



backpacklab.com



Test kits can be replaced individually

# Backpack Lab® Marine Science Educational Test Kit

## Backpack Lab® Includes:

- 110 tests each for acidity and alkalinity, 100 tests for ammonia, carbon dioxide, dissolved oxygen, hardness, nitrate, nitrogen, phosphate and salinity
- Hanna's HI98129 Combo pH/EC/TDS/temperature tester
- Hydrometer for salinity
- Secchi disk for turbidity
- Backpack-style carrying case which holds all components of the kit
- Teacher's manual with a curriculum that meets National Science Teachers Association Standards
- Parameter summary in PDF and PowerPoint format (on included CD)
- Laminated, laboratory instruction cards with step-by-step field-test procedures

- Reproducible lab activity worksheets with instructions, goals, hypothesis, and testing procedure results/observations (on included CD)
- A glossary of key terms in PDF format (on included CD)

Backpack Lab is designed with all the necessary components in one place, reducing the chance of misplacing an item. Ideal for transporting, take this durable backpack to the field for on-site measurements.

This kit is designed to provide a complete unit for teachers to introduce students to important marine science topics. The teacher's guide provides detailed background information for marine science lessons and activities that can be adapted to various grade levels. Field tests are included to complement classroom lessons. All materials fit easily into the supplied backpack for convenient transport.

| Specifications HI3899BP Backpack Lab Marine Science Educational Test Kit |              |  |                                     |                 |                             |
|--|--------------|--|-------------------------------------|-----------------|-----------------------------|
| Test   | Type         | Range  | Method                              | Number of Tests | Individual Kit Reorder Code |
| Acidity (CaCO <sub>3</sub> )   | titration    | 0-100 mg/L (ppm)<br>0-500 mg/L (ppm)                           | methyl-orange<br>phenolphthalein    | 110 avg.        | HI3820                      |
| Alkalinity (CaCO <sub>3</sub> )<br>Phenolphthalein & Total               | titration    | 0-100 mg/L (ppm)<br>0-300 mg/L (ppm)                           | phenolphthalein/<br>bromphenol blue | 110 avg.        | HI3811                      |
| Ammonia (as NH <sub>3</sub> -N)<br>in saltwater                          | colorimetric | 0.0-2.5 mg/L (ppm)   | Nessler                             | 25 avg.         | HI3826                      |
| Carbon Dioxide   | titration    | 0.0-10.0 mg/L (ppm)<br>0.0-50.0 mg/L (ppm)<br>0-100 mg/L (ppm) | phenolphthalein                     | 110 avg.        | HI3818                      |
| Oxygen, Dissolved  | titration    | 0.0-10.0 mg/L (ppm)  | modified Winkler                    | 110 avg.        | HI3810                      |
| Nitrite  | colorimetric | 0.0-1.0 mg/L (ppm)   | chromotropic acid                   | 100             | HI3873                      |
| Nitrate (NO <sub>3</sub> -N)   | colorimetric | 0-50 mg/L (ppm)  | cadmium reduction                   | 100             | HI3874                      |
| Phosphate  | colorimetric | 0-5 mg/L (ppm)   | ascorbic acid                       | 50              | HI3833                      |
| Salinity   | titration    | 0.0-40.0 g/kg  | mercuric nitrate                    | 110 avg.        | HI3835                      |

| Specifications HI98129 Combo pH/EC/TDS/Temperature Tester |                                    |               |               |  |
|---|------------------------------------|---------------|---------------|--|
| Type  | Range                              | Resolution    | Accuracy      | Calibration  |
| pH  | 0.00 to 14.00 pH                   | 0.01 pH       | ±0.05 pH      | automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or 4.01 / 6.86 / 9.18) |
| Conductivity  | 0 to 3999 µS/cm                    | 1 µS/cm       | ±2% F.S.      | automatic, one point at 1413 µS/cm   |
| TDS   | 0 to 2000 mg/L (ppm)               | 1 mg/L (ppm)  | ±2% F.S.      | automatic, one point at 1382 mg/L (ppm)  |
| Temperature   | 0.0 to 60.0°C /<br>32.0 to 140.0°F | 0.1°C / 0.1°F | ±0.5°C / ±1°F | -  |

|                                    |   |  |
|------------------------------------|---|--|
| <b>Ordering Information</b>        | <b>HI3899BP</b> Backpack Lab includes acidity test kit, alkalinity test kit, carbon dioxide test kit, ammonia test kit, dissolved oxygen test kit, nitrate test kit, nitrite test kit, phosphate test kit, salinity test kit, secchi disc, hydrometer, HI98129 Combo pH/EC/TDS/temperature tester, set of 6 field test procedures, teacher's resource CD, teacher's guide and backpack.   |  |
| <b>Reagents and Solutions only</b> | <b>HI3820-100</b> Acidity (as CaCO <sub>3</sub> ), 110 tests avg.<br><b>HI3811-100</b> Alkalinity (as CaCO <sub>3</sub> ), 110 tests avg.<br><b>HI3826-025</b> Ammonia, seawater (as NH <sub>3</sub> -N), 25 tests avg.<br><b>HI3818-100</b> Carbon Dioxide, 110 tests avg.<br><b>HI3810-100</b> Dissolved Oxygen, 110 tests avg.<br><b>HI3874-100</b> nitrate (as NO <sub>3</sub> -N), 100 tests avg.<br><b>HI3873-100</b> nitrite (as NO <sub>2</sub> -N), 100 tests avg. | <b>HI3833-050</b> Phosphate, 50 tests avg.<br><b>HI3835-100</b> salinity, 100 tests avg.<br><b>HI70004P</b> pH 4.01 buffer solution for HI98129, 20 mL sachets (25)<br><b>HI70007P</b> pH 7.01 buffer solution for HI98129, 20 mL sachets (25)<br><b>HI70010P</b> pH 10.01 buffer solution for HI98129, 20 mL sachets (25)<br><b>HI70031P</b> 1413 µS/cm conductivity calibration solution for HI98129, 20 mL sachets (25)<br><b>HI70032P</b> 1382 mg/L (ppm) TDS calibration solution for HI98129, 20 mL sachets (25) |

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