

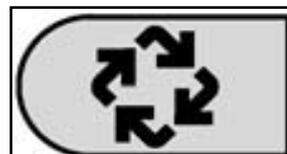
Measure every week the hardness of the softened water , with the supplied test kit.
Check all connections visually on possible leakages.

- 1) Gauge with a 100ml mark
- 2) Reagent 1 stock solution (HARDNESS 1)
- 3) Reagent 2 indicator (HARDNESS 2)
- 4) Reagent 3 titration fluid (HARDNESS 3)



Procedure:

1. Fill the gauge up to the 100ml mark with a sample.
2. Add 2 full pipettes of HARDNESS 1. Shake the gauge to mix.
3. Add 4 drops of HARDNESS 2. Shake the gauge to mix.
The water hardness is correct when the sample turns blue. If a red colour appears, continue with step 4.
4. Add 1 drop of HARDNESS 3. Shake the gauge to mix. The water hardness is correct when the sample turns blue. If a red colour appears, continue with step 5
5. Regenerate the softener manually by pressing the regeneration button. The water hardness can not be measured during and until one hour after the regeneration cycle. Repeat the test procedure after this time.





Total Hardness Test Kit

1 to 20 mg/L and 1 to 20 gpg (17 to 342 mg/L) as CaCO₃

For test kit 145201 (HA-71A)

DOC326.98.00002

Additional copies available on www.hach.com

Test preparation

- Rinse labware with deionized water between tests.
- When titrating, count each drop of titrant. Hold the dropper vertically. Swirl after each drop is added.

CAUTION: Handle chemical standards and reagents carefully. Review Material Safety Data Sheets for safe handling, storage and disposal information.

Required items

Description	Unit	Catalog no.
Bottle, square mixing	6/pkg	43906
Flask, Erlenmeyer, 125-mL	each	50543
Hardness 1 Buffer Solution	100 mL MDB ¹	42432
Hardness 2, ManVer® 2 hardness indicator	100 mL MDB ¹	42532
Hardness 3 Titrant Reagent	100 mL MDB ¹	42632
Measuring Tube, plastic, 5.83 mL	each	43800

¹Marked dropping bottle

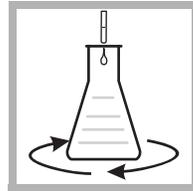
Optional items

Description	Unit	Catalog no.
Deionized Water	500 mL	27249
Hardness Standard Solution, 20 gpg as CaCO ₃	500 mL	47949

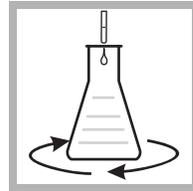
Low range (1 to 20 mg/L) test procedure



1. Fill the flask to the 100-mL mark with sample.

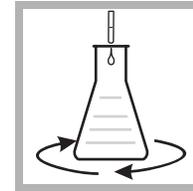


2. Add 2 mL of Buffer Solution, Hardness 1 to the flask. Swirl to mix.

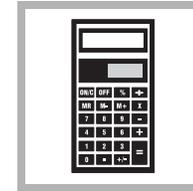


3. Add four drops of Hardness 2 Indicator. Swirl to mix.

A blue color indicates soft water. If a red color develops, proceed to step 4.



4. Add Hardness 3 Titrant Reagent by drops. Count the drops until the color changes from red to blue. Swirl to mix after each drop.



5. Calculate the results. Each drop of Hardness 3 Titrant Reagent equals 1 mg/L as calcium carbonate (CaCO₃).

High range (1 to 20 gpg (17 to 342 mg/L)) test procedure



1. Fill the plastic measuring tube to the top with sample.

Pour the sample into the bottle.

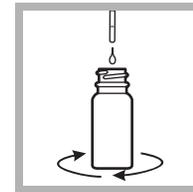


2. Add three drops of Buffer Solution, Hardness 1 to the mixing bottle. Swirl to mix.

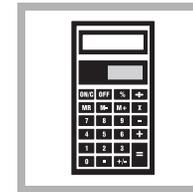


3. Add one drop of Hardness 2 Indicator to the mixing bottle. Swirl to mix.

A blue color indicates soft water. If a red color develops, proceed to step 4.



4. Add Hardness 3 Titrant Reagent by drops. Count the drops until the color changes from red to blue. Swirl to mix after each drop.



5. Calculate the results. Each drop of Hardness 3 Titrant Reagent equals 1 grain per gallon hardness as calcium carbonate (CaCO₃). One grain per gallon (gpg) equals 17.1 mg/L.