

NEWS *from* NEOGEN



FOR THE SEAFOOD INDUSTRY

NEOGEN CORPORATION
a Leader in Food and Animal Safety Solutions

Neogen develops tests for chloramphenicol and domoic acid in seafood

Neogen released a test aimed at addressing growing food safety concerns in seafood this summer, and expects to release a second this fall.

Released in June, Neogen's test for chloramphenicol, an antibiotic linked to toxic effects, is the fastest test on the market. Veratox® for Chloramphenicol is more sensitive and provides better recovery than other tests available.

In 30 minutes, the test provides quantitative analysis for residues of the antibiotic, which is banned in food production in the U.S., Canada and Europe. It provides quantitative results for chloramphenicol levels from 10 to 1,000 ppt.

"Chloramphenicol is often used to promote growth in the production of the shrimp in southeast Asia and South America, where much of shrimp sold in U.S. restaurants comes from," said Product Manager Nate Banner. "It is a known carcinogen and causes potentially serious side effects, which is why the drug is banned in food production."

Neogen expects to release a second test for the seafood industry this fall.

This new lateral flow test to detect domoic acid in shellfish provides results in 10 minutes, and will be the only lateral flow rapid test available in Europe. Reveal® for Domoic Acid will be extremely sensitive compared to other tests on the market.

The test detects the presence of domoic acid, a naturally occurring toxin in marine life that causes Amnesic Shellfish Poisoning (ASP).

"This test is simple enough that you can use it on the boat when the fish are harvested, yet reliable enough that it can be used in a laboratory," said Banner.

Action limits for domoic acid were established soon after the 1987 domoic acid crisis in Canada where 150 people became ill and four died after eating mussels.

Many countries have established a maximum permitted level of 20 mg per kilogram of whole shellfish, or 20 ppm, and the FDA has established an action level of 20 ppm. Reveal for Domoic Acid detects 10 ppm of the toxin in shellfish.

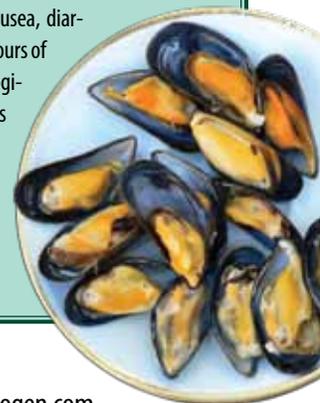


What is ASP?

Amnesic Shellfish Poisoning is caused by the naturally-occurring toxin domoic acid. Domoic acid has been found in shellfish on the west coast of the United States and in Europe, and is produced in microscopic algae that is eaten by the shellfish.

ASP is transmitted to humans by eating contaminated shellfish, and domoic acid cannot be destroyed by freezing or cooking the fish.

Symptoms of ASP include vomiting, nausea, diarrhea and abdominal cramps within 24 hours of ingestion. In more severe cases, neurological symptoms develop within 48 hours and include headache, dizziness, confusion, disorientation, loss of short-term memory, motor weakness, seizures, profuse respiratory secretions, cardiac arrhythmias, coma and possibly death.



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Gluten-free misconceptions

A quick chat with Tony Lupo, Neogen's Director of Technical Services

Is there such a thing as gluten-free certification? If so, how does a company become certified?

As of right now, there are no official gluten-free regulations so the current status of "gluten-free" claims on food products is "buyer beware". There are some commercial groups that offer certifications for a fee if certain criteria are met; however, they are not universally recognized nor are they tied to any government regulatory body.



Lupo

What exactly constitutes gluten-free?

Currently, food producers can use "gluten-free" labeling as a marketing tool and charge a premium price without repercussions. However, the assumption of the allergic or celiac disease-suffering consumer is that if it is labeled "gluten-free", each lot of product has been tested and is truly gluten-free.

In an effort to ensure a product is gluten-free, it would be strongly advised to the manufacturer to have a rigorous supplier audit program (including testing) in place. Final product testing would then become a mere verification of what is already known.

Are there any pending gluten regulations that the food industry should know about?

Within two years, the FDA, Health Canada, and the European Commission all intend to have official regulations for gluten free in alignment with the CODEX Alimentarius, which sets the limit at less than 20 ppm gluten from rye, barley, wheat or any crossbred varieties.

How does gluten end up in "gluten free" foods?

Gluten substitution ingredients are routinely contaminated with wheat, barley or rye. This contamination can occur during harvesting, storage, transport or shipping, or be caused by impure seed stocks at the farm level. It should be known that the USDA allows for commodity contamination of grains with other grains at levels in the tens of thousands of ppm because this cross-contact opportunity is so difficult to avoid and impossible to separate.



Why Neogen's food allergen test kits?

Simplicity of use and speed of results means the Reveal and Reveal 3-D tests can be implemented more regularly than laboratory food allergen testing. Delivering enhanced confidence and protection through increase sampling and testing of all critical elements of the production process in 'real-time'. Neogen's Veratox and BioKits Assays provide a full line of quantitative test kits for ingredient, in process and finished product testing along with an in-house tool for allergen validation.

- **WHY?** For real-time decision making
- **WHEN?** For process control, auditing, inspection, troubleshooting and training
- **WHERE?** In all areas of the process and supply chain
- **HOW?** By anyone, anywhere, minimal to no training required



Lab tips

Pipetting techniques key to getting accurate test results

Here are some tips to keep in mind for the most accurate results when pipetting:

- Don't shake reagents, but swirl them before using. Shaking can cause the reagents to foam. Bubbles can create inaccurate levels of liquid.
- Prime the pipette tips before dispensing all reagents. To prime the tip, draw up the reagent and discharge it back into the same container. Priming the tips coats the inside of the pipette tip so that the volume dispensed will be identical regardless of tip wetting properties.
- When using a multi-channel pipettor, use the overfill method for transferring liquid. To overfill: Depress the pipettor button slightly past the first "stop" and slowly release to draw up more than 100 μ L, then dispense the liquid by depressing the button only to the first "stop". This delivers exactly 100 μ L. **Note:** After removing the tips from the microwells, release the button slowly so the excess liquid in the tips does not get into the multi-channel pipettor.
- Always check the fluid levels in your tips prior to dispensing to be sure that the same amount is being collected each time. If the proper amount was not collected or bubbles are present, refill the tip.
- Plungers on pipettors should always be depressed and/or released slowly.
- Most pipettors should be lubed and calibrated at least every 6 months. Please contact your sales representative, or Neogen Technical Services for assistance.



100 μ L Pipettor (Neogen item 9272)



12-channel pipettor (Neogen item 9273)



Pipettor (Neogen item 9276)



Disposal of microbiological waste important part of lab procedures

Microbiological waste should be disposed of in accordance with all applicable local, state and federal regulations. Some suggestions for disinfecting waste include:

1. Autoclaving:

- Autoclave the waste for 60 minutes at 121°C.
- Color-changing autoclave tape should be used to indicate proper temperatures were achieved during the decontamination run.
- If autoclave bags are used, the top must be loosely closed to allow steam to penetrate into the bag. If the contents of the bag are low in moisture, water should be added to the bag prior to autoclaving.
- The time/temperature relationship for proper autoclaving is dependent upon steam, at the proper temperature, reaching all areas of the bag containing the contaminated material.

2. If an autoclave is not available, a pressure cooker capable of achieving 15–20 lbs. of pressure could be used as an alternative:

- The time material remains at this pressure should also be 60 minutes and indicator autoclave tape should be used.
- Proper precautions, as mentioned for autoclaving, should be observed to ensure proper temperature steam penetrates to all items that might be contaminated.

3. An alternative to autoclaving and utilization of a pressure cooker is to decontaminate with a chemical disinfectant:

- Use household bleach, sodium chlorite.
- Objects to be disinfected prior to discarding should be immersed in a 0.5% bleach solution (1 part commercially-purchased bleach to 9 parts of water) for 30-60 minutes.
- Liquids that need to be disinfected can be treated for at least an hour with 1 part of bleach to 10 parts of liquid, for example, 25 mL of bleach to 250 mL of liquid. A higher concentration of bleach should be used if the liquid to be disinfected contains a high organic matter load, for example 30 mL of bleach into 250 mL of liquid containing ground beef.

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Our Sales Team

Neogen's Meat, Poultry and Seafood sales group is backed by unparalleled teams of experienced technical support and research and development personnel, and we offer the most comprehensive line of food, feed and animal safety and quality testing products.

Please feel free to contact us at any time about anything that you may read in this publication, or about any safety and quality testing issue.

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Did you know...?

It takes lobsters around seven years to reach the legal U.S. harvesting size of one pound.

Seven million Americans have seafood allergies.

New Englanders banned tomatoes from their clam chowder! In 1939 they actually introduced a bill in Maine to make tomatoes in clam chowder illegal. To this day, most restaurants will only serve one style of chowder: either the cream-based "New England", or the "Manhattan"-style clear broth with tomatoes.

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