

HACH 145300

HACH Total Hardness Test Kit, Model 5-B

Model Number: 145300

1. INTRODUCTION

The HACH Total Hardness Test Kit, Model 5-B, provides a simple and economical method for determining water hardness through drop count titration. This kit is designed for field and laboratory use, offering reliable measurements of total hardness expressed as CaCO_3 . The method utilizes a drop count titration with a range of 1-30 grains per gallon (gpg), with each drop of titrant equivalent to 1 gpg. The kit contains sufficient reagents for approximately 100 tests.

2. SAFETY INFORMATION

WARNING: This kit contains chemicals that may be harmful if misused. Carefully read the label on each container before use.

- Always wear appropriate personal protective equipment, such as safety glasses, to protect eyes from chemical splashes.
- Avoid direct contact of reagents with skin and clothing. In case of contact, rinse immediately with plenty of water.
- Do not ingest any reagents. If ingested, seek immediate medical attention.
- Wash hands thoroughly with soap and water after handling chemicals.
- Dispose of all chemical waste according to local environmental regulations.

3. KIT COMPONENTS

The HACH Total Hardness Test Kit, Model 5-B, includes the following items:

- Titrant Solution, Hardness 3, 0.015 M EDTA (100 mL bottle with dropper)
- UniVer® 3 Hardness Reagent (powder, 26.3 g bottle)
- Measuring Tube (Cat. No. 438-00)
- Square Mixing Bottle (Cat. No. 439-06)
- Measuring Scoop (for UniVer® 3 Hardness Reagent)



Image 1: The Hach Total Hardness Test Kit, Model 5-B, showing the titrant bottle, UniVer® 3 reagent, measuring tube, square mixing bottle, and measuring scoop.

4. SETUP

Before beginning the test, ensure all components are clean and readily accessible. Work in a well-lit area.

1. Unpack all kit components and verify their presence against the list above.
2. Rinse the measuring tube and square mixing bottle thoroughly with the water sample to be tested, then discard the rinse water. This prevents contamination from previous tests or tap water.

5. OPERATING INSTRUCTIONS: DROP COUNT TITRATION

Follow these steps to perform a total hardness test:

1. **Collect Sample:** Fill the measuring tube (Cat. No. 438-00) to the 25 mL mark with the water sample to be tested.
2. **Transfer Sample:** Pour the 25 mL water sample from the measuring tube into the square mixing bottle (Cat. No. 439-06).
3. **Add Reagent:** Using the provided measuring scoop, add one level scoop of UniVer® 3 Hardness Reagent (Cat. No. 511-00) to the square mixing bottle. Cap the bottle and swirl gently to mix until the powder dissolves completely. The sample should turn a red or pink color if hardness is present. If the sample turns blue immediately, the water is very soft (less than 1 gpg).
4. **Titrate Sample:** Hold the Titrant Solution bottle (0.015 M EDTA) vertically and add the solution drop by drop to the sample in the square mixing bottle. After each drop, cap the bottle and swirl to mix thoroughly.
5. **Observe Color Change:** Continue adding drops and swirling until the color of the sample changes from red/pink to a clear blue. This is the endpoint of the titration.

6. **Count Drops:** Record the total number of drops of Titrant Solution added to achieve the color change.

Calculation: Each drop of Titrant Solution corresponds to 1 grain per gallon (gpg) of total hardness. Therefore, the number of drops equals the total hardness of your water sample in gpg.

Conversion: To convert grains per gallon (gpg) to milligrams per liter (mg/L) as CaCO_3 , multiply the gpg value by 17.1. (1 gpg = 17.1 mg/L CaCO_3).



Image 2: A person in protective gear conducting a water quality test in an outdoor industrial setting, demonstrating typical application environments for Hach products.

6. INTERPRETING RESULTS

The total number of drops of Titrant Solution required to change the sample color from red/pink to blue directly indicates the water hardness in grains per gallon (gpg). For example, if 10 drops were required, the water hardness is 10 gpg.

Understanding your water hardness is crucial for various applications, including water treatment, appliance maintenance, and industrial processes.



Image 3: A scientist in a lab coat and safety glasses operating a Hach water analysis device in a laboratory setting,

7. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your test kit.

- **Cleaning:** After each use, thoroughly rinse the measuring tube, square mixing bottle, and scoop with distilled or deionized water. Allow them to air dry completely before storage.
- **Storage:** Store all reagents in their original containers, tightly capped, in a cool, dark place away from direct sunlight and extreme temperatures. Ensure the Titrant Solution bottle is stored upright.
- **Reagent Expiration:** Check the expiration dates on the reagent bottles. Expired reagents may lead to inaccurate results. Replace reagents as needed.

8. TROUBLESHOOTING

If you encounter issues during testing, consider the following common problems and solutions:

- **No Color Change to Red/Pink:** If the sample does not turn red/pink after adding UniVer® 3 Hardness Reagent, the water may be extremely soft (less than 1 gpg) or the reagent may be expired. Try a known hard water sample to verify reagent activity.
- **Inaccurate Results:**
 - Ensure all glassware is clean and free from contamination.
 - Verify that reagents are not expired.
 - Ensure accurate measurement of the water sample (25 mL).
 - Add titrant drops consistently and swirl thoroughly after each drop.
- **Difficulty Seeing Color Change:** Perform the test under good lighting conditions. A white background can help make the color change more apparent.

9. SPECIFICATIONS

Specification	Detail
Model Number	145300
Parameter	Hardness, Total - As CaCO ₃
Method Name	Drop Count Titration / EDTA-bulk powder
Range	1-30 gpg (grains per gallon)
Approximate Tests	100
Package Dimensions	5.04 x 2.68 x 2.6 inches
Item Weight	8.96 ounces
Manufacturer	HACH COMPANY

10. WARRANTY AND SUPPORT

HACH products are manufactured to high-quality standards. For specific warranty information, please refer

to the documentation included with your purchase or visit the official HACH website. For technical support, product inquiries, or to purchase replacement reagents, please contact HACH customer service or visit the HACH store online.

HACH Store: <https://www.amazon.com/stores/Hach/page/F31EE231-E533-4E96-B7EB-49EC9C17D676>

Related Documents - 145300

	HACH Hardness (Total and Calcium) Test Kit HA-4P MG/L (145701) - Instructions and Specifications Detailed instructions and specifications for the HACH Hardness (Total and Calcium) Test Kit, Model HA-4P MG/L (145701). Learn how to perform total and calcium hardness tests, understand interferences, and order replacement items.
	HACH EZ4041 Total Hardness Analyser - Water Quality Monitoring Discover the HACH EZ4041 Total Hardness Analyser, an online, automatic colorimetric titrator designed for industrial and environmental water monitoring. Features include a wide measuring range, smart automatic functions, flexible titration methods, and multiple stream analysis capabilities.
	Hach Methods Quick Reference Guide: Chemical Analysis Instruments and Reagents A comprehensive guide to Hach's chemical analysis methods, detailing test parameters, EPA approvals, instrument compatibility, and product numbers for water quality testing.
	Hach Chlorine Test Kit Instructions: Quick Guide for Water Quality Testing This quick guide provides instructions for using the Hach Chlorine Test Kit to measure free or total chlorine levels in water. It includes preparation steps, a detailed procedure, and important notices for accurate water quality testing.
	HACH Manual Titrators: Accurate and Convenient Titration Solutions Explore HACH Manual Titrators for precise $\pm 1\%$ accurate titrations. Discover models 1690001, 1690002, and 2270900, designed for convenience and efficiency in laboratory testing.

Hach Nitrate Cadmium Reduction Method 8039: Procedure and Guidelines

Comprehensive guide to the Hach Nitrate Cadmium Reduction Method (Method 8039) for determining nitrate levels in water, wastewater, and seawater using NitraVer 5 Powder Pillows and AccuVac Ampuls. Includes detailed procedures, instrument compatibility, interferences, calibration, and safety information.

Documents - HACH – 145300

[\[pdf\]](#) Specifications

145300 hach product detail print version jsa id 7640219508

Total Hardness Test Kit, Model 5-B Product #: USD Price: Available **145300** 23.59

Trust the original Hach test kit Simple drop-count titration measures hardness as grains per gallon CaCO 1 gpg = 17.1 mg/L . Utilizes drop count titration with a range of 1-30 gpg. Contains approximately 100 tests....

lang:en score:28 filesize: 132.72 K page count: 1 document date: 2021-08-28

[\[pdf\]](#) User Manual

hach hardness test kit 145300 manual appliedmembranes media wysiwyg |||

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lang:en score:25 filesize: 1.49 M page count: 1 document date: 2014-05-22

[\[pdf\]](#) Instructions

Drop Count Titration Test Kits Hach Company drop count titration kits are a simple easy and cost effective

way to test for many common parameters including chlorine chloride dissolved oxygen carbon dioxide

sulfite nitrogen printableProductFamily au hach family print jsa productCategoryId 22746996612 |||

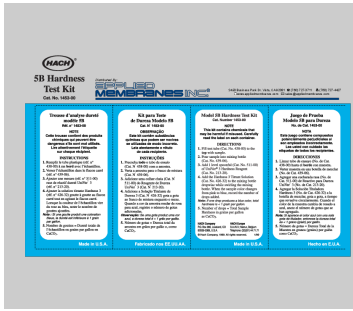
Drop Count Titration Test Kits Hach drop-count titration kits are a simple, easy, and

cost-effective ... are included in every kit. Part Number 222702 2308100 143601

2183100 2291700 144001 208601 145201 **145300** 145400 145700 145701 225300

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Single Parameter Test Kits Hach Test Kits: Single Parameter Test Kits See Inside
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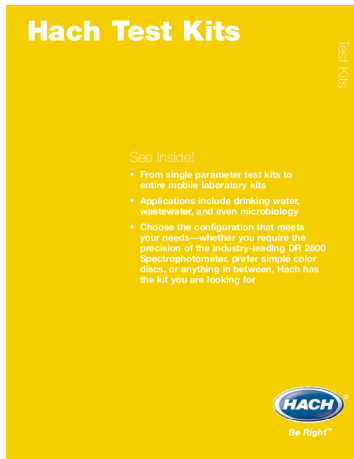


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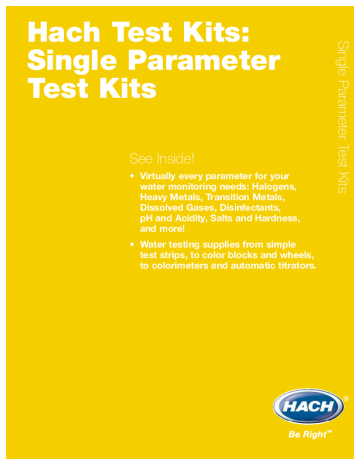


[pdf] Accessories

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Test Kits Hach Test Kits See Inside From single parameter test kits to entire mobile laboratory k ... Drop count titration tests suitable for homeowners Model 5-B Prod. No. Range No. of Tests Price **145300** 1-30 gpg 1 gpg equals 17.1 mg/L 100 14.65 Model 5-EP Similar to the 5-B kit, but incl...

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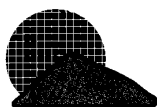
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 Drop Count Titration Test Kits					
					
Hach drop-count titration kits are a simple, easy, and cost-effective way to test for many common parameters, including chlorine, chlorine dioxide, dissolved oxygen, water hardness, sulfate, nitrate, nitrite, ammonia, and more. Kits can be used in the field or in the lab as a quick reference, or for single-point continuous testing. Kits are available in a variety of sizes and configurations to meet your needs.					
Part Number	Parameter	Platform	Range	Range 2	USD Price
145300	Hardness, total - as CaCO ₃	Drop Count Titration	1 - 30 gpg CaCO ₃		Contact Hach
145400	Hardness, total - as CaCO ₃	Drop Count Titration	1 - 30 gpg CaCO ₃		Contact Hach
145201	Hardness, total - as CaCO ₃	Drop Count Titration	1 - 20 mg/L CaCO ₃	1 - 20 gpg CaCO ₃	Contact Hach
244400	Alkalinity - (pH 8.3) Total (M) - as CaCO ₃	Drop Count Titration	5 - 100 mg/L	20 - 400 mg/L	Contact Hach
244400	Chlorine, total and high range - as Cl ₂	Drop Count Titration	-	-	Contact Hach
145001	Carbon Dioxide - as CO ₂	Drop Count Titration	1.25 to 25 mg/L CO ₂	2 to 40 mg/L CO ₂	Contact Hach
145001	Chlorine - as Cl ₂	Drop Count Titration	5 - 100 mg/L Cl ₂	20 - 400 mg/L Cl ₂	Contact Hach
145002	Sulfate - as SO ₄ ²⁻	Drop Count Titration	10 - 200 mg/L SO ₄ ²⁻		Contact Hach
231400	Alkalinity - (pH 8.3) Total (M) - as CaCO ₃	Drop Count Titration	25 - 450 mg/L	385 - 5,000 mg/L	Contact Hach
145000	Dissolved Oxygen - as O ₂	Drop Count Titration	0 - 10	1 - 20 mg/L O ₂	Contact Hach
225700	Multi-Parameter - As: DO, pH, Temperature, Conductivity, Turbidity, Total Dissolved Solids	Drop Count Titration	-	1 - 10 mg/L	Contact Hach
225701	Chlorine, total and high range - as Cl ₂	Drop Count Titration	-	1 - 20 mg/L	Contact Hach
244400	Alkalinity - (pH 8.3) Total (M) - as CaCO ₃	Drop Count Titration	5 - 100 mg/L	1 - 20 gpg**	Contact Hach
145701	Hardness, total & Calcium (Dependence by software)	Drop Count Titration	20 - 400 mg/L CaCO ₃		Contact Hach
245700	Nitrate, high range - (as N)	Drop Count Titration	10 - 100 mg/L		Contact Hach

EK-DCTEM-UG-001

DCT11-EM Evaluation Module User's Guide



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Drop Count Titration Test Kits Hach drop-count titration kits are a simple, easy, and cost-effective ... hange. Instructions, apparatus, reagents, and carrying case are included in every kit. Part Number **145300** 145400 145201 2444301 2444400 143601 144001 148002 2314500 146900 2291700 225401 2444300 1457...

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[pdf] User Manual Guide

EK DCTEM UG 001 DCT EM Users Guide Sep1983 bitsavers org dec pdp11 t11 informatik uni stuttgart de

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COD (Chemical Oxygen Demand)

Standards	Volume	Concentration	Product	Price
COD Standard Solution (1000 mg/L)	100 mL	1000 mg/L COD	1000000	\$1.00
COD Standard Solution (500 mg/L)	500 mL	500 mg/L COD	1000000	\$1.00
COD Standard Solution (250 mg/L)	250 mL	250 mg/L COD	1000000	\$1.00
COD Standard Solution (125 mg/L)	125 mL	125 mg/L COD	1000000	\$1.00
COD Standard Solution (62.5 mg/L)	62.5 mL	62.5 mg/L COD	1000000	\$1.00
COD Standard Solution (31.25 mg/L)	31.25 mL	31.25 mg/L COD	1000000	\$1.00
COD Standard Solution (15.625 mg/L)	15.625 mL	15.625 mg/L COD	1000000	\$1.00
COD Standard Solution (7.8125 mg/L)	7.8125 mL	7.8125 mg/L COD	1000000	\$1.00
COD Standard Solution (3.90625 mg/L)	3.90625 mL	3.90625 mg/L COD	1000000	\$1.00
COD Standard Solution (1.953125 mg/L)	1.953125 mL	1.953125 mg/L COD	1000000	\$1.00
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COD Standard Solution (0.244140625 mg/L)	0.244140625 mL	0.244140625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.1220703125 mg/L)	0.1220703125 mL	0.1220703125 mg/L COD	1000000	\$1.00
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COD Standard Solution (0.00095367431640625 mg/L)	0.00095367431640625 mL	0.00095367431640625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000476837158203125 mg/L)	0.000476837158203125 mL	0.000476837158203125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0002384185791015625 mg/L)	0.0002384185791015625 mL	0.0002384185791015625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00011920928955078125 mg/L)	0.00011920928955078125 mL	0.00011920928955078125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000059604644775390625 mg/L)	0.000059604644775390625 mL	0.000059604644775390625 mg/L COD	1000000	\$1.00
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COD Standard Solution (0.00001490116119384765625 mg/L)	0.00001490116119384765625 mL	0.00001490116119384765625 mg/L COD	1000000	\$1.00
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COD Standard Solution (0.0000000072759576141834259033203125 mg/L)	0.0000000072759576141834259033203125 mL	0.0000000072759576141834259033203125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000363797880709171295166015625 mg/L)	0.00000000363797880709171295166015625 mL	0.00000000363797880709171295166015625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000000001818989403545856475830078125 mg/L)	0.000000001818989403545856475830078125 mL	0.000000001818989403545856475830078125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000009094947017729282379150390625 mg/L)	0.0000000009094947017729282379150390625 mL	0.0000000009094947017729282379150390625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000045474735088646187975751953125 mg/L)	0.00000000045474735088646187975751953125 mL	0.00000000045474735088646187975751953125 mg/L COD	1000000	\$1.00
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COD Standard Solution (0.000000000000222044604925030214647226333690625 mg/L)	0.000000000000222044604925030214647226333690625 mL	0.000000000000222044604925030214647226333690625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000000001110223024625151073236131668453125 mg/L)	0.0000000000001110223024625151073236131668453125 mL	0.0000000000001110223024625151073236131668453125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000000000555111512312575536618065842265625 mg/L)	0.0000000000000555111512312575536618065842265625 mL	0.0000000000000555111512312575536618065842265625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000000002775557561562877683090329211328125 mg/L)	0.00000000000002775557561562877683090329211328125 mL	0.00000000000002775557561562877683090329211328125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000000000000013877787807814388415451646056640625 mg/L)	0.000000000000013877787807814388415451646056640625 mL	0.000000000000013877787807814388415451646056640625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000000000069388939039071942077258230283203125 mg/L)	0.0000000000000069388939039071942077258230283203125 mL	0.0000000000000069388939039071942077258230283203125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000000000034694469519535971038629115140625 mg/L)	0.0000000000000034694469519535971038629115140625 mL	0.0000000000000034694469519535971038629115140625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000000000173472347597679855193145575703125 mg/L)	0.00000000000000173472347597679855193145575703125 mL	0.00000000000000173472347597679855193145575703125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000000000000000867361737988399276575727878515625 mg/L)	0.000000000000000867361737988399276575727878515625 mL	0.000000000000000867361737988399276575727878515625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000000000043368086899419963828786393928125 mg/L)	0.00000000000000043368086899419963828786393928125 mL	0.00000000000000043368086899419963828786393928125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.000000000000000216840434497099819143931969640625 mg/L)	0.000000000000000216840434497099819143931969640625 mL	0.000000000000000216840434497099819143931969640625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.0000000000000001084202172485499095719659848203125 mg/L)	0.0000000000000001084202172485499095719659848203125 mL	0.0000000000000001084202172485499095719659848203125 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000000000005421010862427495478982974410625 mg/L)	0.00000000000000005421010862427495478982974410625 mL	0.00000000000000005421010862427495478982974410625 mg/L COD	1000000	\$1.00
COD Standard Solution (0.00000000000000002710505431				

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Reagents Description DIGITAL TITRATOR TITRATION Chromate Reagent Set Set
includes: 1 Dissolved Ox ... C-DT DT 1-20 gpg CaCO3 20-400 mg/L CaCO3 10-4,000
mg/L CaCO3 Product # Tests Number Price 100 **145300** 14.65 100 145201 48.25 100
145400 23.69 100 145401 23.69 50 2063600 192.00 100 100 ...

lang:en score:14 filesize: 421.87 K page count: 24 document date: 2008-08-04

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[\[pdf\]](#) Accessories

143 166 Parameters 2008MasterCat hach 80 fmmimghach CODE PARAMETERS 215406 1

Reagents Description DIGITAL TITRATOR TITRATION Chromate Reagent Set Set includes: 1 Dissolved Ox ... C-DT DT 1-20 gpg CaCO3 20-400 mg/L CaCO3 10-4,000 mg/L CaCO3 Product # Tests Number Price 100 **145300** 14.65 100 145201 48.25 100 145400 23.69 100 145401 23.69 50 2063600 192.00 100 100 ...

lang:en score:14 filesize: 422.14 K page count: 24 document date: 2008-02-04

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087 110 Parameters MU09 hach 80 fmmimghach CODE PARAMETERS M19563 1

Parameters Chromium, Hexavalent and Total Hexavalent Chromium method EPA accepted for wastewater ... 000 mg/L Mg Product Number Price 2793828 221.00 2793844 71.89 2745250 9.19 Product Number Price **145300** 145201 145400 145401 2063600 15.09 49.69 24.39 24.39 197.00 145700 145701 2063900 66.89 6...

lang:en score:14 filesize: 407.08 K page count: 24 document date: 2009-04-21

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Hardness Parameters Total Calcium Test Kit Model HA 4P DCT 1 20 gpg CaCO3 100 145700 MG L 400 mg PF44236 literature puertoricosupplier 044 |||

Parameters Hardness Test Strips Description Total Hardness Test Strips as CaCO3
Total Hardness T ... C-DT DT 1-20 gpg CaCO3 20-400 mg/L CaCO3 10-4,000 mg/L
CaCO3 Product # Tests Number Price 100 **145300** 100 145201 50.69 100 145400
100 145401 24.89 50 2063600 100 100 100 Ca, 100 T 1457...

lang:en score:13 filesize: 52.42 K page count: 1 document date: 2010-09-28

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