



Sensoreal® ASP Alert™ Water: Rapid Test for detection of Dissolved Domoic Acid in Seawater

Product ID: ALRT-ASP-KIT-W

Relevance of Domoic Acid Determination in Seawater

Domoic acid (DA) is a potent marine neurotoxin produced by certain *Pseudo-nitzschia* diatoms during harmful algal blooms. It is the causative agent of Amnesic Shellfish Poisoning and can accumulate in shellfish and other marine organisms, causing serious gastrointestinal and neurological effects in humans and marine wildlife. In recent years, severe blooms along the Pacific coast of North America have resulted in elevated DA levels in shellfish and widespread intoxication of sea lions, dolphins, and other marine mammals. DA has also been detected in marine mammal fetal and amniotic fluids, indicating the potential for prenatal exposure.

Although much of the DA produced during a bloom is initially cell-associated, dissolved DA may be released into seawater during algal growth, stress, or cell breakdown. Detecting dissolved DA can provide valuable information on the presence, distribution, and severity of a toxic bloom and may support environmental surveillance, shellfish monitoring, and timely management of marine mammals and other aquatic life.

Validation Data

Test Sensitivity and Threshold:	ASP Alert™ Water test has been engineered to detect dissolved domoic acid in low levels in seawater, with a limit of detection (LOD) of 0.15 ppb (0.15 ng/mL).
Selectivity:	The test exhibits detects dissolved DA with high degree of selectivity, with no cross-reactivity being observed with other toxins.
General Limited Warranty:	The ASP Alert™ Water Test Kit is provided for research and pre-testing purposes, and is not intended to replace officially validated regulatory testing methods. Sensoreal Inc. makes no warranty, expressed or implied, including any warranty of merchantability or fitness for a particular purpose. The user assumes responsibility for determining the product's suitability for their specific application, and Sensoreal Inc. shall not be liable for any indirect, incidental, or consequential damages arising from the use of these products.

To order or to learn more please contact:

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Instructions are effective as of (date): 2026-09-25

Ordering and Technical Support:

sales@sensoreal.com

Version:1.20

1. General Description and Principle of the Method

Sensoreal ASP Alert™ Water Test is a rapid lateral flow immunoassay (LFA) designed for the qualitative and semi-quantitative screening of dissolved domoic acid (DA) in seawater samples.

The assay uses a competitive immunoassay format. The prepared seawater sample is incubated with a lyophilized antibody–gold nanoparticle conjugate. If DA or a recognized analogue is present, it binds to the conjugate antibodies and reduces the amount of free antibody–gold nanoparticle complex available to bind at the test line. The mixture is then applied to the LFA cassette and migrates across a membrane containing immobilized DA–protein conjugate at the test line. Consequently, test-line intensity is inversely related to toxin concentration: higher toxin concentrations produce a fainter test line. A control line appears in all valid tests to confirm proper sample migration and assay performance. Results are objectively interpreted using the Sensoreal SensoRead™ scanner.

2. Safety

Discard samples according to local, state and federal regulations.

3. Storage

Store all ASP Alert™ Water Test components as specified on their respective labels.

- Test cassettes and diluent powder vials must be stored at temperatures specified in the label and should remain sealed until use to protect them from moisture and humidity.
- Lyophilized antibody conjugate vials maybe stored frozen or as strictly specified on the product label. Keep vials sealed and do not open until ready to perform the assay.
- Store the additional buffer solution as directed.

Before testing, allow the test cassettes and reagents to reach room temperature. Protect all kit components from excessive heat and direct sunlight. Do not use components beyond their printed expiration date or if the packaging or reagents show signs of damage or deterioration.

4. Procedural Notes

- The ASP Alert™ Water Test is intended for detecting dissolved DA in seawater. It is not validated for shellfish or other sample types.
- Follow all specified sample-preparation, incubation, and read times. Protocol deviations may affect test performance.
- Use clean, disposable pipette tips and fresh materials for each sample to prevent cross-contamination.
- Keep test cassettes and conjugate components sealed until immediately before use.
- Interpret results only with the designated Sensoreal SensoRead™ scanner and corresponding method settings.
- Dispose of samples and used kit components according to applicable institutional and regulatory requirements.
- Positive results leading to regulatory action should be confirmed by a recognized alternative quantitative method (e.g., LC-UV)

5. Limitations and Precautions

- The ASP Alert™ Water Test is intended for qualitative and semi-quantitative screening of dissolved DA in seawater. Although common water constituents are not expected to interfere, matrix effects from unusual contaminants cannot be completely excluded. Hard and muddy particles if present must be removed.
- Improper storage, extreme temperatures, incorrect timing, or deviations from the procedure may produce inaccurate results.
- Use only matched test strips and reagents from one kit lot, as they have been adjusted in combination. Allow samples and kit components to reach room temperature before testing. Keep cassettes and conjugate components sealed until use, and follow all specified sample-preparation, incubation, and read times (Section 6C-E).
- Use fresh disposable pipette tips and materials for each sample to prevent cross-contamination. Interpret results only with the designated Sensoreal SensoRead™ scanner.
- Positive samples can be confirmed by ELISA, LC-UV or other analytical methods.

Protocol Instructions

A. Kit Components

The ASP Alert™ kit includes the following components:

1. Lateral flow test strips (Cassettes)
2. Conjugate vials (lyophilized antibody-gold nanoparticle)
3. Diluent powder tubes ("D")
4. Buffer solution ("W")

B. Materials and Equipment Required (Not Provided)

1. Sensoreal's SensoRead™ Scanner (required for result interpretation)
2. Electronic timer
3. Measuring cylinder (5 or 10 mL)
4. Adjustable precision pipettes covering volumes of 20–200 µL
5. Disposable pipette tips
6. The use of test tube racks and a vortex mixer is recommended for operational ease; however, these components are not mandatory for the methodology.

C. Sample Collection, Processing and Sample Analysis

-Seawater samples:

1. Preparing the Diluent Solution: Locate the Diluent tube ("D") and the Buffer solution ("W"). Using a pipette fitted with a new tip or a measuring cylinder, transfer 2.5 mL of the Buffer "W" to the tube "D". Shake vigorously to ensure all the dry solids have dissolved. This is the Diluent solution.
2. Dilution step (1:1): Add 2.5mL of the seawater sample to this freshly prepared Diluent solution, shake vigorously. This is a 1:1 dilution and this will be used for the LFA. Label this as Solution D.
3. Using a 200 µL pipette and a fresh pipette tip, transfer 140 µL of freshly prepared Solution D into the conjugate vial containing the red lyophilized antibody-conjugate pellet.
4. Aspirate up and down several times until the blueish-green pellet is completely dissolved and a blueish-green solution is formed. Incubate for 10 minutes.
5. Using a fresh pipette tip, transfer the entire blueish-green solution into the sample port of the LFA cassette.
6. Allow the sample to run across the test strip for 5 minutes so the test and control lines can develop.

D. SensoRead™ Scanner Analysis

1. Ensure the Sensoreal SensoRead™ scanner is turned on. After exactly 5 minutes of development, immediately insert the test cassette into the scanner slot of the SensoRead™ device. Follow the on-screen prompts: Select Cassette -> "ASP Alert Water"
2. You will be prompted to identify the Lot being used. Either select an existing Lot from the on-screen list, or for a new Lot, press "Add New Lot" and scan the batch-specific QR code located on the LFA test pouch or the Certificate of Analysis. This QR code provides the system with integral calibration parameters required for accurate interpretation. (Note: Each Lot only needs to be scanned once; for subsequent tests with the same Lot, simply select it from the saved list).
3. Once the Lot is confirmed, enter the unique Sample ID using the on-screen keypad and press "Run Test". The device will immediately initiate the analysis process to receive the qualitative result (T/C ratio and classification).

NOTE: The ASP Alert™ Water Test has been validated and optimized for seawater samples to detect dissolved DA but may also be used for detecting DA in phytoplankton samples or intracellular DA. Samples containing visible sediment or suspended particulates should be filtered using an appropriate syringe filter before testing, as these materials may interfere with assay performance. Contact Sensoreal for specific testing instructions in case of phytoplankton samples before use.

E. Interpretation of Results

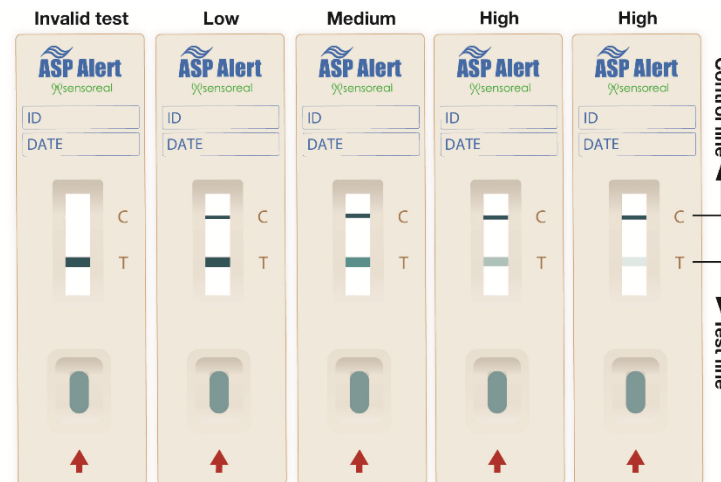
Assay results are determined by the SensoRead™ scanner through a digital analysis of the Test-to-Control (T/C) line intensity ratio. While the absolute intensity of the control line may fluctuate between runs, a visible control line must be present for the assay to be considered valid; the absence of a control line indicates an invalid result requiring a retest.

The SensoRead™ scanner provides an objective determination of line intensities for consistent interpretation, as well as a digital photographic record of all test strips.

-High: The T/C ratio indicates the presence of dissolved DA in seawater samples at levels above 3 ppb (3 ng/mL).

-Medium: The T/C ratio indicates dissolved DA concentration in seawater between 0.50–3.0 ppb (0.50–3.0 ng/mL).

-Low: The T/C ratio indicates a dissolved DA concentration below 0.50 ppb (0.50 ng/mL).



Test Line	Control Line	Interpretation
Present	Absent	Invalid Test (Repeat Test)
Faint or Non-Visible	Visible	High: > 3.0 ppb (3.0 ng/mL)
Moderate Intensity	Visible	Medium: 0.50 – 3.0 ppb (0.50 – 3.0 ng/mL)
Equal to or More Intense than Control Line	Visible	Low: < 0.50 ppb (0.50 ng/mL)

Note: It is essential to perform the reading at the designated 15-minute mark. Determinations made using strips that have dried for more or less than the required time may be inaccurate, as chromatographic line intensities vary with drying time.

For supplemental technical data or methodological assistance, please direct all inquiries to Sensoreal Technical Support at sales@sensoreal.com.