

## Acidity AC 7

Test kit for the determination of base binding capacity up to pH 8.3

### Contents of test kit (\*refill pack):

sufficient for 200 tests with an average acidity of 3 mmol/L HCl (CO<sub>2</sub>)

10 mL indicator p\*

100 mL titration solution TL AC 7\*

1 test tube with ring mark

1 titration syringe 0–7 mmol/L HCl (CO<sub>2</sub>)

(1 graduation mark  $\triangle$  0.2 mmol/L)

2 plastic dropping tips

### Hazard warning:

Indicator p contains ethanol 55–75 %.

For further information, please ask for safety data sheet.

### Drawing of sample:

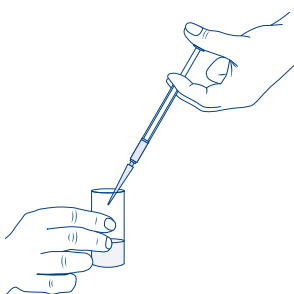
The exact carbonic acid content can be determined, when the sample is carefully drawn. This is important since the carbonic acid can easily escape from the test sample. For orientation measurements the VISOCOLOR® test kit is suitable.

Fill the test tube slowly with a minimum of movement of the liquid, e.g. with a thin tube down the inner wall of the test tube. Allow the sample to overflow for a few minutes, then carefully empty to the ring mark.

### Procedure:

1. Rinse test tube several times with the test sample and fill to ring mark.
2. Add 1 drop of indicator p and mix by shaking. If test sample turns red, the acidity is zero. If the test sample remains colorless, proceed as follows:
3. Put dropping tip on to the titration syringe, press down plunger, dip the tip into the titration solution TL AC 7 and draw up plunger slowly, until the lower rim of the black plunger O-ring is level with value 0 on the barrel scale. The small air pocket below the plunger tip doesn't disturb the determination.
4. Addition of the titration solution: We recommend taking the syringe in the left hand and the test tube in the right hand (see drawing) and adding titration solution dropwise while gently shaking the test tube. As soon as the colour turns red, read off acidity from the syringe barrel (lower rim of the black plunger O-ring) and write down mmol/L HCl (CO<sub>2</sub>).
5. If the 1st syringe filling is not sufficient to reach color change, fill up the syringe once more with solution TL AC 7 and titrate to color change as described before. Add the additional used syringe contents to the value written down.

mmol/L CO <sub>2</sub>	mg/L CO <sub>2</sub>
1	44
2	88
3	132
4	176
5	220
6	264
7	308
8	352
9	396
10	440



The method can be applied also for the analysis of sea water.

### Disposing of the samples:

The used analysis specimens can be flushed down the drain with tap water and channeled off to the local sewage treatment works.

### Note:

Apart from carbonic acid, all other acids present are determined (e.g. humic acids, mineral acids etc.).

If the first titration is carried out too slowly some of the carbonic acid content may escape. For precise determinations the whole test procedure should be repeated, when the color change point is known. In case of varying results, take the higher value.

To differentiate between carbonic acid and mineral acids (determination of the negative m and p values), the test sample should also be titrated against indicator m (= -m value) from the kit VISOCOLOR® HE Carbonate Hardness C 20 (p / m Alkalinity), REF 915003. The negative p value is determined as described above.

$m = p \rightarrow$  only mineral acids or strongly organic acids

$p > m \rightarrow$  carbonic acid, phosphoric acid, organic acids =  $p - m$

mineral acids or strongly organic acids = m

1 mmol/L = 36.5 mg/L HCl = 44 mg/L CO<sub>2</sub>