

Hardness, total**56I700280****5 - 600 mg/L CaCO₃**

Material

Reagents	Packaging Unit	Part Number
Hardness Total Buffer TH2	65 mL	56L016065
Hardness Total Indicator TH1P	Powder / 40 g	56P028340
Hardness LR Titrant TH3	65 mL	56L016265
Hardness HR Titrant TH4	65 mL	56L014565

The following accessories are required.

Accessories	Packaging Unit	Part Number
Syringe, plastic, 20 mL	1 Pieces	56A006501
Titration jar with cap, plastic, 60 mL	1 Pieces	56A006701

Application List

- Cooling Water

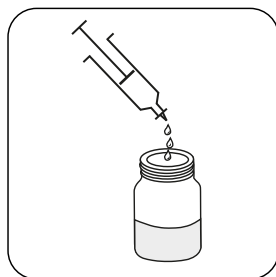
Remarks

1. Colours may vary depending on sample and test conditions.
2. More than 1 ppm copper in the sample will prevent the pure blue endpoint from occurring.
3. To remove copper interference, add 1 drop of Iron Reagent FE6 before the addition of Hardness Total Buffer TH2. Iron Reagent FE6 is not supplied as standard in the hardness test pack, but can be purchased separately. (56L006365)

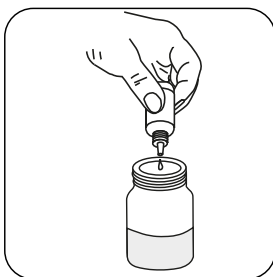
Sampling

Select the sample volume from the table according to the expected measuring range and read off the factor to calculate the result.

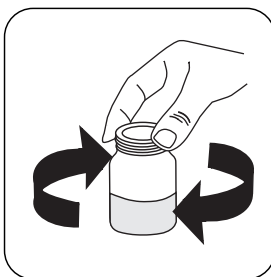
Expected Range	Titrant used	Sample Size	Factor
5-15 mg/L CaCO ₃	Hardness LR Titrant TH3	40 mL	0.5
10-30 mg/L CaCO ₃	Hardness LR Titrant TH3	20 mL	1
20-60 mg/L CaCO ₃	Hardness LR Titrant TH3	10 mL	2
50-150 mg/L CaCO ₃	Hardness HR Titrant TH4	40 mL	5
100-300 mg/L CaCO ₃	Hardness HR Titrant TH4	20 mL	10
200-600 mg/L CaCO ₃	Hardness HR Titrant TH4	10 mL	20



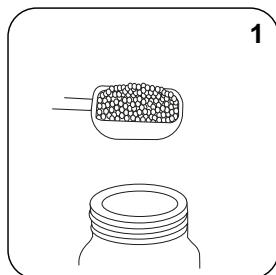
Attention! Select the appropriate sample volume according to the instructions in the chapter Sampling.



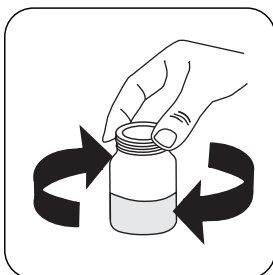
Add **4** drops of **Hardness Total Buffer TH2** per **10 mL** of sample.



Swirl to mix.



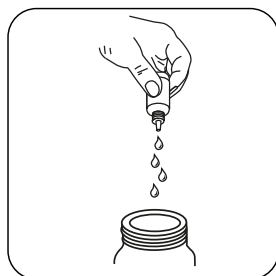
Add **1** measuring scoop(s) **Hardness Total Indicator TH1P**.



Swirl to mix.

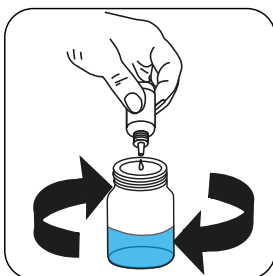


The sample will turn **wine red**.



Attention! Record the number of drops that will be added.

Note: Make sure to swirl the jar after adding each drop!



Add **Hardness LR Titrant TH3** or **Hardness HR Titrant TH4** drop by drop to the sample until colouration turns from **wine red** to **blue**.

Calculate test result: Total Hardness (as CaCO₃) mg/L = Number of drops x factor (see table)