

# Hach Test Kits: Application Test Kits

Application Test Kits

See Inside!

- **Aquaculture and Aquarium Master Kits for Freshwater and Saltwater Testing.**  
*See pages 268-269.*
- **Control Hypochlorite (Bleach) and Aqua Ammonia (Ammonium Hydroxide) Bulk Solutions Directly On-Site at the Time of Delivery!**  
*See page 275.*
- **Monitor the Effectiveness of Corrosion Control Treatment Plans with the Upgraded Corrosion Management Kit.**  
*See page 284.*



***Be Right™***

# Test Kit Quick Reference Guide

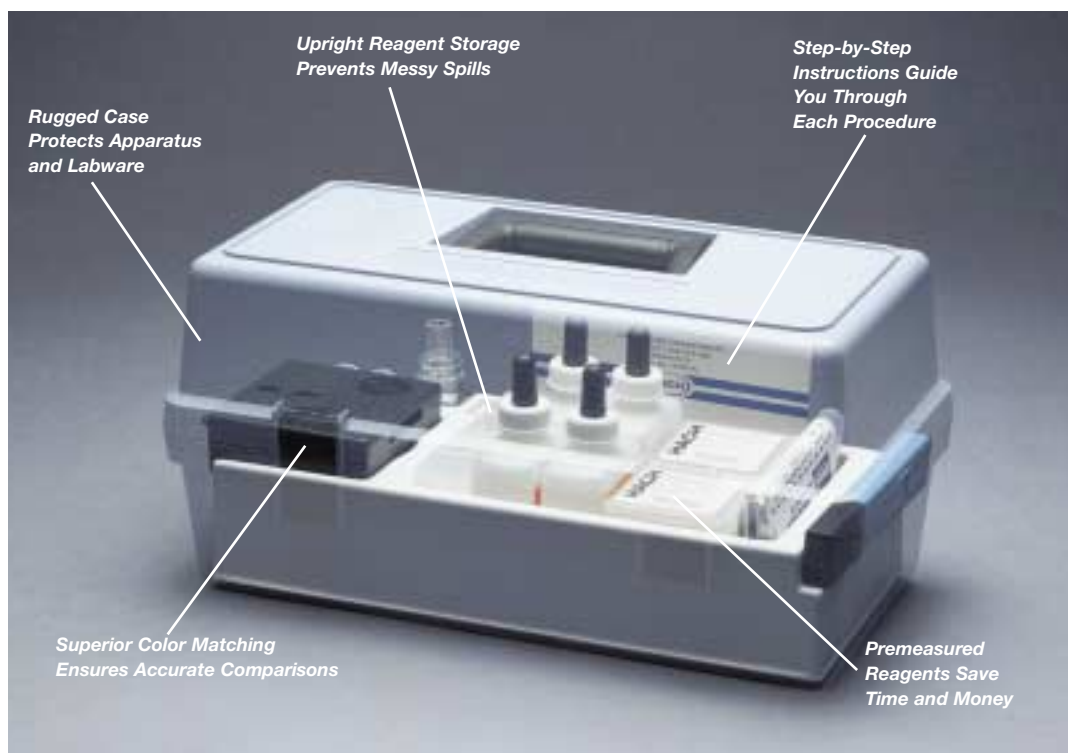
| Application                                                                                                                                   | Product Number | See Page | Acidity | Alkalinity | Bacteria | Carbon Dioxide | Chloride | Chlorine | Copper | Cyanuric Acid | Demonstration | Dissolved Oxygen | Hardness | Iron | Manganese | Nickel | N, Ammonia | N, Nitrate | N, Nitrite | Peroxide | pH | Phosphate | Potassium | Silver | Sulfite | Other |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|---------|------------|----------|----------------|----------|----------|--------|---------------|---------------|------------------|----------|------|-----------|--------|------------|------------|------------|----------|----|-----------|-----------|--------|---------|-------|--|
| Acid Mine Drainage                                                                                                                            |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| MD-2                                                                                                                                          | 1405800        | 267      | •       | •          |          |                |          |          |        |               |               |                  |          | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Agriculture                                                                                                                                   |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Soil Saturation Extract Kit                                                                                                                   | 1870000        | 267      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Soil Fertility NPK-1                                                                                                                          | 2495900        | 267      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            | •          |            |          | •  | •         | •         |        |         |       |  |
| Soil & Irrigation Water SIW-1                                                                                                                 | 2496000        | 268      |         |            |          |                |          |          |        |               |               |                  | •        |      |           |        |            | •          |            |          | •  | •         | •         |        |         | •     |  |
| Aquaculture                                                                                                                                   |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| FF-1A                                                                                                                                         | 243002         | 268      |         | •          |          | •              | •        |          |        |               |               | •                | •        |      |           |        | •          |            | •          |          | •  |           |           |        |         | •     |  |
| FF-2                                                                                                                                          | 243001         | 269      | •       | •          |          | •              | •        |          |        |               |               | •                | •        |      |           |        | •          |            | •          |          | •  |           |           |        |         | •     |  |
| FF-3                                                                                                                                          | 243003         | 269      | •       | •          |          | •              | •        |          |        |               |               | •                | •        |      |           |        | •          |            | •          |          | •  |           |           |        |         | •     |  |
| Saltwater Master                                                                                                                              | 2068600        | 269      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        | •          | •          | •          |          | •  |           |           |        |         |       |  |
| Fish/Wildlife Water Ecology Kit                                                                                                               | 180233         | 278      | •       | •          |          | •              |          |          |        |               |               | •                | •        |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Boiler and Cooling Water – Single Parameter Kits                                                                                              |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| (For Chromium, Copper, Dissolved Oxygen, Manganese, Molybdenum, Phosphate, Silica, and Sulfite, see Single Parameter listings—pages 286-307.) |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Benzotriazole (see Triazole)                                                                                                                  |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| DEHA/Erythorbic Acid DH-1                                                                                                                     | 2168200        | 271      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Hydrazine HY-2                                                                                                                                | 184900         | 271      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Oxygen Scavenger OS-1                                                                                                                         | 2349500        | 271      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Phosphonate                                                                                                                                   | 5870007        | 272      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Pocket Colorimeter II Kit                                                                                                                     |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Phosphonate PN-10                                                                                                                             | 2113300        | 272      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Triazole TZ-1                                                                                                                                 | 2167500        | 272      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Boiler and Cooling Water – Multi-parameter Kits                                                                                               |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Boiler Feed and Scale BSC-1                                                                                                                   | 2350300        | 270      |         | •          |          |                | •        |          |        |               |               |                  | •        |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Boiler Treatment Control BTC-2                                                                                                                | 2350400        | 270      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          | •  | •         |           |        | •       |       |  |
| Complete Kit BC-3                                                                                                                             | 2350500        | 270      |         | •          |          |                | •        | •        |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  | •         |           |        | •       | •     |  |
| General Boiler/Cooler AL-94 MG-L                                                                                                              | 222403         | 272      |         | •          |          |                | •        |          |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Professional BoilerBT-DT                                                                                                                      | 2350600        | 273      |         | •          |          |                | •        |          |        |               |               |                  | •        |      |           |        |            |            |            |          | •  | •         |           |        | •       |       |  |
| Professional Boiler/Cooler PBC-DT                                                                                                             | 2350700        | 273      |         | •          |          |                | •        | •        |        |               |               |                  | •        | •    |           |        |            |            | •          |          | •  | •         |           |        | •       | •     |  |
| Drinking Water                                                                                                                                |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Nitrification Control Kit                                                                                                                     | 2882200        | 136      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            | •          |          |    |           |           |        |         | •     |  |
| Hardness and Iron HA-95A                                                                                                                      | 145602         | 273      |         |            |          |                |          |          |        |               |               |                  | •        | •    |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Hardness and Iron HA-77                                                                                                                       | 202300         | 274      |         |            |          |                |          |          |        |               |               |                  | •        | •    |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Iron and Manganese IR-20                                                                                                                      | 146300         | 274      |         |            |          |                |          |          |        |               |               |                  |          | •    | •         |        |            |            |            |          |    |           |           |        |         |       |  |
| Iron and pH IR-23                                                                                                                             | 256200         | 274      |         |            |          |                |          |          |        |               |               |                  |          | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Hardness, Iron, and pH HA-62                                                                                                                  | 183700         | 274      |         |            |          |                |          |          |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Hardness, Iron, and pH HA-62A                                                                                                                 | 183701         | 274      |         |            |          |                |          |          |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Hardness, Iron, and pH HA-62B                                                                                                                 | 183702         | 274      |         |            |          |                |          |          |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Chlorine, Hardness, Iron, and pH CN-39WR                                                                                                      | 223002         | 274      |         |            |          |                |          | •        |        |               |               |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Chlorine, Coliform and pH Kit                                                                                                                 | 2223111        | 275      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         | •     |  |
| Hypochlorite Test Kit CN-HRDT                                                                                                                 | 2687100        | 275      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Hypochlorite Test Kit CN-HR                                                                                                                   | 2687200        | 275      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Aqua Ammonia DT Test Kit                                                                                                                      | 2930400        | 275      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Corrosion Management CM-1                                                                                                                     | 2495700        | 284      |         | •          |          |                |          |          |        |               |               |                  | •        |      |           |        |            |            |            |          | •  | •         |           |        |         | •     |  |
| Surface Water                                                                                                                                 | 2559800        | 284      |         |            |          |                |          | •        |        |               |               | •                |          |      |           |        | •          | •          |            |          | •  |           |           |        |         |       |  |

# Test Kit Quick Reference Guide

| Application                           | Product Number | See Page | Acidity | Alkalinity | Bacteria | Carbon Dioxide | Chloride | Chlorine | Copper | Cyanuric Acid | Demonstration | Dissolved Oxygen | Hardness | Iron | Manganese | Nickel | N, Ammonia | N, Nitrate | N, Nitrite | Peroxide | pH | Phosphate | Potassium | Silver | Sulfite | Other |  |
|---------------------------------------|----------------|----------|---------|------------|----------|----------------|----------|----------|--------|---------------|---------------|------------------|----------|------|-----------|--------|------------|------------|------------|----------|----|-----------|-----------|--------|---------|-------|--|
| Education                             |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Water Pollution Set                   | 2672533        | 277      |         |            |          |                |          | •        |        |               |               | •                |          |      |           |        | •          |            |            | •        | •  |           |           |        |         |       |  |
| Water Ecology Set                     | 2672433        | 277      | •       | •          |          | •              |          |          |        |               |               | •                |          |      |           |        | •          |            |            |          | •  |           |           |        |         |       |  |
| Stream Survey                         | 2712000        | 276      |         |            |          |                |          |          |        |               |               | •                |          |      |           |        | •          | •          |            |          | •  | •         |           |        |         | •     |  |
| Water, Water Everywhere CEL/820       | 2687600        | 262      |         |            |          |                |          | •        |        |               |               | •                |          | •    |           |        |            | •          |            |          | •  |           |           |        |         | •     |  |
| Drinking Water, Level 1               | 2788000        | 276      |         |            |          |                | •        |          | •      |               |               |                  |          | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Drinking Water, Level 2               | 2764300        | 276      |         |            |          |                | •        |          | •      |               |               |                  |          | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Ponds & Streams, Level 1              | 2787600        | 276      |         | •          |          |                |          |          |        |               |               |                  |          |      |           |        |            | •          |            |          | •  | •         |           |        |         |       |  |
| Ponds & Streams, Level 2              | 2787700        | 276      |         | •          |          |                |          |          |        |               |               |                  |          |      |           |        |            | •          |            |          | •  | •         |           |        |         |       |  |
| Fish/Wildlife Water Ecology Kit       | 180233         | 278      | •       | •          |          | •              |          |          |        |               |               | •                | •        |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Wastewater, Level 1                   | 2787800        | 276      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            | •          |            |          |    | •         |           |        |         |       |  |
| Wastewater, Level 2                   | 2787900        | 276      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            | •          |            |          |    | •         |           |        |         |       |  |
| Pools, Spas, and Hot Tubs             |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Pool and Spa                          | 2234901        | 279      |         |            | •        |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         | •     |  |
| Pool Master                           | 2315001        | 280      |         | •          |          |                |          | •        |        | •             |               |                  | •        |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Free & Total Chlorine and pH CN-67    | 1411100        | 279      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Total Chlorine and pH CN-48B          | 186302         | 280      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Chlorine/pH Pocket Colorimeter II Kit | 5870012        | 279      |         |            |          |                |          | •        |        |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Cyanuric Acid CY-3                    | 185102         | 279      |         |            |          |                |          |          |        | •             |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Bromine L-P Cube                      | 2194000        | 280      |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         | •     |  |
| Wastewater                            |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| STPL-WRT                              | 188703         | 281      |         |            |          |                |          | •        |        |               |               | •                |          |      |           |        |            |            |            |          | •  |           |           |        |         | •     |  |
| Storm Water SW-1                      | 2481300        | 281      |         |            |          |                |          | •        | •      |               |               |                  |          |      |           |        |            |            |            |          | •  |           |           |        |         | •     |  |
| Surface Water                         | 2559800        | 284      |         |            |          |                |          | •        |        |               |               | •                |          |      |           |        | •          | •          |            |          | •  |           |           |        |         | •     |  |
| Water Conditioning                    |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Deluxe Demonstration AD-16E           | 148410         | 282      |         |            |          |                |          |          |        |               | •             |                  | •        | •    |           |        |            | •          |            |          | •  |           |           |        |         | •     |  |
| Soap Demonstration SO-1               | 225300         | 281      |         |            |          |                |          |          |        |               | •             |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Demo 15-E                             | 148201         | 282      |         |            |          |                |          |          |        |               | •             |                  | •        | •    |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Water Ecology and Limnology           |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| CA-10WR                               | 143801         | 282      |         |            |          | •              |          |          |        |               |               | •                |          |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| AL-36B                                | 180202         | 283      | •       | •          |          | •              |          |          |        |               |               | •                | •        |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| AL-36DT                               | 2063800        | 283      | •       | •          |          | •              |          |          |        |               |               | •                | •        |      |           |        |            |            |            |          | •  |           |           |        |         |       |  |
| Water Quality                         |                |          |         |            |          |                |          |          |        |               |               |                  |          |      |           |        |            |            |            |          |    |           |           |        |         |       |  |
| Corrosion Management CM-1             | 2495700        | 284      |         | •          |          |                |          |          |        |               |               |                  | •        |      |           |        |            |            |            |          | •  | •         |           |        |         | •     |  |
| Surface Water                         | 2559800        | 284      |         |            |          |                |          | •        |        |               |               | •                |          |      |           |        | •          | •          |            |          | •  |           |           |        |         |       |  |

# When is a Kit a Hach Test Kit?

Though several different components are used in the making of a Hach test kit, every easy-to-use kit has the features listed below.



## ***Premeasured Reagents Save Time and Money***

Unit-dose reagents, preferred by most analysts, require no mixing or measuring, saving you time and money every time you test. Pre-measured reagents are developed specifically for our test systems and contain the exact amount of reagent required for one test. Stable, pre-mixed reagent formulations minimize the number of test steps.

## ***Everything You Need for Testing Anywhere***

From flasks to beakers to viewing tubes, everything you need is supplied with Hach kits. Many components are molded from durable plastics and are ideal for poolside and educational applications, where safety is a major concern.

## ***Precision with Durability***

With Hach's color matching technology and stringently tested dyes and plastics, you get more accurate color comparisons than with glass comparators—in any light. Hach subjects all dyes and plastics used in color discs and cubes to extreme weathering and ultraviolet (UV) tests to assure the most accurate results. UV light absorbers in the plastic matrix minimize UV degradation. And durable plastics do not break like glass. All these features add up to years of high-quality testing.

## ***Easy To Follow Instructions***

You don't have to be a trained chemist to get professional results with Hach's proven methods. Kits are supplied with illustrated instructions that guide you step by step through each procedure.

## ***Spill-Resistant Storage***

During transportation and use, custom case inserts store reagents in an upright position and prevent kit components from shifting, breaking or spilling. Case inserts are molded from high quality materials and are easy to clean.

## ***Survives Outdoor Field-Testing Conditions***

Rugged, chemical-resistant test kit cases, molded from durable polypropylene, can withstand the harshest conditions. Some kits feature a compartmentalized reagent cabinet to keep chemistries organized.

## ***Trusted Technology and Support***

When Hach scientists develop an analysis, their goal is to ensure accurate results. Hach color discs, color cubes, and instruments ensure accurate results every time.

In areas where strip mining has occurred, runoff is often either acidic or alkaline and may contain large amounts of soluble metal salts. It could cause pH changes or otherwise contaminate lakes or streams, kill fish, and bans on public use may result.

## Acid Mine Drainage Kit

### Model MD-2

- Determine Iron and pH using a color comparator with color disc
- Acidity and alkalinity tests use easy drop-count titrations



| Prod. No. | Parameter                   | Range*                                        | No. of Tests |
|-----------|-----------------------------|-----------------------------------------------|--------------|
| 1405800   | Acidity (MO and P or total) | 1 drop = 0.4 or<br>1 gpg as CaCO <sub>3</sub> | 100 of each  |
|           | Alkalinity (P and M)        | 1 drop = 0.4 or<br>1 gpg as CaCO <sub>3</sub> | 100 of each  |
|           | Iron                        | 0-10 mg/L                                     | 100          |
|           | pH                          | 4-10 pH units                                 | 300          |

## Agriculture

Good crop production is directly tied to maintaining the optimum balance of nitrogen, phosphorus and potassium soil levels for the specific crop being grown. Proper nutrient levels together with correct soil pH levels also support nutrient availability, organic matter decomposition and overall general soil balance.

## Soil Fertility Kit

### Model NPK-1

- Using color disc and dip stick methods, provides an economical, simple, effective way to determine nitrogen, phosphorus, and potassium content of soil
- Kit also includes a Pocket Pal™ pH Tester for quick pH measurements



| Prod. No. | Parameter             | Range*        | No. of Tests           |
|-----------|-----------------------|---------------|------------------------|
| 2495900   | Phosphorus            | 1-130 mg/L    | 100                    |
|           | Potassium             | 0-250 mg/L    | 100                    |
|           | Nitrate-Nitrogen      | 1-60 mg/L     | 100                    |
|           | pH Pocket Pal™ Tester | 0-14 pH units | 200 hours battery life |

## Soil Saturation Extract Kit

- Provides apparatus to prepare soil saturation extract for conductivity or pH measurements
- Also use to extract greenhouse growing media for pH, salts, water soluble N, P, K, Ca, and Mg determinations
- Includes complete instructions for soil sampling, extract preparation, conductivity and pH measurements, and interpretation of results

| Prod. No. | Test Description                            |
|-----------|---------------------------------------------|
| 1870000   | Soil Extraction—sample preparation required |



Continued on next page.

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm



## Soil and Irrigation Water Kit

### Model SIW-1

- Ideal for fertility analysis, site characterization, and irrigation water quality assessment under a wide variety of conditions
- Farmers, researchers, extension agents, and educators can use the versatile kit at remote sites, in the classroom, or even in areas lacking electricity
- Uses color disc, drop count titration, and dipstick method
- Includes manual for Interpretation of Soil and Irrigation Water test results

| Prod. No. | Test Description                 | Range*                     |
|-----------|----------------------------------|----------------------------|
| 2496000   | <b>Soil Tests</b>                |                            |
|           | % Base Saturation                | 0-100%                     |
|           | Cation Exchange Capacity         | 0-M <sup>†</sup> meq/100 g |
|           | Exchangeable Sodium              | —                          |
|           | Free-Lime Estimation             | —                          |
|           | Gypsum Requirement               | 0-360 kg/ha (0-15 tons/ac) |
|           | Exchangeable Calcium & Magnesium | 0-M <sup>†</sup> meq/100 g |
|           | Lime Requirement                 | 0-360 kg/ha (0-15 tons/ac) |
|           | Nitrate-Nitrogen                 | 0-60 mg/L                  |
|           | pH Pocket Pal™ Tester            | 0-14 pH                    |
|           | Phosphorus                       | 1-130 mg/L                 |
|           | Potassium                        | 0-250 mg/L                 |
|           | Sodium, exchangeable             | —                          |
|           | Soil Texture Estimation          | —                          |
|           | Total Exchangeable Acidity       | 0-M <sup>†</sup> meq/100 g |
|           | <b>Irrigation Water Tests</b>    |                            |
|           | Calcium and Magnesium            | —                          |
|           | Conductivity Pocket Pal™ Tester  | 10-1990 TDS                |
|           | Nitrate-Nitrogen                 | 1-50 mg/L                  |
|           | pH Pocket Pal™ Tester            | 0-14 pH units              |
|           | Potassium                        | 0-5                        |
|           | Sodium Estimation                | —                          |
|           | Sodium Absorption Ratio          | —                          |

# Aquaculture

Maintaining good water quality is essential for profitable fish production. In many cases, the availability and cost of “crop” insurance is directly related to testing programs.

## Nine-Parameter Aquaculture Kit

### Model FF-1A

- An economical choice, this model includes nine basic water quality tests
- Reagents and equipment are supplied for drop-count titration and colorimetric measurement using continuous-gradient color discs



| Prod. No. | Parameter                           | Range*                       | No. of Tests |
|-----------|-------------------------------------|------------------------------|--------------|
| 243002    | <b>Alkalinity (P &amp; M)</b>       | 0.4-8 gpg                    | 100          |
|           | <b>Ammonia</b>                      | 0.1-3 mg/L                   | 300          |
|           | <b>Carbon Dioxide</b>               | 5-100 mg/L                   | 100          |
|           | <b>Chloride</b>                     | 5-400 mg/L                   | 100          |
|           | <b>Dissolved Oxygen</b>             | 0.2-20 mg/L                  | 100          |
|           | <b>Hardness as CaCO<sub>3</sub></b> | 1-30 gpg <sup>†</sup>        | 100          |
|           | <b>Nitrite</b>                      | 0.1-0.5 mg/L                 | 100          |
|           | <b>pH</b>                           | 4-10 pH units                | 300          |
|           | <b>Temperature</b>                  | -10 to 110°C<br>(1 to 220°F) | No limit     |

*Continued on next page.*

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

<sup>†</sup>No upper limit.

## Ten-Parameter Aquaculture Kit

### Model FF-2 with Digital Titrator

- Allows measurement of 10 critical fresh water parameters using accurate Digital Titrator titration and continuous color-disc colorimetry
- Meters for dissolved oxygen are available as options (See pages 24-43.)

| Prod. No. | Parameter                               | Range*                    | No. of Tests      |
|-----------|-----------------------------------------|---------------------------|-------------------|
| 243001    | Acidity (MO & total) as $\text{CaCO}_3$ | 100-4,000 mg/L            | Up to 100 of each |
|           | Alkalinity (P & M) as $\text{CaCO}_3$   | 100-4,000 mg/L            | Up to 100 of each |
|           | Ammonia                                 | 0.1-3 mg/L                | 300               |
|           | Carbon Dioxide                          | 10-100 mg/L               | Up to 100         |
|           | Chloride                                | 10-100 mg/L               | 100               |
|           | Dissolved Oxygen                        | 0-10 mg/L                 | 100               |
|           | Hardness as $\text{CaCO}_3$             | 100-4,000 mg/L            | 100               |
|           | Nitrite                                 | 0.01-0.5 mg/L             | 100               |
|           | pH                                      | 4-10 pH units             | 300               |
|           | Temperature                             | -10 to 110°C (1 to 220°F) | No limit          |



## Saltwater Aquaculture Kit

### Model FF-3 with Digital Titrator

- Designed to meet the demands of specialized salt-water applications
- Each kit includes the apparatus and reagents necessary to measure 10 critical parameters using digital titrator, titration, and color disc methods
- Two tests, ammonia-nitrogen and a convenient chloride titration test for salinity, have been designed exclusively for this kit

| Prod. No. | Parameter                               | Range*                    | No. of Tests      |
|-----------|-----------------------------------------|---------------------------|-------------------|
| 243003    | Acidity (MO & total) as $\text{CaCO}_3$ | 100-4,000 mg/L            | Up to 100 of each |
|           | Alkalinity (P & M) as $\text{CaCO}_3$   | 100-4,000 mg/L            | Up to 100 of each |
|           | Ammonia                                 | 0.1-3 mg/L                | 100               |
|           | Carbon Dioxide                          | 10-100 mg/L               | Up to 100         |
|           | Chloride as salinity                    | 2-100 ppt                 | Up to 100         |
|           | Dissolved Oxygen                        | 0-10 mg/L                 | 100               |
|           | Hardness as $\text{CaCO}_3$             | 100-4000 mg/L             | 100               |
|           | Nitrite                                 | 0.01-0.5 mg/L             | 100               |
|           | pH                                      | 4-10 pH units             | 300               |
|           | Temperature                             | -10 to 110°C (1 to 220°F) | No limit          |



## Saltwater Master Kit

- Designed for aquarium and commercial point-of-purchase water quality testing (lobster and crab tanks)
- Includes all instruments and apparatus necessary to measure four critical parameters, including ammonia, nitrate, nitrite, and pH
- Color measurement using step-wise gradient color cubes

| Prod. No. | Parameter | Range*        | No. of Tests |
|-----------|-----------|---------------|--------------|
| 2068600   | Ammonia   | 0.5-3.0 mg/L  | 50           |
|           | Nitrate   | 1-50 mg/L     | 50           |
|           | Nitrite   | 0.1-0.75 mg/L | 50           |
|           | pH        | 6.5-8.5 pH    | 50           |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

†No upper limit.

# Boiler / Cooling Water

Proper maintenance and economical operation of modern boilers and cooling towers require a careful balance between water quality parameters and treatment chemicals. Hach Boiler/Cooling Water kits include models for monitoring a single additive and several that offer a wide range of testing capability.



## Boiler Feed and Scale Kit

### Model BSC-1

- Uses drop count titration and color disc methods to provide an economical means for preventing scale formation in small industrial boilers
- Uses drop count titration methods to determine levels of alkalinity, chloride, and hardness

| Prod. No. | Parameter                     | Range*     | No. of Tests |
|-----------|-------------------------------|------------|--------------|
| 2350300   | Alkalinity as $\text{CaCO}_3$ | 5-400 mg/L | 100          |
|           | Chloride as $\text{Cl}^-$     | 5-400 mg/L | 100          |
|           | Hardness as $\text{CaCO}_3$   | 1-20 mg/L  | 100          |



## Boiler Treatment Control Kit

### Model BTC-2

- Provides an economical means of monitoring common boiler water treatment chemicals
- Sulfite is generally added to boiler water to reduce dissolved oxygen levels, while phosphate additions help reduce scale formation

| Prod. No. | Parameter                       | Range*            | No. of Tests |
|-----------|---------------------------------|-------------------|--------------|
| 2350400   | Sulfite as $\text{SO}_3^{2-}$   | 1-20/ 10-200 mg/L | 100          |
|           | Phosphate as $\text{PO}_4^{3-}$ | 0.1-5/ 1-50 mg/L  | 100†         |
|           | pH                              | 7.8-10.0 pH units | 100          |



## Complete Boiler and Cooling Water Kit

### Model BC-3

- Includes all of the tests in BSC-1 and BTC-2, as well as tests for chlorine, silica, and iron
- Monitor chlorine levels in cooling towers to prevent microbiological fouling
- Silica contamination can be a problem in boiler feedwater, while iron levels are monitored to provide an indication of corrosion
- Provides a wider range of pH testing capability than the BTC-2 kit
- Uses drop count titration and color disc methods

| Prod. No. | Parameter                                    | Range*                    | No. of Tests |
|-----------|----------------------------------------------|---------------------------|--------------|
| 2350500   | Includes everything in BSC-1 and BTC-2 plus: |                           | 50 of each†  |
|           | pH                                           | 5.5-8.5 pH units          |              |
|           | Iron as Fe                                   | 0.01-0.1 or 0.05-1.2 mg/L |              |
|           | Silica as $\text{SiO}_2$                     | 1-40 or 20-800            |              |
|           | Chlorine Total as $\text{Cl}_2$              | 0.1-3.5 mg/L              |              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

†Kit includes nine Heatab fuel tablets (required for digestion.) For each metaphosphate determination, one Heatab is required. For each organic total phosphate determination, three Heatabs are required. See page 311 for additional Heatabs.

## DEHA (Oxygen Scavenger) Test Kit

### Model DH-1

- Simple, fast, color disc method
- Measures N, N-Diethylhydroxylamine (DEHA) directly in three different concentration ranges.
- To measure other oxygen scavenger compounds, use Prod. No. 2349500, Oxygen Scavenger Test Kit.



| Prod. No. | Parameter | Range*                                    | No. of Tests |
|-----------|-----------|-------------------------------------------|--------------|
| 2168200   | DEHA      | 1-65 µg/L<br>5-375 µg/L<br>22.5-1700 µg/L | 50           |

## Hydrazine Kit

### Model HY-2

- Measures Hydrazine, a common oxygen scavenger in boiler water, using the simple color disc method

| Prod. No. | Parameter                                  | Range*      | No. of Tests |
|-----------|--------------------------------------------|-------------|--------------|
| 184900    | Hydrazine as N <sub>2</sub> H <sub>4</sub> | 0.02-1 mg/L | 300          |

Reagents are supplied for ≥ 300 tests; enough DI water for 50 tests. Obtain DI water locally or use the refillable demineralizer bottle listed below.

#### ACCESSORY:

|         |                                                         |
|---------|---------------------------------------------------------|
| 1429900 | DI Water Bottle                                         |
|         | 177-mL (6 oz) capacity demineralizer bottle, refillable |



## Oxygen Scavenger Kit

### Model OS-1

- Simple, fast, color disc method
- Measures common oxygen scavengers: DEHA, hydroquinone, ISA, and MEKO



| Prod. No. | Parameter                                                                           | Range*                                                                                        | No. of Tests |
|-----------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|
| 2349500   | Oxygen Scavenger<br>As DEHA, hydroquinone, erythorbic acid, and methylethylketoxime | Ranges & increments are similar to DEHA Test Kit, but are dependent on oxygen scavenger used. | 50           |

Continued on next page.

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm



## Phosphonate Test Kit

### Model PN-10

- Simple, fast, color disc method
- UV lamp digestion converts phosphonates into reactive phosphate
- Control phosphonate concentration to save chemical costs
- Hach's reliable PhosVer 3 reagent provides results in under 15 minutes

| Prod. No. | Parameter   | Range*            | No. of Tests |
|-----------|-------------|-------------------|--------------|
|           | Phosphonate | 1-5 to 1-250 mg/L | 100          |

#### VERSIONS:

|                |                                                   |
|----------------|---------------------------------------------------|
| <b>2113300</b> | Phosphonate Kit, 115 Vac, 60 Hz                   |
| <b>2113302</b> | Phosphonate Kit, 230 Vac, 50 Hz                   |
| <b>2113301</b> | Phosphonate Kit without UV lamp and power supply. |



## Phosphonate Pocket Colorimeter™ II Kit

- Pocket Colorimeter™ II provides hand-held, rugged, waterproof analysis (IP 67 rated at 1m for 30 minutes; excludes battery compartment)
- Datalogs last 10 points with measurement time
- Includes sample cells, reagents, battery, UV Lamp, and procedure manual

| Prod. No. | Parameter                         | Range*                      | No. of Tests |
|-----------|-----------------------------------|-----------------------------|--------------|
|           | Phosphonate as $\text{PO}_4^{3-}$ | 0.1-25.0 mg/L<br>1-125 mg/L | 100          |

#### VERSIONS:

|                |                                     |
|----------------|-------------------------------------|
| <b>5870007</b> | Phosphonate Kit, with 115 V UV Lamp |
| <b>5870008</b> | Phosphonate Kit, with 230 V UV Lamp |



## Triazole Test Kit

### Model TZ-1

- Measures common corrosion and biological growth inhibitor using simple color disc method
- UV lamp digestion

| Prod. No. | Parameter                                   | Range*      | No. of Tests |
|-----------|---------------------------------------------|-------------|--------------|
|           | Triazole as benzotriazole or tolyltriazole, | 0.5-15 mg/L | 50           |

#### VERSIONS:

|                |                                                |
|----------------|------------------------------------------------|
| <b>2167500</b> | Triazole Kit, 115 Vac, 60 Hz                   |
| <b>2167502</b> | Triazole Kit, 230 Vac, 50 Hz                   |
| <b>2167570</b> | Triazole Kit, without UV lamp and power supply |



## General Boiler Water Kit

### Model AL-94 MG-L

- Used for controlling boiler and cooling water treatment and checking corrosion
- Economical solution for the small boiler operator who needs to monitor alkalinity, chloride, hardness, iron, and pH
- Uses drop count titration and color disc methods

| Prod. No.     | Parameter                     | Range*        | No. of Tests |
|---------------|-------------------------------|---------------|--------------|
| <b>222403</b> | Alkalinity as $\text{CaCO}_3$ | 5-400 mg/L    | 100          |
|               | Chloride as $\text{Cl}^-$     | 5-400 mg/L    | 100          |
|               | Hardness as $\text{CaCO}_3$   | 1-20 mg/L     | 100          |
|               | Iron as Fe                    | 0.1-5 mg/L    | 100          |
|               | pH Wide Range                 | 4-10 pH units | 300          |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Professional Boiler Treatment Kit

### Model BT-DT

- This sophisticated kit offers testing of treatment chemicals and feedwater parameters, with the accuracy demanded by water treatment professionals
- Kit parameters include alkalinity, chloride, hardness, sulfite, phosphate, and pH, with a wide choice of ranges provided
- The included Digital Titrator simplifies titration procedures, saves time, and provides greater accuracy than drop count testing
- Kit also includes color disc for simple, fast analysis

| Prod. No. | Parameter                             | Range*                                    | No. of Tests |
|-----------|---------------------------------------|-------------------------------------------|--------------|
| 2350600   | Alkalinity as $\text{CaCO}_3$         | 10-4000 mg/L<br>in six different ranges   | 100          |
|           | Chloride as $\text{Cl}^-$             | 10-8000 mg/L<br>in seven different ranges | 100          |
|           | Hardness as $\text{CaCO}_3$           | 10-4000 mg/L<br>in six different ranges   | 100          |
|           | Sulfite as $\text{SO}_3^-$            | 40-800 mg/L<br>in three different ranges  | 100          |
|           | Phosphate as $\text{PO}_4^{3-}$<br>pH | 0.1-5, 1-50 mg/L<br>7.8-10 pH units       | 100†         |



## Professional Boiler and Cooling Water Kit

### Model PBC-DT

- In addition to all of the tests offered in Model BT-DT, this kit provides testing capability for iron, silica, chlorine, nitrite, and total dissolved solids (TDS)
- The versatility and accuracy of this kit is invaluable to boiler operators and chemical sales professionals
- Uses digital titrator titration and color disc methods

| Prod. No. | Parameter                          | Range*                   | No. of Tests |
|-----------|------------------------------------|--------------------------|--------------|
| 2350700   | Includes everything in BT-DT plus: |                          | 50 of each†  |
|           | pH                                 | 5.5-8.5 pH units         |              |
|           | Iron as Fe                         | 0.01-0.20, 0.05-1.2 mg/L |              |
|           | Silica as $\text{SiO}_2$           | 1-40, 20-800 mg/L        |              |
|           | Chlorine as $\text{Cl}_2$          | 0.1-3.5 mg/L             |              |
|           | Nitrite as $\text{NO}_2^-$         | 2-100, 40-2000 mg/L      |              |
|           | TDS Pocket Pal™ Tester as NaCl     | 10-1990 mg/L             |              |



## Drinking Water

The efficient production of drinking water covers many facets of water quality. Raw water sources, treatment options and distribution systems are all elements for consideration. Many test kit options are available for handling the testing requirements for producing and delivering quality potable water to the customer's tap.

## Hardness and Iron Kit

### Model HA-95A with Color Cube

- Compact and convenient for routine checks
- Uses drop count titration and color cube methods

| Prod. No. | Parameter                      | Range*     | No. of Tests |
|-----------|--------------------------------|------------|--------------|
| 145602    | Hardness (as $\text{CaCO}_3$ ) | 1-20 gpg   | 50           |
|           | Iron                           | 0.1-5 mg/L | 50           |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

†Kit includes nine Heatab fuel tablets (required for digestion.) For each metaphosphate determination, one Heatab is required. For each organic total phosphate determination, three Heatabs are required. See page 311 for additional Heatabs.



Continued on next page.



## Hardness and Iron Kit

### Model HA-77 with Color Disc

- The kit to use for more resolution in a visual test
- Uses drop count titration and color disc methods

| Prod. No. | Parameter                        | Range*     | No. of Tests |
|-----------|----------------------------------|------------|--------------|
| 202300    | Hardness (as CaCO <sub>3</sub> ) | 1-20 gpg   | 100          |
|           | Iron                             | 0.1-5 mg/L | 100          |



## Iron and Manganese Kit

### Model IR-20

- Use this color disc kit when water customers complain of stained and dingy laundry
- Provides quick, on-the-spot tests for iron and manganese to see where problems lie

| Prod. No. | Parameter | Range*      | No. of Tests |
|-----------|-----------|-------------|--------------|
| 146300    | Iron      | 0.2-10 mg/L | 100          |
|           | Manganese | 0.1-3 mg/L  | 100          |



## Iron and pH Kit

### Model IR-23

- Uses a color disc to provide accurate, on-site measurement of two important parameters to help maintain water quality within the desired range

| Prod. No. | Parameter | Range*        | No. of Tests |
|-----------|-----------|---------------|--------------|
| 256200    | Iron      | 0.2-10 mg/L   | 100          |
|           | pH        | 4-10 pH units | 300          |



## Hardness, Iron, and pH Kit

### Models HA-62, HA-62A, and HA-62B

- Combines frequently measured parameters in one rugged kit
- Uses color disc and drop count titration methods



| Prod. No.    | Parameter                        | Range*           | No. of Tests |
|--------------|----------------------------------|------------------|--------------|
| MODEL HA-62  |                                  |                  |              |
| 183700       | Hardness (as CaCO <sub>3</sub> ) | 1-20 gpg         | 100          |
|              | Iron                             | 0.1-5 mg/L       | 100          |
|              | pH                               | 6.5-8.5 pH units | 300          |
| MODEL HA-62A |                                  |                  |              |
| 183701       | Hardness (as CaCO <sub>3</sub> ) | 1-20 gpg         | 100          |
|              | Iron                             | 0.2-10 mg/L      | 100          |
|              | pH                               | 6.5-8.5 pH units | 300          |
| MODEL HA-62B |                                  |                  |              |
| 183702       | Hardness (as CaCO <sub>3</sub> ) | 1-20 gpg         | 100          |
|              | Iron                             | 0.2-10 mg/L      | 100          |
|              | pH                               | 4-10 pH units    | 300          |



## Chlorine, Hardness, Iron, and pH Kit

### Model CN39-WR

- Includes frequently measured water quality parameters in one rugged test kit
- Uses color disc and drop count titration methods

| Prod. No. | Parameter                        | Range*                | No. of Tests |
|-----------|----------------------------------|-----------------------|--------------|
| 223002    | Chlorine, Total                  | 0.1-3.5 mg/L          | 100          |
|           | Hardness (as CaCO <sub>3</sub> ) | 1-20 gpg <sup>†</sup> | 100          |
|           | Iron                             | 0.1-5 mg/L            | 100          |
|           | pH                               | 4-10 pH units         | 300          |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Chlorine, Coliform, and pH

### Model CEC-2 with 120 Vac UV Lamp and Incubator

- Uses color disc method to provide a reliable, quick way to determine the presumptive presence of coliforms and the specific presence of *Escherichia coli*, a fecal coliform



| Prod. No. | Parameter                       | Range*                           | No. of Tests              |
|-----------|---------------------------------|----------------------------------|---------------------------|
|           | <b>Chlorine, Free and Total</b> | 0.02-0.70 mg/L<br>+ 0.1-3.5 mg/L | 100 F + 100 T             |
|           | <b>Coliform</b>                 | <2.2 to >16<br>bacteria/100 mL   | 10                        |
|           | <b>pH Pocket Pal™ Tester</b>    | 0-14 pH units                    | 200 hours<br>battery life |

#### VERSIONS:

|                |                                                   |
|----------------|---------------------------------------------------|
| <b>2223111</b> | Chlorine, Coliform, and pH Kit, with 120 Vac lamp |
| <b>2223112</b> | Chlorine, Coliform, and pH Kit, with 240 Vac lamp |

## Hypochlorite Test Kits

### Model CN-HRDT and CN-HR

- Measure activity of hypochlorite (bleach) solutions
- Digital Titrator or Drop Count kits provide a choice of methods
- Designed for on-site analysis of bulk hypochlorite deliveries or bulk storage solutions at drinking water or chloramination facilities
- Verify concentration of hypochlorite solutions at time of delivery

| Prod. No. | Parameter           | Range*                             | No. of Tests |
|-----------|---------------------|------------------------------------|--------------|
|           | <b>Hypochlorite</b> | 5-15% = 50-150 g/L Cl <sub>2</sub> | 100          |

#### VERSIONS:

|                |                                                       |
|----------------|-------------------------------------------------------|
| <b>2687100</b> | Hypochlorite Kit, Model CN-HRDT with Digital Titrator |
| <b>2687200</b> | Hypochlorite Kit, Model CN-HR - Drop Count            |

#### ALSO AVAILABLE:

|                |                                                   |      |
|----------------|---------------------------------------------------|------|
| <b>2687000</b> | Reagent Set for Hypochlorite Digital Titrator Kit | 1000 |
|----------------|---------------------------------------------------|------|



## Aqua Ammonia DT Test Kit

### Model NI-HRDT

- Quickly determine aqua ammonia (ammonium hydroxide) solution concentrations
- Ideal for on-site analysis of bulk aqua ammonia deliveries at drinking water or chloramination facilities
- Verify concentration of aqua ammonia solutions at time of delivery
- Accurate titration method using the Hach Digital Titrator

| Prod. No.      | Parameter           | Range*                                | No. of Tests |
|----------------|---------------------|---------------------------------------|--------------|
| <b>2930400</b> | <b>Aqua Ammonia</b> | 5-35% (50-350 g/L) as NH <sub>3</sub> | 100          |

#### ALSO AVAILABLE:

|                |                                                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>2930500</b> | Reagent Set for HR Aqua Ammonia Kit<br>Includes: 8.0 N Sulfuric Acid Titration Cartridge and<br>Wide Range pH Indicator Solution |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

Education is essential for understanding and protecting our environment, and water chemistry is a vital part of this understanding. Teaching students and citizens the science of testing water provides a solid foundation for making future decisions on environmental and water use issues.



## Healthy Water, Healthy People

Hach is a proud sponsor of the "Healthy Water, Healthy People" Program. For more information on educational test kits, please contact HWHP at 866-337-5486 or visit [www.healthywater.org](http://www.healthywater.org).



## Stream Survey Kit

- Customized for the popular river and stream surveys that are occurring in many watersheds by citizen and student groups
- Features many of the most commonly tested parameters that are known to correlate directly to the health of a river, stream, or creek
- Uses color disc and drop count titration methods

| Prod. No. | Parameter             | Range*                  | No. of Tests           |
|-----------|-----------------------|-------------------------|------------------------|
| 2712000   | Ammonia               | 0.1-2.5 mg/L*           | 100                    |
|           | Nitrate               | 0.02-1, 0.2-10 mg/L     | 100                    |
|           | Dissolved Oxygen      | 0.2-4.0, 1-20 mg/L      | 100                    |
|           | pH Pocket Pal™ Tester | 0-14 pH units           | 200 hours battery life |
|           | Phosphate, Total      | 0-1, 0-5, 0-50 mg/L     | 100                    |
|           | Temperature           | -10 to 110°C/0 to 220°F | —                      |



## Just Add Water™ Classroom Science Kits

- Each test strip kit is a complete water science lesson, making water testing incredibly simple and fun!
- Every kit comes with a variety of Hach's most popular Water Quality Test Strips, detailed instructions, and a complete teacher-tested curriculum on diskette—as well as TestYES Positive Result Chemistry, to demonstrate the appearance of a positive test result
- Each kit listed below is available as a Level 1 kit for grades 3-6 and Level 2 for Middle/Junior High School

| Prod. No. | Kit Name                     | Parameters                         | No. of Tests |
|-----------|------------------------------|------------------------------------|--------------|
| 2788000   | Drinking Water Kit, Level 1  | pH, Hardness, Copper, Chlorine     | 50 each      |
| 2764300   | Drinking Water Kit, Level 2  | pH, Hardness, Copper, Chlorine     | 50 each      |
| 2787600   | Ponds & Streams Kit, Level 1 | Alkalinity, pH, Phosphate, Nitrate | 50 each      |
| 2787700   | Ponds & Streams Kit, Level 2 | Alkalinity, pH, Phosphate, Nitrate | 50 each      |
| 2787800   | Wastewater Kit, Level 1      | Chlorine, Phosphate, Nitrate       | 50 each      |
| 2787900   | Wastewater Kit, Level 2      | Chlorine, Phosphate, Nitrate       | 50 each      |



## CEL/820 Water Quality Laboratory: Water, Water Everywhere!

See page 262.

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Water Pollution Set

- A great way for students to study the impact of wastewater on receiving streams
- Uses drop count titration and color disc methods
- Contains six test modules, allowing you to perform tests for Dissolved Oxygen, Free & Total Chlorine, Phosphate, Nitrate, Ammonia and pH
- Each module contains reagents, apparatus and step-by-step instructions for approximately 100 tests each and is encased in a compact polypropylene case



| Prod. No. | Parameter             | Range*                   | No. of Tests           |
|-----------|-----------------------|--------------------------|------------------------|
| 2672533   | Dissolved Oxygen      | 0.2 - 4 and 1-20 mg/L    | 100                    |
|           | Chlorine, Free/Total  | 0 - 3.5 mg/L             | 50 Free/50 Total       |
|           | Phosphate             | 0.02-1, 0.1-5, 1-50 mg/L | 100                    |
|           | Nitrate               | 0.02-1, 0.2-10 mg/L      | 50                     |
|           | Ammonia               | 0.1-2.5 mg/L             | 100                    |
|           | pH Pocket Pal™ Tester | 0-14 pH units            | 200 hours battery life |

## Water Ecology Set

- Helps teach how to analyze the quality of local waterways, a focus of today's science curriculum
- Uses drop count titration and color disc methods
- Contains six test modules, allowing you to perform tests for acidity, alkalinity, carbon dioxide, dissolved oxygen, ammonia, and pH
- Each module contains reagents, apparatus and step-by-step instructions for approximately 100 tests each and is encased in a compact polypropylene case
- Rugged, chemically resistant case holds the individual modules to allow easy transportation to the testing site



| Prod. No. | Parameter             | Range*                    | No. of Tests           |
|-----------|-----------------------|---------------------------|------------------------|
| 2672433   | Acidity               | 5-100, 20-400 mg/L        | 100                    |
|           | Alkalinity            | 5-100, 20-400 mg/L        | 100                    |
|           | Carbon Dioxide        | 1.25-25, 2-40, 5-100 mg/L | 200                    |
|           | Dissolved Oxygen      | 0.2-1, 0-10 mg/L          | 50                     |
|           | Ammonia               | 0.1-2.5 mg/L              | 100                    |
|           | pH Pocket Pal™ Tester | 0-14 pH units             | 200 hours battery life |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

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## Surface Water Kit

- By providing economical, easy-to-use tests for ammonia, chlorine, pH, nitrate, dissolved oxygen, phosphorus, and temperature, this kit is an ideal tool for source water monitoring and wastewater treatment plants
- The rugged, lightweight kit includes the convenient pH Pocket Pal™ Tester and all necessary apparatus and reagents
- Uses drop count titration and color disc methods

| Prod. No. | Parameter              | Range*                    | No. of Tests           |
|-----------|------------------------|---------------------------|------------------------|
| 2559833   | Ammonia                | 0.1-2.5 mg/L              | 100                    |
|           | Chlorine, Free & Total | 0.1-3.5 mg/L              | 100                    |
|           | Nitrate                | 1-50 mg/L                 | 100                    |
|           | Dissolved Oxygen       | 0.2-4, 1-20 mg/L          | 100                    |
|           | pH Pocket Pal™ Tester  | 0-14 pH units             | 200 hours battery life |
|           | Phosphorus             | 0.02-1, 0.1-5, 1-50 mg/L  | 100                    |
|           | Temperature            | -1 to 48°C (-30 to 120°F) | unlimited              |



## Fish and Wildlife Conservation/ Water Ecology Kit

- Versatile kit was originally designed to meet the needs of fish and wildlife personnel, but is popular in the classroom as well
- One compact carrying case holds reagents, apparatus and instructions for 100 tests each of six parameters: acidity, alkalinity, carbon dioxide, dissolved oxygen, hardness and pH
- pH is determined colorimetrically using a color comparator with color disc; all other tests are done using easy, drop-count titrations

| Prod. No. | Parameter                   | Range*                                          | No. of Tests      |
|-----------|-----------------------------|-------------------------------------------------|-------------------|
| 180233    | Acidity (MO and total or P) | 1 drop = 0.133 or 0.33 gpg as CaCO <sub>3</sub> | Up to 100 of each |
|           | Alkalinity (P & M)          | 0.4-20 gpg as CaCO <sub>3</sub>                 | Up to 100 of each |
|           | Carbon Dioxide              | 5-100 mg/L as CO <sub>2</sub>                   | 100               |
|           | Dissolved Oxygen            | 1-10 mg/L as DO                                 | 100               |
|           | Hardness                    | 0-30 gpg as CaCO <sub>3</sub>                   | 100               |
|           | pH                          | 4-10 pH units                                   | 300               |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm



A proper balance of water quality parameters is essential for providing recreational water that is microbiologically safe and aesthetically pleasing, yet economical to maintain. Temperature extremes, pool or hot tub usage levels, and effectiveness of the treatment chemicals requires frequent and on-site testing in order to maintain optimum water quality.

## Pool and Spa Water Kit

- Includes direct-reading color cubes and ready-to-use reagents for pH and chlorine (or bromine) tests
- Sterile sampling devices and tubed culture medium are provided for the total bacteria count test—a semi-quantitative measurement of bacteria in water

| Prod. No. | Parameter               | Range*                    | No. of Tests |
|-----------|-------------------------|---------------------------|--------------|
| 2234901   | Chlorine (total)        | 0.5-2.5 mg/L              | 50           |
|           | Bromine Br <sub>2</sub> | 1.1-5.5 mg/L              | 50           |
|           | Bacteria                | 0->1,000 (Total) bact./mL | 6            |
|           | pH                      | 6.5-8.5 pH units          | 50           |



## Cyanuric Acid Kit

### Model CY-3

- A stabilizing agent for chlorine, cyanuric acid is used in swimming pool treatment
- Measures the turbidity formed in proportion to Cyanuric Acid concentration present in the water sample

| Prod. No. | Parameter     | Range*      | No. of Tests |
|-----------|---------------|-------------|--------------|
| 185102    | Cyanuric Acid | 20-100 mg/L | 100          |



## Free/Total Chlorine and pH Kit

### Model CN-67

- Includes color discs and a comparator for monitoring chlorine and pH
- Provides more accuracy than models using color cubes

| Prod. No. | Parameter               | Range*           | No. of Tests  |
|-----------|-------------------------|------------------|---------------|
| 1411100   | Chlorine (Free & Total) | 0.1-3.5 mg/L     | 100 F + 100 T |
|           | pH                      | 6.5-8.5 pH units | 300           |



## Chlorine and pH Pocket Colorimeter™ II Kit

- Top choice of pool maintenance professionals for reliable, accurate measurements in swimming pool monitoring programs
- Pocket Colorimeter™ II provides hand-held, rugged, waterproof analysis (IP 67 rated at 1m for 30 minutes; excludes battery compartment)
- Datalogs last 10 points with measurement time
- Includes sample cells, reagents, battery, and procedure manual

| Prod. No. | Parameter               | Range*           | No. of Tests |
|-----------|-------------------------|------------------|--------------|
| 5870012   | Chlorine (Free & Total) | 0.1-10.0 mg/L    | 100          |
|           | pH                      | 6.0-8.5 pH units | 100          |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

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## Bromine Long-Path Color Cube Kit

- Convenient and economical color cube comparator
- Measures disinfection levels

| Prod. No. | Parameter               | Range*     | No. of Tests |
|-----------|-------------------------|------------|--------------|
| 2194000   | Bromine Br <sub>2</sub> | 0-3.0 mg/L | 100          |



## Chlorine and pH Color Cube Kit

### Model CN-48B

- Convenient and economical
- Simultaneously measure disinfection levels and pH

| Prod. No. | Parameter        | Range*           | No. of Tests |
|-----------|------------------|------------------|--------------|
| 186302    | Chlorine (Total) | 0.5-2.5 mg/L     | 50           |
|           | pH               | 6.5-8.5 pH units | 50           |

## Multi-Parameter Pool Master Kit

### Model MG/L

- Combines several tests into a single kit: alkalinity, chlorine, hardness, and pH, plus specialized tests for total alkalinity, calcium hardness, and cyanuric acid
- Uses drop count titration and color disc methods



| Prod. No. | Parameter                               | Range*           | No. of Tests |
|-----------|-----------------------------------------|------------------|--------------|
| 2315001   | Alkalinity CaCO <sub>3</sub>            | 20-400 mg/L      | 100          |
|           | Chlorine Cl <sub>2</sub> (Free & Total) | 0.1-3.5 mg/L     | 100          |
|           | Cyanuric Acid                           | 20-100 mg/L      | 100          |
|           | Hardness CaCO <sub>3</sub>              | 20-400 mg/L      | 100          |
|           | pH                                      | 6.5-8.5 pH units | 100          |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

Wastewater treatment plants, water reclamation facilities and industrial pretreatment operations require operators to perform basic process control testing at multiple sites within their facilities. On-site testing and immediate feedback of results can help operators optimize and better understand changes in their treatment process.

Stormwater discharges are contributing to the pollution of the nation's waterways. Point source and nonpoint source stormwater discharger are required to monitor for potential impact on receiving water bodies.

## Wastewater Treatment Plant Laboratory

### Model STPL-WRT

- Designed as a complete, self-contained portable laboratory that provides simple measurements for wastewater treatment plant operators
- Includes necessary reagents/equipment to test for temperature, pH, sludge settleability, settleable matter, dissolved oxygen, and chlorine
- Uses drop count titration and color disc methods

| Prod. No. | Parameter            | Range*                         | No. of Tests |
|-----------|----------------------|--------------------------------|--------------|
| 188703    | Chlorine, Total      | 0.1-3.5 mg/L                   | 100          |
|           | Dissolved Oxygen     | 1-10 mg/L                      | 100          |
|           | Settleable Matter    | 0-1 L (Imhoff cones)           |              |
|           | Sludge Settleability | 0-500 mL (graduated cylinders) |              |
|           | pH                   | 4-10 pH units                  | 300          |
|           | Temperature          | -10 to 110°C                   |              |



## Storm Water Kit

### Model SW-1

- Designed for on-site or laboratory monitoring of storm sewer outflow or industrial discharge
- Use to screen for pollutants after rainfall or snow events to meet stormwater discharge monitoring requirements
- Uses drop count titration and color disc methods

| Prod. No. | Parameter             | Range*             | No. of Tests           |
|-----------|-----------------------|--------------------|------------------------|
| 2481300   | Chlorine, Total       | 0.1-3.5 mg/L       | 100                    |
|           | Copper                | 0.1-5 mg/L         | 100                    |
|           | Detergents            | 0.05-1 mg/L        | 32                     |
|           | pH Pocket Pal™ Tester | 0-14 pH units      | 200 hours battery life |
|           | Phenols               | 0.1-5, 0.02-1 mg/L | 50                     |



## Water Conditioning

Many homes and industrial sites require additional treatment or conditioning of their potable source water before it can be used. The water often has aesthetic issues, such as high iron or hardness levels, which must be removed in order to improve water quality. On-site testing or demonstration kits are used to monitor removal efficiency or to promote sales of water conditioning units.

## Water Conditioning Sales Aid Hardness Soap "Demo" Kit

### Model SO-1

- Uses drop-count methods to demonstrate the relationship of hardness to soap consumption
- Provides an easy, economical, and fast hardness/soap check

| Prod. No. | Parameter          | Range*                              |
|-----------|--------------------|-------------------------------------|
| 225300    | Soap Demonstration | 1 drop = 1 gpg as CaCO <sub>3</sub> |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

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## Water Conditioning "Demo" Kit

### Model 15-E

- Provides five key water tests and demonstrations:
  - Soap consumption demonstration for a dramatic display of hardness
  - Softener to demonstrate the benefits of softened water
  - Reagents and apparatus for measurements of hardness, pH, and iron
- Uses drop count titration and color cube methods

| Prod. No. | Parameter                     | Range*                        | No. of Tests |
|-----------|-------------------------------|-------------------------------|--------------|
| 148201    | Soap Demonstration            | 1-20 gpg as CaCO <sub>3</sub> | 50           |
|           | Hardness as CaCO <sub>3</sub> | 1-20 gpg                      | 50-100       |
|           | Softener Demonstration        | 1,600-grain capacity          |              |
|           | Iron                          | 2-10 mg/L                     | 100          |
|           | pH                            | 6.5-8.5 pH units              | 200          |



## Deluxe Demonstration Kit

### Model AD-16E

- Hach's most complete water conditioning test kit: includes tests and demonstrations for seven critical water quality parameters
- In addition to soap consumption and softener demonstrations, includes tests to measure iron, pH, and nitrate
- Also includes the Total Dissolved Solids (TDS) Pocket Pal™ Tester
- Comes complete with a sturdy carrying case and features viewing tubes, water softener, and a compartmentalized reagent cabinet to keep chemistries neat and well-organized

| Prod. No. | Parameter                     | Range*                        | No. of Tests           |
|-----------|-------------------------------|-------------------------------|------------------------|
| 148410    | Total Dissolved Solids        | 10-1,990 TDS                  | 200 hours battery life |
|           | Pocket Pal™ Tester            |                               |                        |
|           | Soap Demonstration            | 1-20 gpg as CaCO <sub>3</sub> | 50                     |
|           | Hardness as CaCO <sub>3</sub> | 1-20 gpg                      | 50-100                 |
|           | Softener Demonstration        | 1,600-grain capacity          |                        |
|           | Iron                          | 0.1-10 mg/L                   | 100                    |
|           | pH                            | 5.5-8.5 pH units              | 200                    |
|           | Nitrate                       | 1-50 mg/L                     | 100                    |

ACCESSORY:

2666000 Softener Regeneration Kit

# Water Ecology, Limnology

Water ecology and limnology pertain to the physical, chemical and biological properties of fresh water, especially lakes, ponds and streams. These properties are essential for maintaining water conditions that are capable of supporting aquatic life. Many of these properties require that the measurement be made directly on-site.



## Carbon Dioxide, Dissolved Oxygen, and pH Kit

### Model CA-10WR with Color Disc

- Carbon Dioxide, Dissolved Oxygen, and pH Kit, Model CA-10WR with Color Disc

| Prod. No. | Parameter                      | Range*        | No. of Tests |
|-----------|--------------------------------|---------------|--------------|
| 143801    | Carbon Dioxide CO <sub>2</sub> | 5-100 mg/L    | 100          |
|           | Dissolved Oxygen               | 1-10 mg/L     | 100          |
|           | pH                             | 4-10 pH units | 300          |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Acidity, Alkalinity, Carbon Dioxide, Dissolved Oxygen, Hardness, and pH Kit

### Model AL-36B

- Extremely versatile, popular kit, designed to meet the needs of fish and wildlife conservation personnel
- Determine pH colorimetrically using a color comparator with color disc; all other tests use easy, drop-count titrations



| Prod. No. | Parameter                                   | Range*                             | No. of Tests |
|-----------|---------------------------------------------|------------------------------------|--------------|
| 180202    | <b>Acidity</b><br>(MO and total or P)       | 0.1-7 gpg<br>as CaCO <sub>3</sub>  | 100 of each  |
|           | <b>Alkalinity</b><br>(P and M)              | 0.4-20 gpg<br>as CaCO <sub>3</sub> | 100 of each  |
|           | <b>Carbon Dioxide</b><br>as CO <sub>2</sub> | 5-100 mg/L                         | 100          |
|           | <b>Hardness</b><br>as CaCO <sub>3</sub>     | 0-30 gpg                           | 100          |
|           | <b>Dissolved Oxygen</b>                     | 0.2-20 mg/L                        | 100          |
|           | <b>pH</b>                                   | 4-10 pH units                      | 300          |

## Acidity, Alkalinity, Carbon Dioxide, Dissolved Oxygen, Hardness, and pH Kit

### Model AL-36DT with Digital Titrator

- Digital Titrator and standardized titration cartridges provide laboratory accuracy for field titrations
- Uses a color comparator with color disc for pH measurement



| Prod. No. | Parameter                             | Range*                                | No. of Tests |
|-----------|---------------------------------------|---------------------------------------|--------------|
| 2063800   | <b>Acidity</b><br>(MO and total or P) | 10-4,000 mg/L<br>as CaCO <sub>3</sub> | 100 of each  |
|           | <b>Alkalinity</b><br>(P and M)        | 10-4,000 mg/L<br>as CaCO <sub>3</sub> | 100 of each  |
|           | <b>Carbon Dioxide</b> CO <sub>2</sub> | 10-1,000 mg/L                         | 100          |
|           | <b>Dissolved Oxygen</b>               | 0->10 mg/L                            | 50           |
|           | <b>Hardness</b> as CaCO <sub>3</sub>  | 10-4,000 mg/L                         | 100          |
|           | <b>pH</b>                             | 4-10 pH units                         | 300          |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Corrosion Management Kit

### Model CM-1

- Uses drop count titration and color disc methods
- Maintain corrosion control of aggressive distribution system waters to meet Lead and Copper Rule Requirements
- Establish baseline conditions to monitor treatment or disinfection strategy changes
- Calculate Langelier and Aggressive Indexes



| Prod. No. | Parameter                                    | Range*                                             | No. of Tests              |
|-----------|----------------------------------------------|----------------------------------------------------|---------------------------|
| 2495700   | Alkalinity                                   | 2.5-200 mg/L,<br>(P and M) 200-800 mg/L            | 100                       |
|           | Calcium, Hardness                            | 2.5-200 mg/L, as CaCO <sub>3</sub><br>200-800 mg/L | 100                       |
|           | Orthophosphate                               | 0.1-5.0 mg/L, 2-50 mg/L                            | 200 hours<br>battery life |
|           | pH Pocket Pal™ Tester                        | 0-14 pH units                                      | 100                       |
|           | Silica                                       | 0-40 mg/L, 20-800 mg/L                             | 200 hours<br>battery life |
|           | Temperature                                  | -20 to 110°C                                       |                           |
|           | Total Dissolved Solids<br>Pocket Pal™ Tester | 10-1990 TDS                                        | 200 hours<br>battery life |

## Surface Water Kit

- Ideal tool for source water monitoring and wastewater treatment plants
- Uses drop count titration and color disc methods to provide economical, easy-to-use tests for ammonia, chlorine, pH, nitrate, dissolved oxygen, phosphorus, and temperature
- Rugged, lightweight kit includes the convenient pH Pocket Pal™ Tester and all necessary apparatus and reagents



| Prod. No. | Parameter              | Range*                    | No. of Tests           |
|-----------|------------------------|---------------------------|------------------------|
| 2559800   | Ammonia                | 0.1-2.5 mg/L              | 100                    |
|           | Chlorine, Free & Total | 0.1-3.5 mg/L              | 100                    |
|           | Nitrate                | 1-50 mg/L                 | 100                    |
|           | Dissolved Oxygen       | 0.2-4, 1-20 mg/L          | 100                    |
|           | pH Pocket Pal™ Tester  | 0-14 pH units             | 200 hours battery life |
|           | Phosphorus             | 0.02-1, 0.1-5, 1-50 mg/L  | 100                    |
|           | Temperature            | -1 to 48°C (-30 to 120°F) | unlimited              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm