Order number
170 109

Water test kit alkaline earths, $K_{S8,2}$ and $K_{S4,3}$

(Total hardness, p- and m-value)

ATTENTION !

This water test kit contains chemicals that – if applied incorrectly - may be hazardous to the health and safety of the user. Make sure the water test kit is stored out of the reach of children. Prior to starting the work, carefully read the instructions indicated on the genuine containers and take suitable safety measures. For detailed information, please refer to the EC safety data sheets that we would be pleased to supply upon request.

Content

3 Erlenmeyer flasks, wide neck, 300 ml

2 transparent measuring cylinders, 100 ml

2 titrating burettes with supply-bottle

0.1 N hypochloric acid, 1 l

GENO-plex B – solution, 1 l

500 indicator buffer tablets

m-solution, 250 ml

p-solution, 250 ml

Ammoniac solution 25% 250 ml

Operation manual for water test kit

Application

The present water test kit is designed for the determination of alkaline earths as well as the $K_{S8,2}$ and $K_{S4,3}$ value in water.

The admeasurement for the total hardness is the sum of alkaline earths which is determined by titration with GENO®-plex B solution.
The $K_{S8,2}$ and $K_{S4,3}$ values are the admeasurement for the concentration of bases and hydrogen carbonates contained in the water. They are determined by adding p- and m-solution and titration with 0.1 N hypochloric acid.

Preparation

Fill the supply bottles of the titrating burettes with the indicated amount of titrating solution. Firmly close the supply bottles and put the complete unit into the supplied stand.

Execution of the test

Determination of the sum of alkaline earths

1. Measure 100 ml of the water sample and fill this amount into the Erlenmeyer flask.
2. Add an indicator buffer tablet and swing the flask until the tablet has dissolved.
3. Add 10 - 20 drops of ammoniac solution. Green colouring indicates 0 °Gh; in case of red colouring the hardness must be determined.
4. In order to determine the sum of alkaline earths, fill the burette with GENO®-plex B solution by compressing it. The upper inlet tip sucks off the excess solution and
5. automatically sets the column to zero.
   Make sure that there are no air bubbles in the lower part of the burette.
6. Now add GENO®-plex B solution to the sample by carefully pressing the red button until the colour changes from red to green.
7. Read the value at the burette. The consumption in ml corresponds to the sum of alkaline earths in °Gh.

Determination of the $K_{S8,2}$(p) and $K_{S4,3}$(m) value

1. Fill 100 ml of the water to be analysed into the Erlenmeyer flask.
2. Add 4 drops of p-solution.
3. If no colouring occurs, continue with point 5. If a red colouring is visible, add hypochloric acid 0.1 N drop by drop from the burette which is filled up to the zero mark until the colouring disappears while continuously shaking the flask.
4. Read the consumption of hypochloric acid. The indicated value in ml corresponds to the $K_{S8,2}$ value in mmol/l.
5. Now add 2 - 3 drops of m-solution to the same sample.
6. Then continue the titration with 0.1 N hypochloric acid without refilling the burette to the zero mark beforehand.

7. If the colour of the sample changes from a yellowish orange to onion red, read the total consumption of hypochloric acid. This value in ml corresponds to the $K_{S4,3}$ value in mmol/l.

Only in raw water

In order to determine the carbonate hardness:

Carefully add hypochloric acid 0.1 N from the burette which is filled up to its zero point to a 100 ml water sample containing 2 – 3 drops of m-solution until the colour changes from yellow to onion red.

The consumption of 0.1 N HCl corresponds to the $K_{S4,3}$ value.

Multiply the $K_{S4,3}$ value (m-value) by 2.8 in order to get the carbonate hardness (in °Gh).

Storage

Store the reagents in a dry and well ventilated place.

Pay attention to the dates for the service life imprinted on the containers.

Delivery

The water test kit will be delivered as a complete package. Individual parts and reagents may be ordered under the order numbers indicated in the table below.

Information

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Tel.: +49 9074/41-304
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Quick-working burette with measuring scale and supply bottle	88807050
Erlenmeyer flask, wide neck, 300 ml	88808025
Transparent measuring cylinder, 100 ml	88805053
Indicator buffer tablets, 500 tablets	170536
GENO-plex B solution, 1 l	170706
0.1 N hypochloric acid, 1 l	170701
Ammoniac solution 25 %, 250 ml	170705
m-solution 250 ml	170703
p-solution 250 ml	170704
Operation manual	170950