Hardness Test, 1–30 gpg

For test kit 145400 (Model 5-EP) DOC326.98.00020

Additional copies available on www.hach.com

Test preparation

- Rinse tube with the sample water before testing. Rinse tube and bottle with deionized water after testing.
- When titrating, count each drop of titrant. Hold the dropper vertically. Swirl after each drop is added.
- Accuracy is not affected by undissolved powder.
- To check reagent accuracy, use a standard solution in place of the sample (see Optional items).
- Interferences—high levels of iron or manganese will interfere and cause an orange-brown or brown color to form after the UniVer® 3 Reagent is added. If this occurs:
  1. Add 1 to 3 drops of Hardness 3 Titrant Reagent to the sample before adding the UniVer 3 Hardness Reagent.
  2. Immediately add drops of Hardness 3 Titrant Reagent until the pink to blue color change occurs.
  3. Count all the drops of Hardness 3 Titrant Reagent used to determine the hardness of the sample, including the drops added before the UniVer 3 Hardness Reagent.

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

Test procedure

1. Add one full measuring tube of sample to the bottle.

2. Add one UniVer 3 Hardness Reagent Powder Pillow to the bottle. Swirl to mix.

3. Add Hardness 3 Titrant Reagent by drops. Count the drops until the color changes from pink to blue. Hold the dropper vertically. Swirl to mix after each drop.

4. Calculate the results. Each drop of Hardness 3 Titrant Reagent equals 1 grain per gallon hardness as calcium carbonate ($CaCO_3$).

Note: *The result can be expressed in mg/L by multiplying the number of grains per gallon by 17.1.*

Replacement items

Description	Unit	Catalog no.
Bottle, square mixing	6/pkg	43906
Hardness 3 Titrant Reagent	100 mL MDB[1]	42632
Measuring Tube, plastic, 5.83-mL	each	43800
UniVer 3 Hardness Reagent Powder Pillows	100/pkg	96299

[1]Marked dropping bottle

Optional items

Description	Unit	Catalog no.
Deionized Water	500 mL	27249
Hardness Standard Solution, 20 gpg as $CaCO_3$	500 mL	47949

 For technical assistance or ordering information: visit www.hach.com, call 800-227-4224 or email techhelp@hach.com Edition 1 January 2007