. detersivo per piatti) contengono sostanze riducenti, nella rilevazione del Biossido di cloro si potrebbero ottenere risultati troppo bassi. Per escludere tali errori di misura è necessario che i dispositivi in vetro siano esenti dal consumo di cloro. I dispositivi in vetro inoltre vengono conservati in una soluzione di ipoclorito di sodio (0,1 g/L) per un'ora e successivamente vengono risciacquati abbondantemente con acqua demineralizzata.
2. Le acque fortemente alcaline o acide devono essere portate prima dell'analisi entro un range di pH compreso tra 6 e 7 (con 0,5 mol/l di acido solforico o 1 mol/l di liscivia).

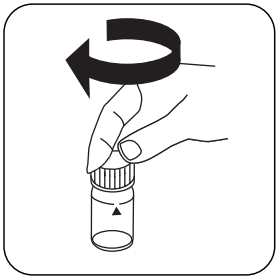
Esecuzione della rilevazione Biossido di cloro, in assenza di cloro con confezioni in polvere

Selezionare il metodo nel dispositivo.

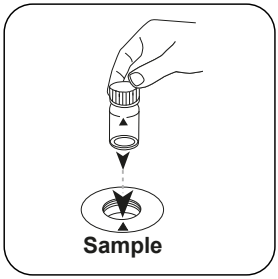
Selezionare inoltre la determinazione: senza Cloro

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

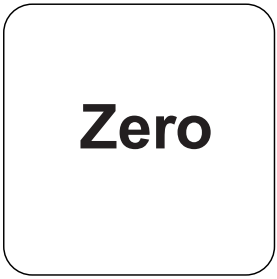
Riempire una cuvetta da 24 mm con **10 mL di campione**.



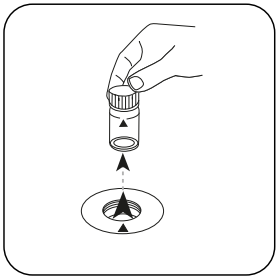
Chiudere la/e cuvetta/e.



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

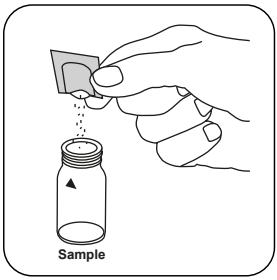


Premere il tasto **ZERO**.

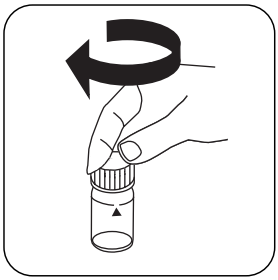


Prelevare la cuvetta dal vano di misurazione.

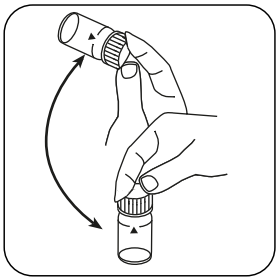
In caso di dispositivi che **non richiedono una misurazione ZERO**, **iniziare da qui**.



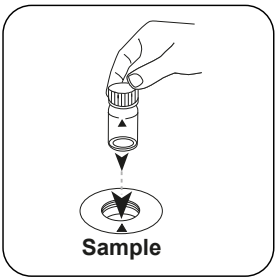
Aggiungere **una bustina di polvere Chlorine FREE-DPD / F10**.



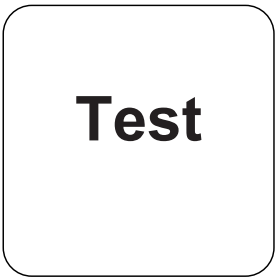
Chiudere la/e cuvetta/e.



Miscelare il contenuto capovolgendo (20 sec.).



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



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

Sul display compare il risultato in mg/L di Biossido di cloro.

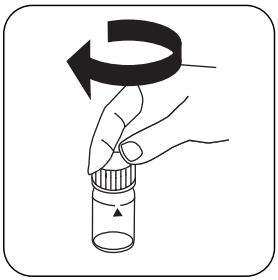
Esecuzione della rilevazione Biossido di cloro, in presenza di cloro con confezioni in polvere

Selezionare il metodo nel dispositivo.

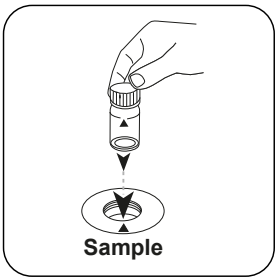
Selezionare inoltre la determinazione: in presenza di Cloro

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

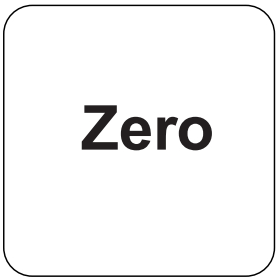
Riempire una cuvetta da 24 mm con **10 mL di campione**.



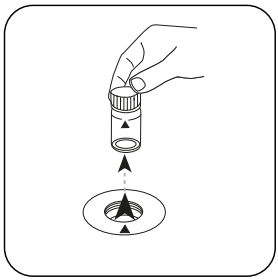
Chiudere la/e cuvetta/e.



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

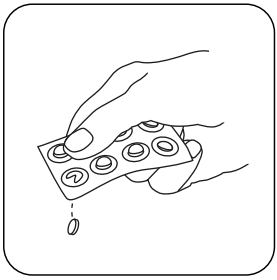


Premere il tasto **ZERO**.

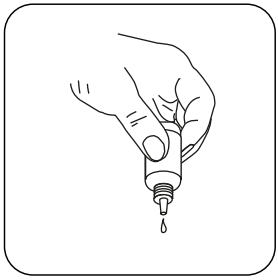


Prelevare la cuvetta dal vano di misurazione.

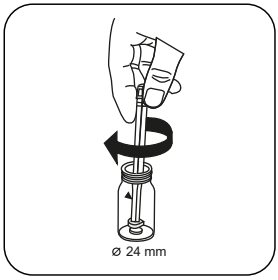
In caso di dispositivi che **non richiedono una misurazione ZERO**, **iniziare da qui**.



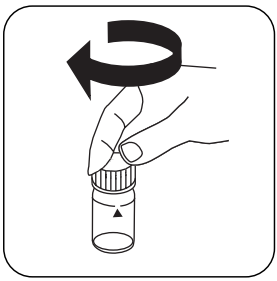
Aggiungere **una pastiglia GLYCINE**.



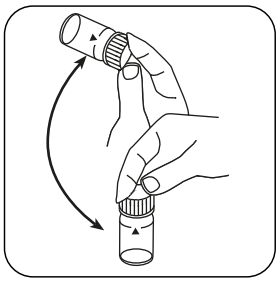
o aggiungere 4 gocce di GLYCINE Reagent.



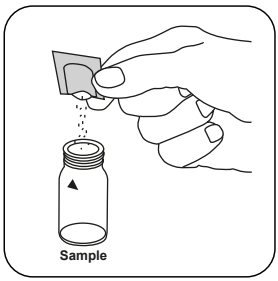
Frantumare la/e pastiglia/e con una leggera rotazione.



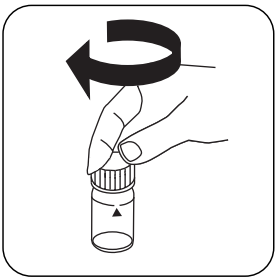
Chiudere la/e cuvetta/e.



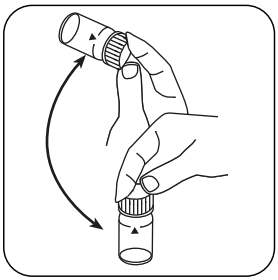
Far sciogliere la/e pastiglia/e agitando.



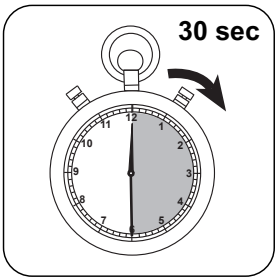
Aggiungere **una bustina di polvere Chlorine-Free-DPD/ F10**.



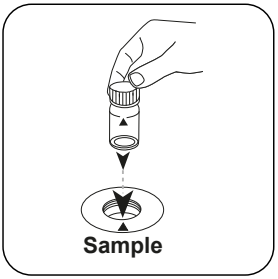
Chiudere la/e cuvetta/e.



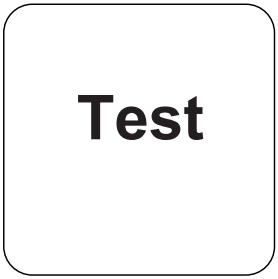
Miscelare il contenuto capovolgendo (20 sec.).



Attendere un **tempo di reazione di 30 secondi** .



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



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

Sul display compare il risultato in mg/L di Biossido di cloro.

Metodo chimico

DPD

Appendice

Interferenze

Interferenze permanenti

1. Tutti gli ossidanti presenti nei campioni danno risultati troppo elevati.

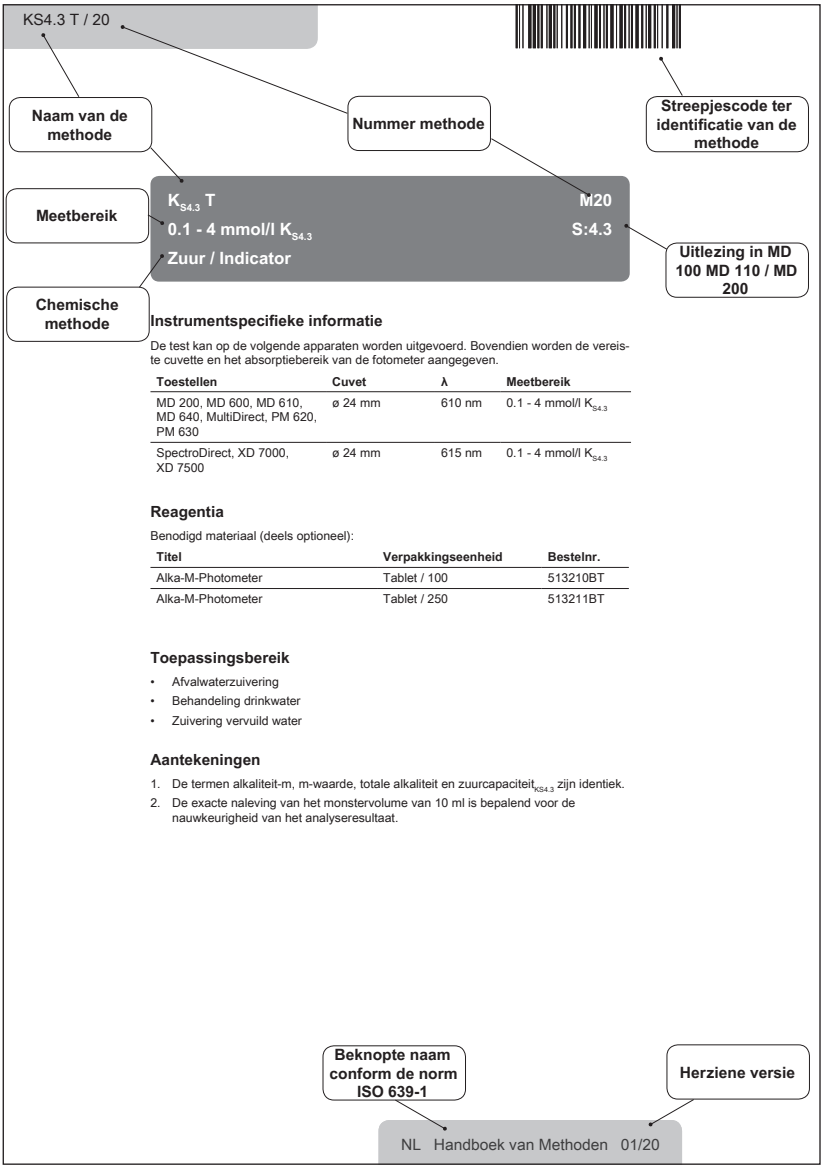
Interferenze escludibili

1. Le concentrazioni di biossido di cloro maggiori di 3,8 mg/L possono dare risultati entro il range di misura fino a 0 mg/L. In questo caso il campione di acqua deve essere diluito con acqua priva di biossido di cloro. 10 ml del campione diluito vengono addizionati con il reagente e la misurazione viene ripetuta (test di plausibilità).

Derivato di

DIN 38408, parte 5

[f]Reagente ausiliario, è inoltre necessario per la determinazione di bromo, biossido di cloro o ozono in presenza di cloro



Instrumentspecifieke informatie

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

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

Reagentia

Benodigd materiaal (deels optioneel):

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

Toepassingsbereik

- Afvalwaterzuivering
- Behandeling drinkwater
- Zuivering vervuild water

Aantekeningen

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

Uitvoering van de meting

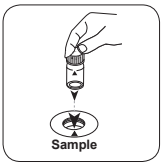
Uitvoering van de bepaling Zuurcapaciteit $K_{S4.3}$ met tablet

De methode in het apparaat selecteren.

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

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

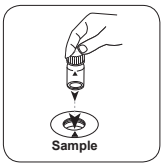
De spoelbakjes afsluiten.



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

• • •

Tabletten oplossen door om te draaien



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

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

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

Chloordioxide PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

NL

Reagentia

Benodigd materiaal (deels optioneel):

Reagentia	Verpakkingseenheid	Bestelnr.
Chloor vrij DPD F10	Poeder / 100 St.	530100
Chloor vrij DPD F10	Poeder / 1000 St.	530103
Glycine [f)]	Tablet / 100	512170BT
Glycine [f)]	Tablet / 250	512171BT
VARIO Glycine Reagens 10 %, 29 ml	29 mL	532210

Bemonstering

1. Tijdens de monstervoorbereiding moet worden vermeden dat wordt uitgestoten, bijvoorbeeld door pipetteren en schudden.
2. De analyse moet onmiddellijk na de bemonstering worden uitgevoerd.

Voorbereiding

1. Het schoonmaken van de spoelbakjes:
   Aangezien veel huishoudelijke reinigingsmiddelen (bijv. afwasmiddelen) minder schadelijke stoffen bevatten, kan de bepaling van Chloordioxide leiden tot minder goede resultaten. Om deze meetfout uit te sluiten, moeten de glasapparaten chloorvrij zijn. Hiertoe wordt het glaswerk gedurende één uur onder natriumhypochlorietoplossing (0,1 g/L) bewaard en vervolgens grondig gespoeld met gedeïoniseerd water.
2. Sterk alkalisch of zuur water moet vóór de analyse in een pH-gebied tussen 6 en 7 (met 0,5 mol/l zwavelzuur of 1 mol/l-natriumhydroxideoplossing) worden gebracht.

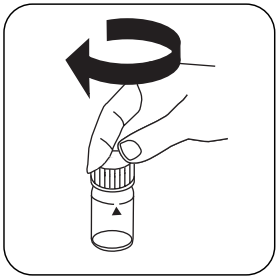
Uitvoering van de bepaling Chloordioxide, in afwezigheid van chloor, met poederpakjes

De methode in het apparaat selecteren.

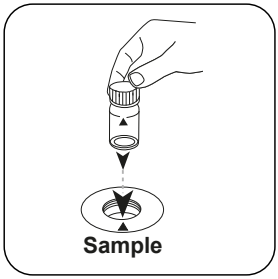
Selecteer bovendien de bepaling: zonder chloor

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

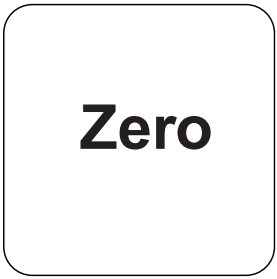
Spoelbakje van 24 mm met **10 mL staal** vullen.



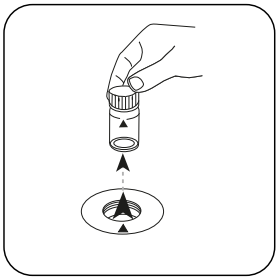
De spoelbakjes afsluiten.



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

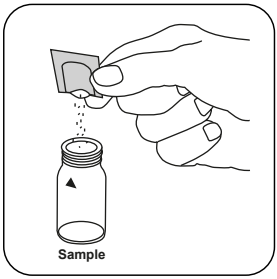


De toets **NUL** indrukken.

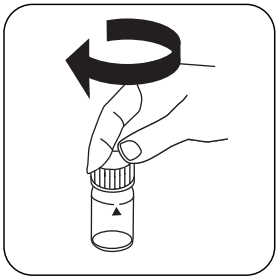


Het spoelbakje uit de meetschacht nemen.

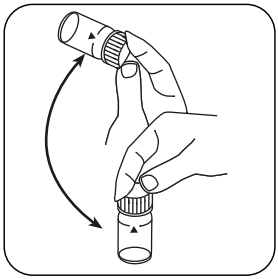
Bij apparaten die **geen nulmeting** vereisen, **hier beginnen**.



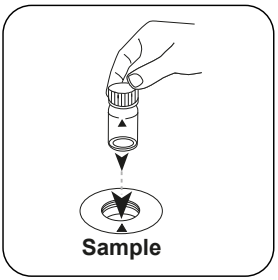
Een **Chloor FREE-DPD / F10 poederpakje** toevoegen.



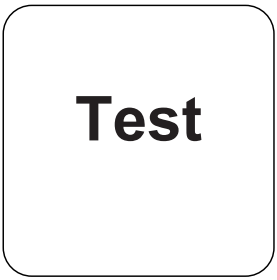
De spoelbakjes afsluiten.



De inhoud mengen door om te draaien (20 sec.).



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



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

De display toont het resultaat in mg/L Chloordioxide.

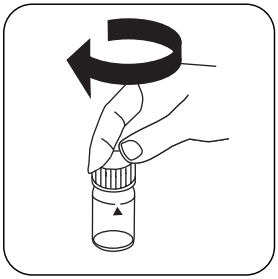
Uitvoering van de bepaling Chloordioxide, in afwezigheid van chloor, met poederpakjes

De methode in het apparaat selecteren.

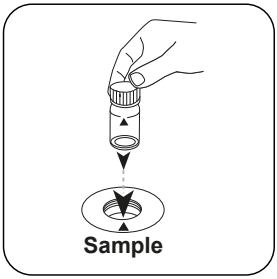
Selecteer bovendien de bepaling: naast chloor

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

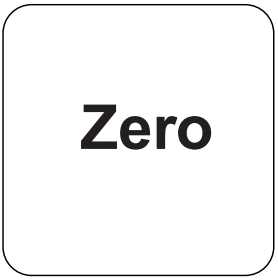
Spoelbakje van 24 mm met **10 mL staal** vullen.



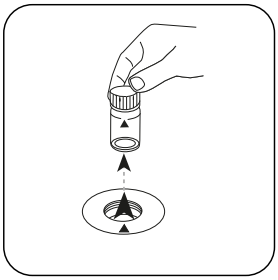
De spoelbakjes afsluiten.



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

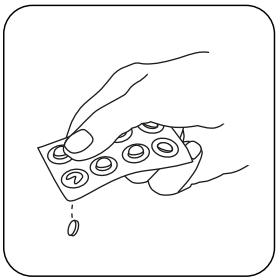


De toets **NUL** indrukken.

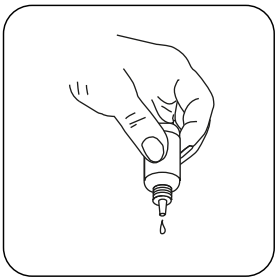


Het spoelbakje uit de meetschacht nemen.

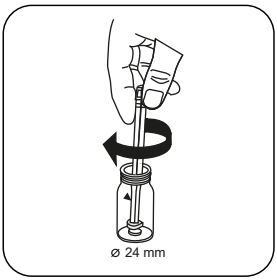
Bij apparaten die **geen nulmeting** vereisen, **hier beginnen**.



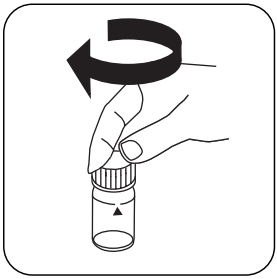
Een GLYCINE tablet toevoegen.



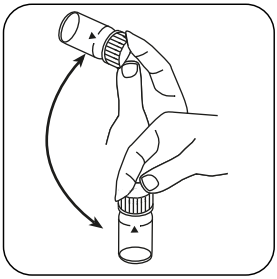
of 4 druppels GLYCINE Reagent toevoegen.



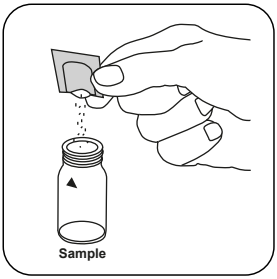
De tabletten onder lichte rotatie verpletteren.



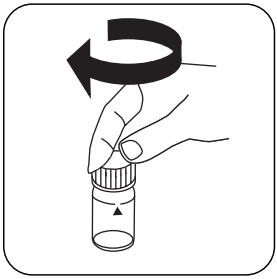
De spoelbakjes afsluiten.



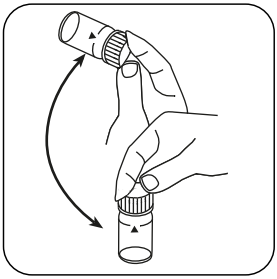
Tabletten oplossen door om te draaien



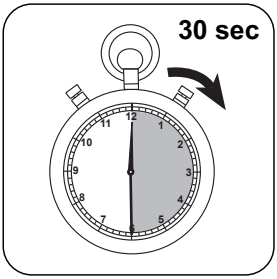
Een **Chloorvrij DPD/ F10 poederpakje** toevoegen.



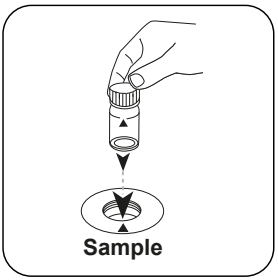
De spoelbakjes afsluiten.

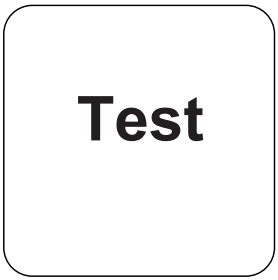


De inhoud mengen door om te draaien (20 sec.).



De reactietijd van 30 seconden afwachten.





NL

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

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

De display toont het resultaat in mg/L Chloordioxide.

Chemische methode

DPD

Aanhangsel

Verstoringen

Permanente verstoringen

1. Alle oxidatiemiddelen in de monsters leiden tot meerdere resultaten.

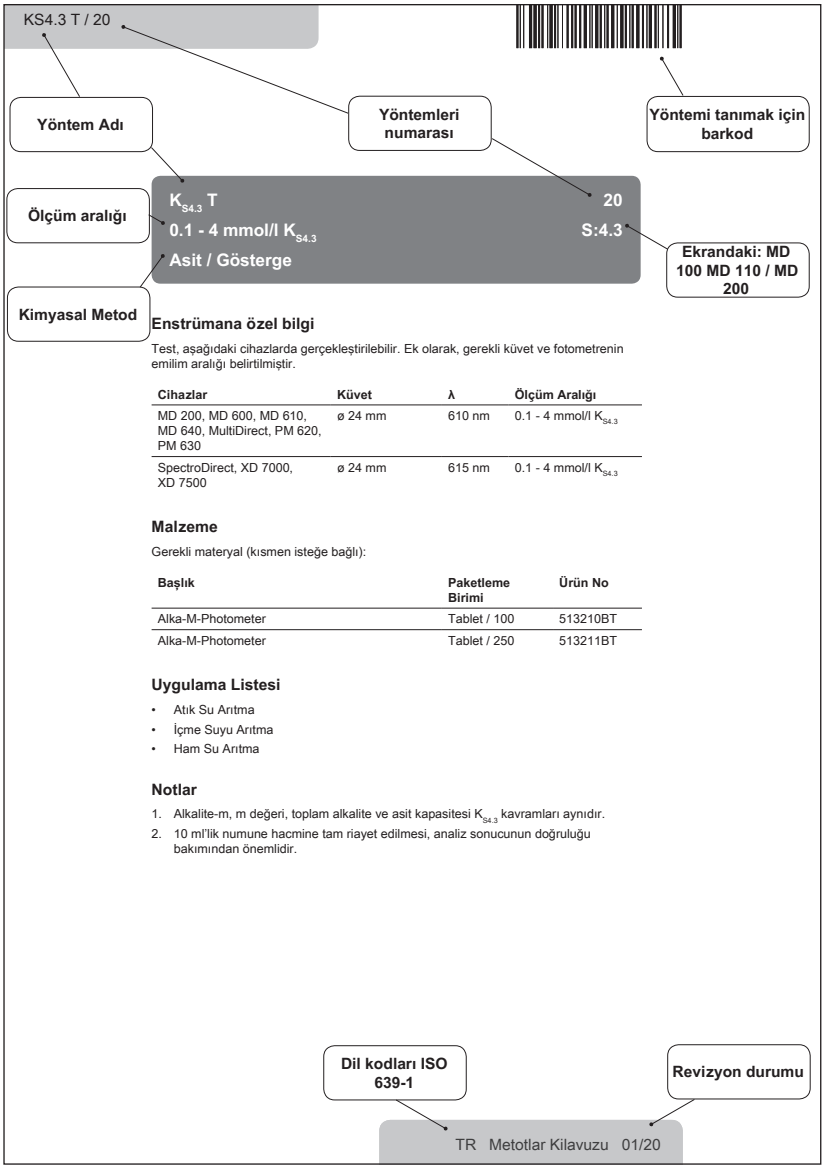
Uit te sluiten verstoringen

1. Concentraties boven de 3,8 mg/L chloordioxide kan leiden tot resultaten binnen het meetbereik tot 0 mg/L. In dit geval wordt het watermonster verdund met chloordioxidevrij water. Voeg reagens toe aan 10 ml van het verdunde monster en herhaal de meting (plausibiliteitstest).

Afgeleid van

DIN 38408, deel 5

[9] hulpreagens, extra nodig voor de bepaling van broom, chloordioxide of ozon in aanwezigheid van chloor



Enstrümana özel bilgi

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

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

Malzeme

Gerekli materyal (kısmen isteğe bağlı):

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

Uygulama Listesi

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

Notlar

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

Testin uygulanması

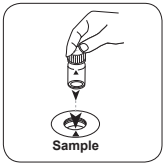
Tespitin uygulanması Tabletli asit kapasitesi $K_{S4.3}$

Cihazda metot seçin.

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

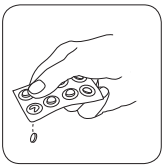
24 mm'lik küveti **10 ml numune** ile doldurun.

Küveti(küvetleri) kapatın.

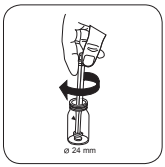


Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

• • •



ALKA-M-PHOTOMETER tablet ilave edin.



Tableti(tabletleri) hafifçe döndürerek ezin.

Küveti(küvetleri) kapatın.

TR Metotlar Kilavuzu 01/20

Klordioksit PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

TR

Malzeme

Gerekli materyal (kısmen isteğe bağlı):

Ayıraçlar	Paketleme Birimi	Ürün No
Serbest klor DPD F10	Toz / 100 adetler	530100
Serbest klor DPD F10	Toz / 1000 adetler	530103
Glycine [f)]	Tablet / 100	512170BT
Glycine [f)]	Tablet / 250	512171BT
VARIO Glisin Reaktifi% 10, 29 ml	29 mL	532210

Numune Alma

1. Numune ön hazırlığı esnasında ör. pipetleme ve çalkalama ile gazlaşması önlenmelidir.
2. Analiz numune alımından hemen sonra yapılmalıdır.

Hazırlık

1. Küvetlerin temizlenmesi:
   Birçok ev tipi temizleyici (ör. bulaşık deterjanı) azaltıcı maddeler içerdiğinden klordioksit tespitinde ehemmiyetsiz miktarda bulgulara ulaşılabilir. Bu ölçüm hatasına ihtimal vermemek için cam aletler klordan etkilenmeyecek şekilde olmalıdır. Bunun için cam aletler bir saatliğine sodyum hipoklorit çözeltisinde (0,1 g/L) muhafaza edilir ve sonrasında demineralize su ile iyice yıkanır.
2. Analizden önce aşırı alkali veya asitli suların pH değeri 6 ile 7 arasına getirilmelidir (0,5 mol/l sülfürik asit veya 1 mol/l sodyum hidroksitin su ile çözünmüş hali ile).

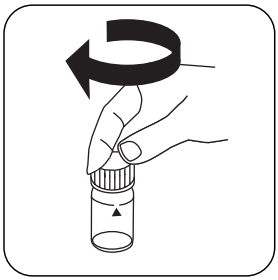
Tespitin uygulanması Klor dioksit, toz poşetleriyle birlikte klor mevcut değilken

Cihazda metot seçin.

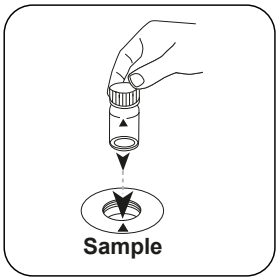
Buna ek olarak tespiti seçin: klor olmadan

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

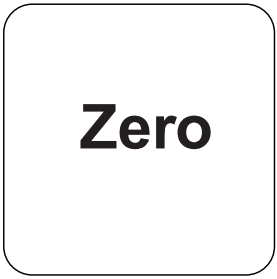
24 mm'lik küveti **10 mL numune** ile doldurun.



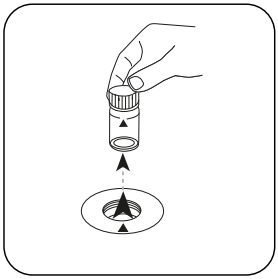
Küveti(küvetleri) kapatın.



Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

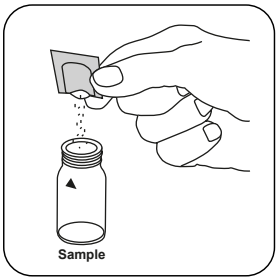


ZERO tuşuna basın.

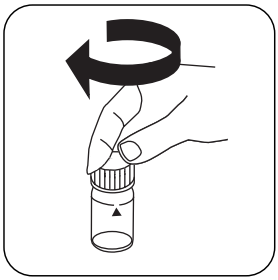


Küveti ölçüm haznesinden alın.

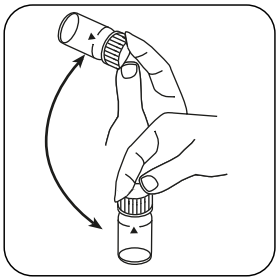
ZERO ölçümü gerektirmeyen cihazlarda **buradan başlayın**.



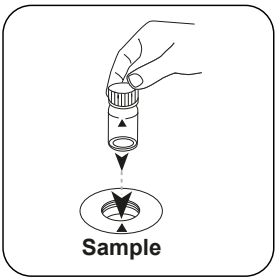
Chlorine FREE-DPD / F10 toz paketi ilave edin.

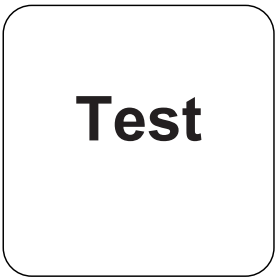


Küveti(küvetleri) kapatın.



Sallayarak içeriği karıştırın (20 sec.).





TR

Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

TEST (XD: **START**) tuşuna basın.

Ekranda sonuç mg/L Klor dioksit cinsinden belirir.

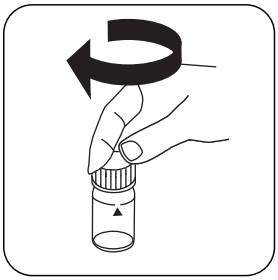
Tespitin uygulanması Klor dioksit, toz poşetleriyle birlikte klor mevcutken

Cihazda metot seçin.

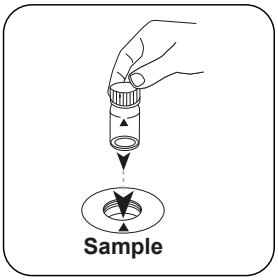
Buna ek olarak tespiti seçin: klor mevcutken

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

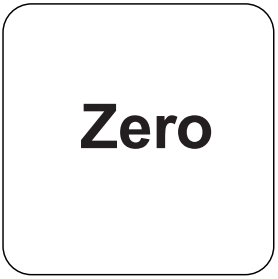
24 mm'lik küveti **10 mL numune** ile doldurun.



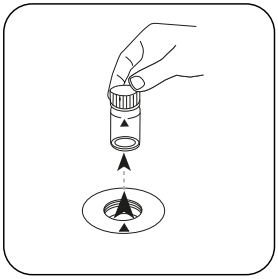
Küveti(küvetleri) kapatın.



Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

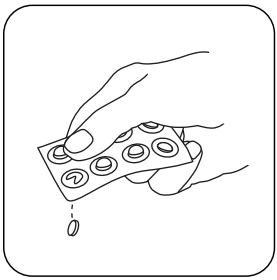


ZERO tuşuna basın.

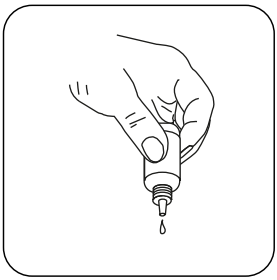


Küveti ölçüm haznesinden alın.

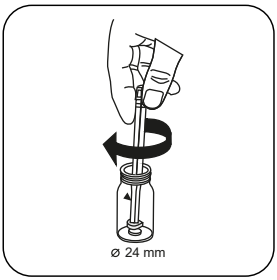
ZERO ölçümü gerektirmeyen cihazlarda **buradan başlayın**.



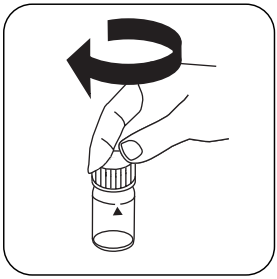
GLYCINE tablet ilave edin.



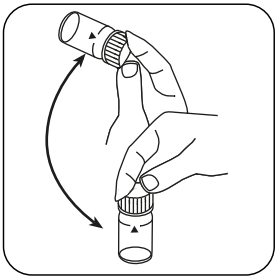
veya 4 damla GLYCINE Reagent ilave edin.



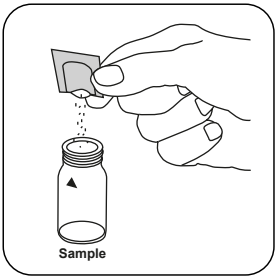
Tableti(tabletleri) hafifçe döndürerek ezin.



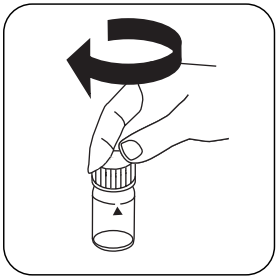
Küveti(küvetleri) kapatın.



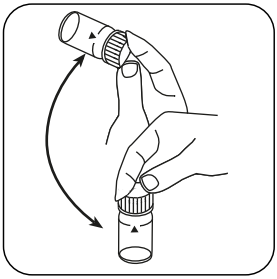
Tableti(tabletleri) sallayarak çözdürün.



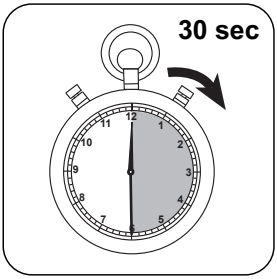
Chlorine-Free-DPD/ F10 toz paketi ilave edin.



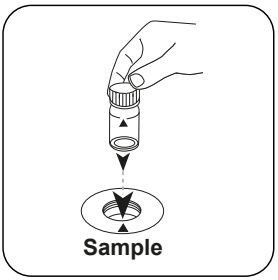
Küveti(küvetleri) kapatın.

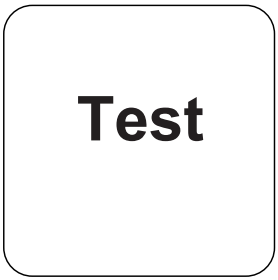


Sallayarak içeriği karıştırın (20 sec.).



30 saniye tepkime süresi bekleyin.





TR

Numune küvetini ölçüm haznesine koyun. Doğru konumlandırılmasına dikkat edin.

TEST (XD: **START**) tuşuna basın.

Ekranda sonuç mg/L Klor dioksit cinsinden belirir.

Kimyasal Metod

DPD

Apandis

Girişim Metni

Kalıcı Girişimler

1. Numunelerde bulunan tüm oksidasyon malzemeleri fazla miktarda bulgulara sebep olur.

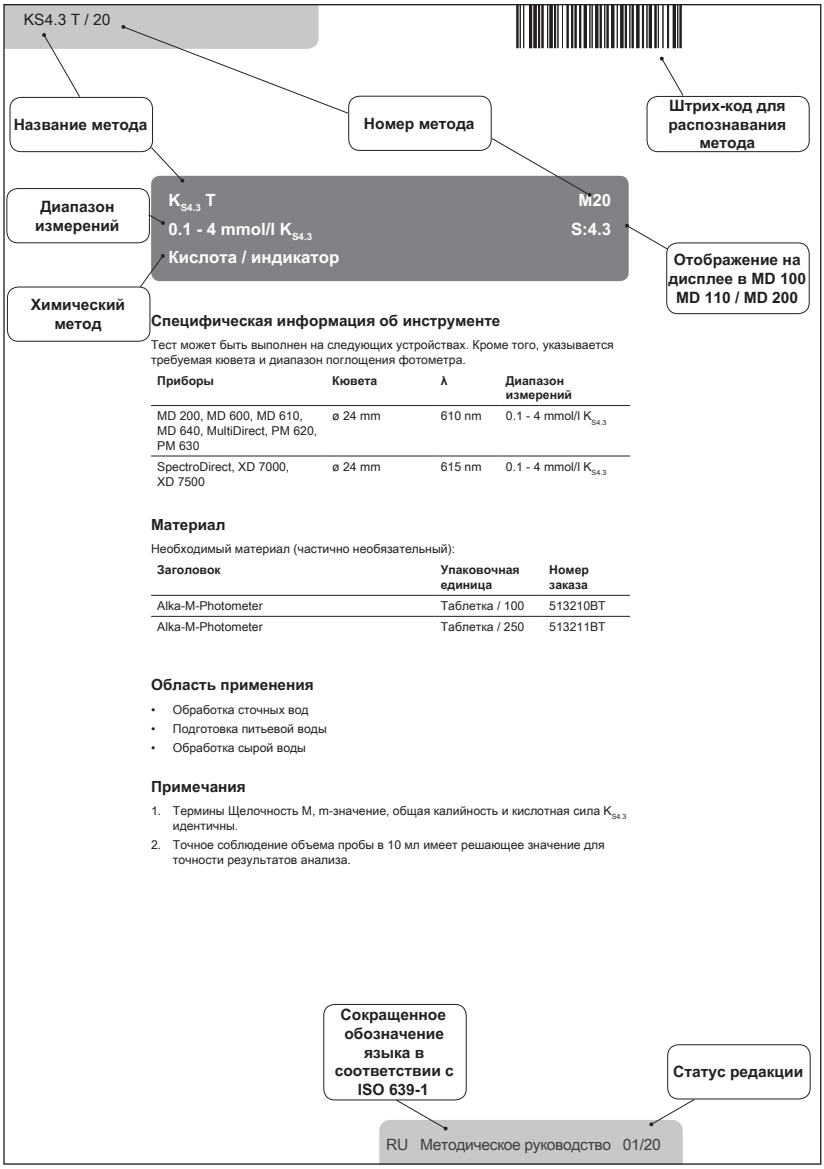
Giderilebilir Girişimler

1. 3,8 mg/L klordioksit üstünde olan konsantrasyonlar ölçüm aralığının içinde 0 mg/L'ye varan sonuçlara sebep olabilir. Bu durumda su numunesi klordioksit içermeyen su ile seyreltilmelidir. Seyreltilen numunenin 10 ml'sine ayıraç katılır ve ölçüm tekrarlanır (uygunluk testi).

Elde edilen

DIN 38408, kısım 5

[1] klorun mevcut olması durumunda bromür, klor dioksit ve ozonu belirlemek için gerekir



Специфическая информация об инструменте

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

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

Материал

Необходимый материал (частично необязательный):

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

Область применения

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

Примечания

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

Выполнение измерения

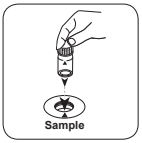
Выполнение определения Кислотная сила $K_{S4.3}$ с таблеткой

Выберите метод в устройстве.

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

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

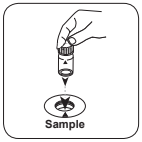
Закройте кювету(ы).



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

■ ■ ■

Растворите таблетку (таблетки) покачиванием.



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

Нажмите клавишу ТЕСТ (XD: СТАРТ).

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

Диоксид хлора PP M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

RU

Материал

Необходимый материал (частично необязательный):

Реактивы	Упаковочная единица	Номер заказа
хлорины свободный DPD F10	Порошок / 100 Шт.	530100
хлорины свободный DPD F10	Порошок / 1000 Шт.	530103
Глицин [1]	Таблетка / 100	512170BT
Глицин [1]	Таблетка / 250	512171BT
VARIO глициновый реагент 10%, 29 мл	29 mL	532210

Отбор проб

1. Во время подготовки пробы необходимо избегать выделения, например, из-за пипетирования и встряхивания.
2. Анализ должен проводиться сразу же после отбора проб.

Подготовка

1. Чистка кювет:
   Поскольку многие бытовые чистящие средства (например, средства для мытья посуды) содержат восстановительные вещества, при определении Диоксид хлора возможно получение пониженных результатов. Чтобы исключить эту погрешность измерения, стеклянные приборы не должны потреблять хлор. Для этого стеклотара хранится в течение часа под раствором гипохлорита натрия (0,1 г/л), а затем тщательно промывается полностью деминерализованной водой (полностью обессоленной водой).
2. Сильно щелочные или кислые воды должны быть приведены в диапазон pH от 6 до 7 (с 0,5 моль/л серной кислоты или 1 моль/л раствора гидроксида натрия) перед анализом.

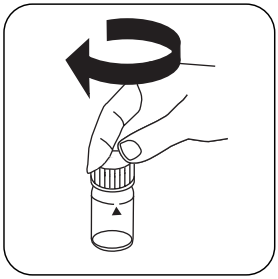
Выполнение определения Диоксид хлора в отсутствие хлора, с использованием порошкообразного реагентах

Выберите метод в устройстве.

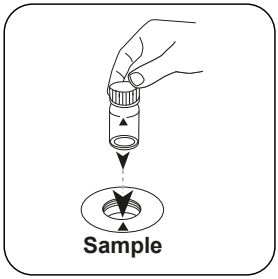
Также выберите определение: без хлора.

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

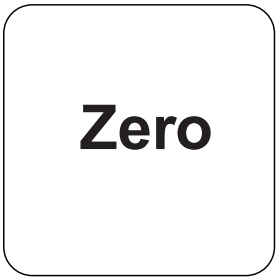
24-Наполните кювету -мм **10 пробой мл**.



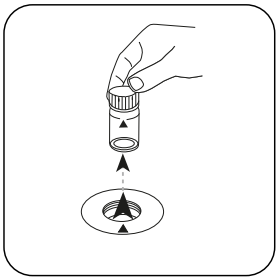
Закройте кювету(ы).



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



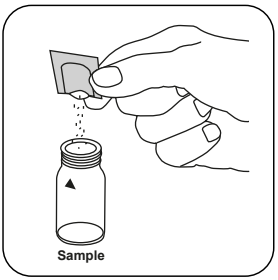
Нажмите клавишу **НОЛЬ** .



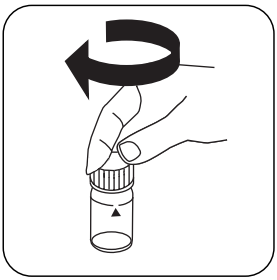
Извлеките кювету из измерительной шахты.

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

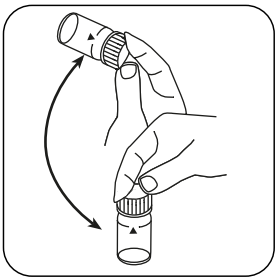
RU



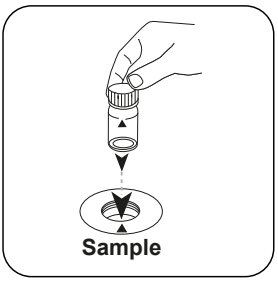
Добавьте **упаковку порошка Chlorine FREE-DPD / F10**.



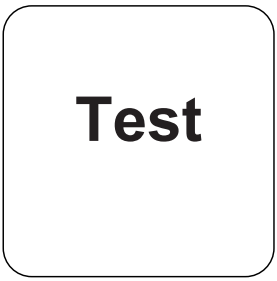
Закройте кювету(ы).



Перемешайте содержимое покачиванием (20 sec.).



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



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

На дисплее отображается результат в мг/л Диоксид хлора.

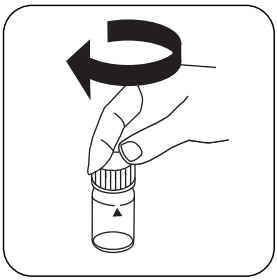
Выполнение определения Диоксид хлора в присутствии хлора, с использованием порошкообразного реагентах

Выберите метод в устройстве.

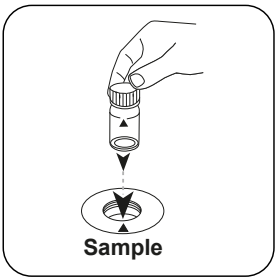
Также выберите определение: в присутствии хлора.

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

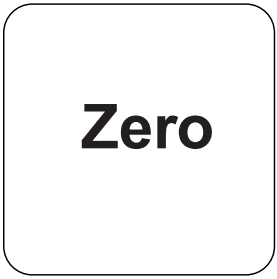
24-Наполните кювету -мм **10 пробой мл**.



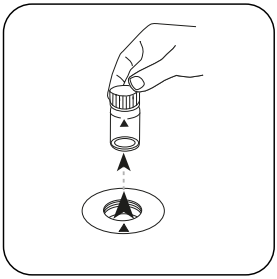
Закройте кювету(ы).



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

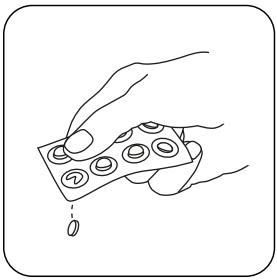


Нажмите клавишу **НОЛЬ** .

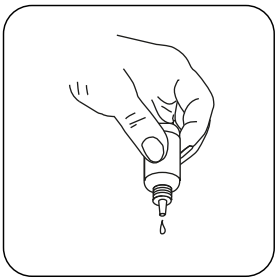


Извлеките кювету из измерительной шахты.

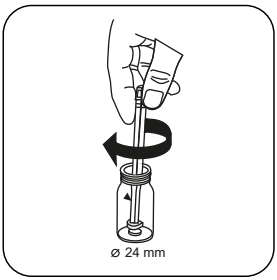
Для приборов, для которых не требуется **измерение нулевого значения** , **начните отсюда**.



Добавить **таблетку GLYCINE**.

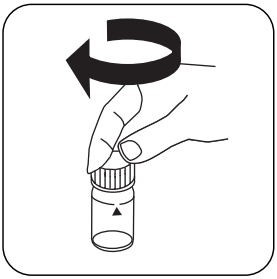


или Добавьте4 капли GLYCINE Reagent.

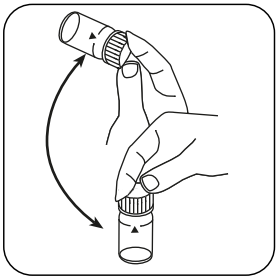


Раздавите таблетку (таблетки) легким вращением.

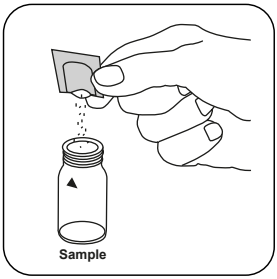
RU



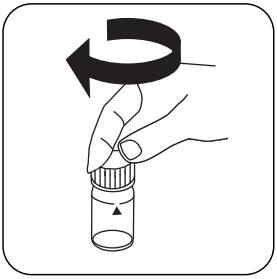
Закройте кювету(ы).



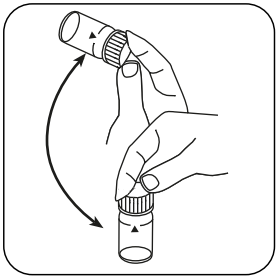
Растворите таблетку (таблетки) покачиванием.



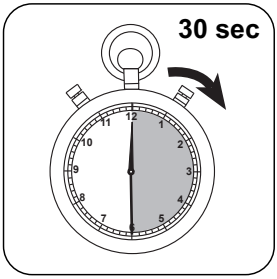
Добавьте **упаковку порошка Chlorine-Free-DPD/ F10**.



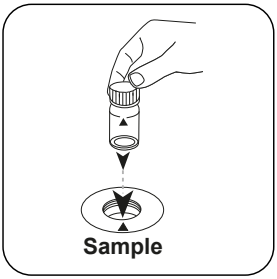
Закройте кювету(ы).



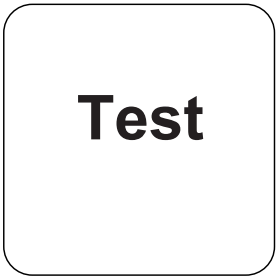
Перемешайте содержимое покачиванием (20 sec.).



Выдержите **30 время реакции в секундах**.



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



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

На дисплее отображается результат в мг/л Диоксид хлора.

Химический метод

DPD

Приложение

Нарушения

Постоянные нарушения

1. Все оксидационные средства, присутствующие в пробах, дают повышенные результаты.

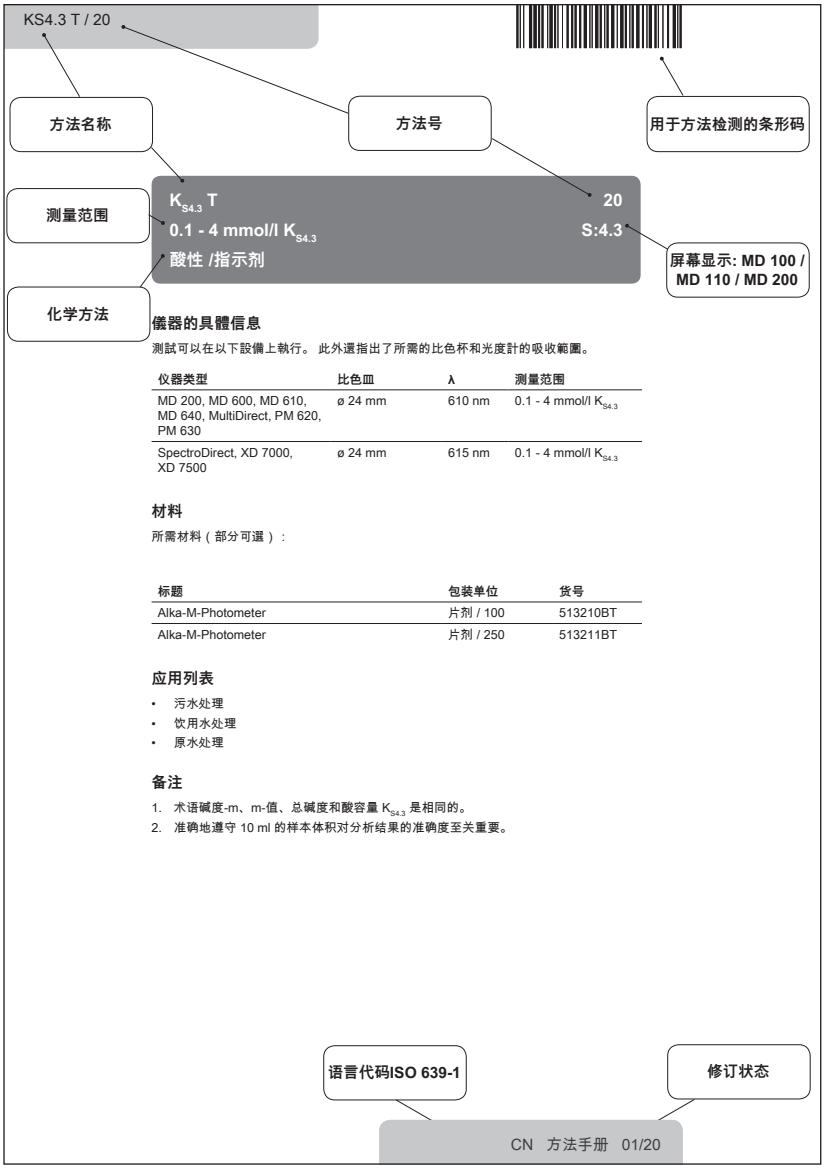
Исключаемые нарушения

1. Концентрации диоксида хлора свыше 3,8 мг/л могут привести к результатам в диапазоне измерения до 0 мг/л. В этом случае проба воды должна быть разбавлена водой без содержания диоксида хлора. Добавьте реагент в 10 мл разбавленной пробы и повторите измерение (испытание на достоверность).

Выведено из

DIN 38408, раздел 5

[1] требуется дополнительно для определения содержания брома, диоксида хлора и озона в присутствии хлора



儀器的具體信息

測試可以在以下設備上執行。 此外還指出了所需的比色杯和光度計的吸收範圍。

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

材料

所需材料（部分可選）：

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

应用列表

- 污水处理
- 饮用水处理
- 原水处理

备注

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

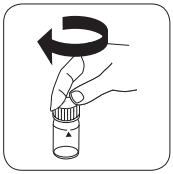
开始测量

进行测定 $K_{S4.3}$ 片剂酸容量

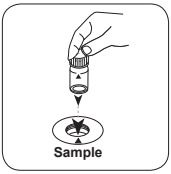
选择设备中的方法。

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

用 **10 ml** 样本填充 24 mm 比色杯。

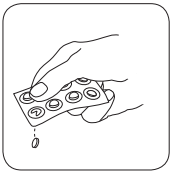


密封比色杯。

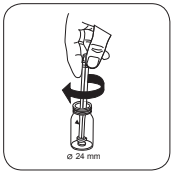


将样本比色杯放入测量轴中。注意定位。

• • •



加入 **ALKA-M-PHOTOMETER** 片剂。



用轻微的扭转压碎片剂。

密封比色杯。

CN 方法手册 01/20

PP 二氧化氯 M122

0.04 - 3.8 mg/L ClO_2 CLO2

DPD

材料
所需材料（部分可選）：

ZH

试剂	包装单位	货号
游离氯 DPD F10	粉剂 / 100 片	530100
游离氯 DPD F10	粉剂 / 1000 片	530103
甘氨酸 [1)]	片剂 / 100	512170BT
甘氨酸 [1)]	片剂 / 250	512171BT
VARIO 甘氨酸试剂 10 %, 29 毫升。	29 mL	532210

取样

1. 在样本制备中，通过移液和摇动来避免的排气。
2. 取样后必须立即进行分析。

准备

1. 清洗比色杯：
   由于许多家用清洁剂（例如洗碗用洗涤剂）含有还原剂，所以测定的二氧化氯结果可能会不足。为了排除这种测量误差，玻璃器皿应无氯。为此，将玻璃器皿在次氯酸钠溶液（0.1 g/L）下存放 1 小时，然后用去离子水（软化水）彻底冲洗。
2. 在分析前（用 0.5 mol/l 硫酸或 1 mol/l 氢氧化钠溶液）必须将强碱性或酸性水的 pH 范围调节到 6 和 7 之间。

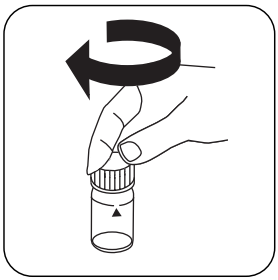
进行测定 Chlorine Dioxide, in absence of chlorine with powder packs

选择设备中的方法。

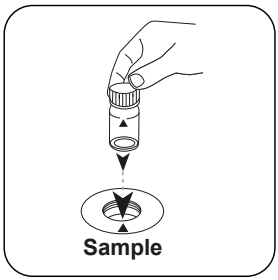
另外选择测定：without Chlorine

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

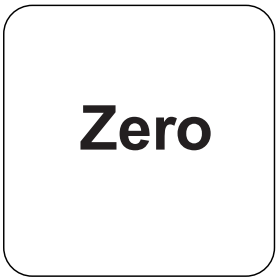
用 **10 mL 样本**填充 24 mm 比色杯。



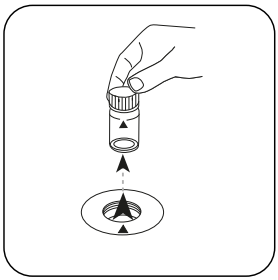
密封比色杯。



将**样本比色杯**放入测量轴中。注意定位。

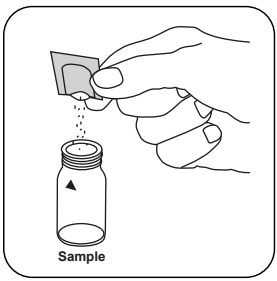


按下 **ZERO** 按钮。

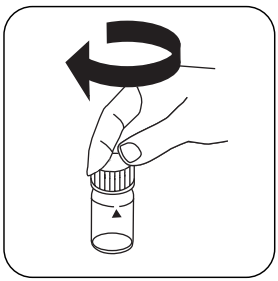


从测量轴上取下比色杯。

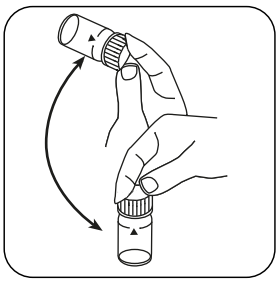
对于**不需要 ZERO 测量**的设备，**从这里开始。**



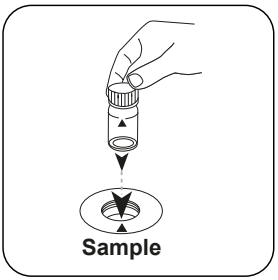
加入 **Chlorine FREE-DPD / F10 粉包**。



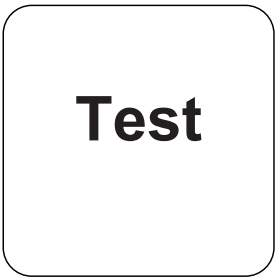
密封比色杯。



通过旋转混合内容物（20 sec.）。



将**样本比色杯**放入测量轴中。注意定位。



按下 **TEST** (XD: **START**) 按钮。

结果在显示屏上显示为 mg / l 二氧化氯。

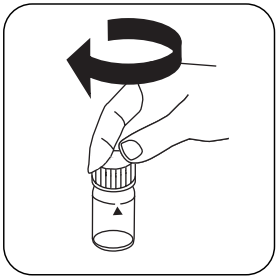
进行测定 Chlorine Dioxide, in presence of chlorine with powder packs

选择设备中的方法。

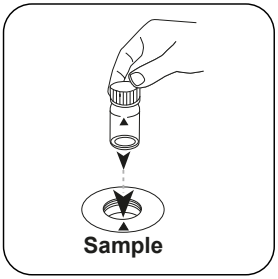
另外选择测定：in presence of Chlorine

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

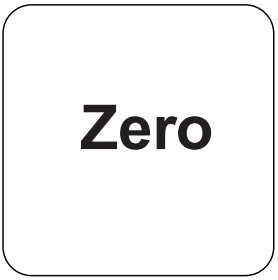
用 **10 mL 样本**填充 24 mm 比色杯。



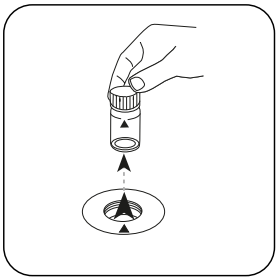
密封比色杯。



将**样本比色杯**放入测量轴中。注意定位。

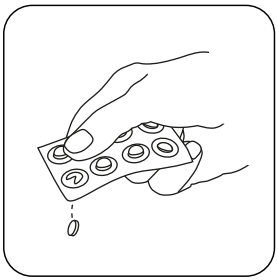


按下 **ZERO** 按钮。

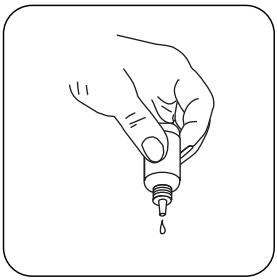


从测量轴上取下比色杯。

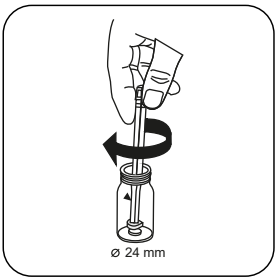
对于**不需要 ZERO 测量**的设备，**从这里开始。**



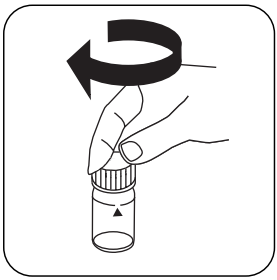
加入 **GLYCINE 片剂**。



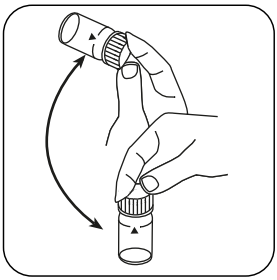
或加4滴GLYCINE Reagent。



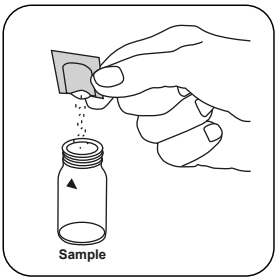
用轻微的扭转压碎片剂。



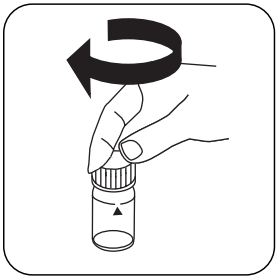
密封比色杯。



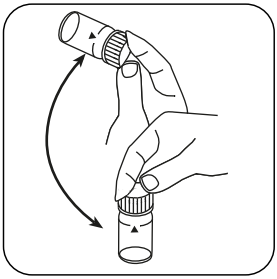
通过旋转溶解片剂。



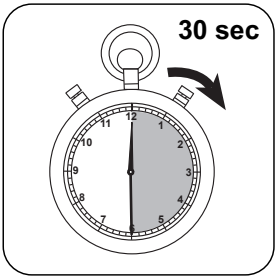
加入 **Chlorine-Free-DPD/ F10 粉包** 。



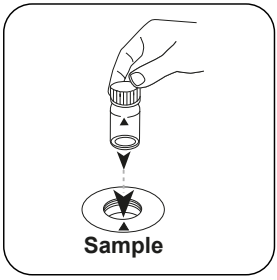
密封比色杯。



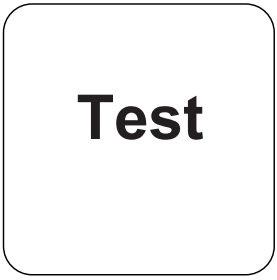
通过旋转混合内容物（ 20 sec. ）。



等待 **30 秒反应时间** 。



将**样本比色杯**放入测量轴中。注意定位。



按下 **TEST** (XD: **START**) 按钮。

结果在显示屏上显示为 mg / l 二氧化氯。

化学方法

DPD

附錄

ZH

干扰说明

持续干扰

1. 存在于样本中的所有氧化剂都导致多重结果。

可消除干扰

1. 高于 3.8 mg/L 二氧化氯的浓度可导致测量范围内的结果高达 0 mg/L。在这种情况下应用不含二氧化氯的水稀释水样。将 10 ml 稀释的样本与试剂混合并重复测量（可信度测试）。

源于

DIN 38408, 第 5 部分

[1] 附加试剂，用于含氯水样，进行溴，二氧化氯和臭氧的测定分析

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