environmental express®

SimpleWater® BOD Nutrient Buffer Solutions

Reduce prep time and prep-related errors

- Complies with SM5210B (2016)
- Available in five standard concentrations
- Borosilicate glass vials with leakproof screw caps

BOD dilution water contains a variety of nutrients that provide optimal growth media for bacteria in BOD tests. Environmental Express SimpleWater nutrient buffer solutions are concentrates of the four BOD dilution water nutrient solutions conveniently combined in one vial. To use, simply dilute contents of vial to volume and use in your BOD testing setup.

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SimpleWater Evaluation and Comparison

BOD Dilution Water Quality Control Check

A comparison of Environmental Express BOD Dilution Water reagents to Hach® nutrient buffer pillows was completed following method 5210B. Using a series of blanks and GGA standard preparations. Blank depletion and GGA standard concentrations were evaluated in both disposable and glass bottles.

6 blank replicates were prepared using the Hach nutrient buffer pillows (3x glass and 3x disposable vessels). Additionally, 4 batches of 10 blank replicates each containing BOD Dilution Water reagents, (5x glass and 5x disposable bottles) were prepared. The average blank depletion values in Table 1 indicate a <0.2 mg/L DO depletion for all batches.

Table 1

Dilution Water Nutrient Source	Average Blank Depletion (mg/L)
Hach	0.05
Environmental Express Batch 1	0.01
Environmental Express Batch 2	0.04
Environmental Express Batch 3	0.06
Environmental Express Batch 4	0.03

Ordering Information

Description	Qty/pk	Item Number
SimpleWater BOD solution, 300-mL dilution	36	**D4300ML**
SimpleWater BOD solution, 3-L dilution	36	**D4003L**
SimpleWater BOD solution, 4-L dilution	36	**D4004L**
SimpleWater BOD solution, 6-L dilution	36	**D4006L**
SimpleWater BOD solution, 19-L dilution	36	**D4019L**

An SDS for each component is available on our website.

GGA Seed Standard Evaluation

Glucose-glutamic acid (GGA) standard concentration evaluations were carried out preparing two sets of three bottles each with one set prepared in glass bottles (3x) and the other in disposable bottles (3x). This setup was replicated in 4 batches (Table 2. Environmental Express 1-4) and compared to an identical setup using Hach standard. The average resulting GGA concentration of each set is shown below in Table 2. All results fell fell within the 198 ± 30.5 mg/L GGA concentration limits required in SM5210B.

Evaluations of both blank depletion and GGA concentrations demonstrate suitability for BOD testing and equivalence to alternative vendor products. **SimpleWater BOD nutrient buffer and BOD dilution waters provide an easy-to-use solution that reduces preparation-related errors and shortens testing prep time.**

Table 2

Dilution Water Nutrient Source	Average GGA Results (BOD mg/L)	
	Glass Bottles	Disposable Bottles
Hach	176.56	177.90
Environmental Express Batch 1	176.56	179.56
Environmental Express Batch 2	184.56	184.06
Environmental Express Batch 3	175.40	184.73
Environmental Express Batch 4	191.56	196.73

Results show no substantial difference between glass and plastic BOD bottles.

Wait! There's More...

We offer a full range of products for BOD analysis. Visit the BOD section of our website for details.

environmentalexpress.com/ee/s/article/bod-testing

BOD Workflow

Step 1 - Collect Sample

Our sample containers have enough volume to test for both BOD and solids. Other options for sample collection can be found here.

Step 2 - Prepare Dilution Water

Prepare your dilution water reagents. Environmental Express SimpleWater is available as a concentrate of the four nutrient solutions conveniently combined into one vial. Simply dilute the contents of the vial to the specified volume and you've got your BOD dilution water!

Step 3 - Prepare Seed

Prepare your seed mixture. Pour the contents of one capsule into 500 mL of dilution water (step 2), stir, and aerate. After rehydration, decant the liquid suspension for use. One capsule can be used for approximately 100 sample bottles.

Step 4 - Analyze Sample

BOD analysis requires pH and dissolved oxygen (DO) measurements. Check that the pH of each sample is between 6.0 and 8.0. If outside of that range, adjust to 6.5 to 7.5 using sulfuric acid or sodium hydroxide. DO measurements are performed later.

Step 5 - Prepare BOD Bottles

Collect the required number of BOD bottles and label them as necessary. Add the appropriate amount of sample to each bottle. Disposable BOD bottles (300-mL) are lightweight, unbreakable, and recyclable. The PET bottles offer a special formulated carbon coating that prevents oxygen from diffusing into or out of your sample.

Step 6 - Prepare QC Checks

Add GGA standard to required bottles, and the appropriate volume of seed (step 3) to the seed control, GGA, and sample bottles. Top the bottle off with dilution water (step 2).

Step 7 - Measure DO and Cap Bottles

Perform the initial DO measurement and record the value. Stopper each bottle and add an overcap. Stoppers are color-coded for easy labeling. Overcaps prevent evaporation.

Step 8 - Incubate and Measure DO

Incubate your samples. After incubation, remove the overcap and stopper, and measure the DO again. BOD is calculated from the difference of the two measurements.

Description	Item number
Sample Containers	**BPC3043, BPC1601, BPC3601, BPC1170, BPC1172, BPC1430, BPC1431**
BOD Dilution Water Solutions	**D1500-100, D1500-500, D1500-1L**
Polyseed Capsules	**D1250**
pH and DO Meters	**EE3541940, EE3541941, EE3541600, EE3541601**
BOD Bottles	**D1001**
GGA Standards	**D1243**
BOD Stoppers and Overcaps	**D1025-BLACK, D1025-BLUE, D1025-GREEN, D1025-RED, D1050**
Refrigerated Incubator	**EE3935020**

Scan the QR code to find out more about our products for BOD analysis.

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