

Simple. Accurate. Supported.

FOOD SAFETY SOLUTIONS.™

*Solving another piece of the puzzle*

### The Problem

Histamine is produced in certain types of fish when microbes break down the amino acid histidine. Elevated temperature and time abuse of harvested fish accelerate the growth of microorganisms normally present in the fish, increasing the breakdown of histidine to histamine. Human scombroid poisoning is caused by consuming fish with high levels of histamine. Symptoms may include some or all of the following: rash, nausea, vomiting, diarrhea, hypotension, palpitations, tingling, muscle weakness and respiratory paralysis. Scombroid poisoning has resulted in human mortality.

Histamine production is common in fish such as tuna, mahi-mahi, bluefish, mackerel, anchovies, and sardines. The detection and prevention of histamine in these fish have been identified by the Food and Drug Administration (FDA) as an important component of Hazard Analysis Critical Control Point (HACCP) programs. Also, it is produced in menhaden, a fish commonly used in the production of fish meal which is a major protein supplement in animal feeds.

### The Test

The Alert for Histamine test is a competitive direct enzyme-linked immunosorbent assay (CD-ELISA). Histamine is extracted from a sample in a quick water extraction process. This extract is filtered and then diluted into a buffer solution supplied with the test. Free histamine, in the buffered sample and control, is allowed to compete with enzyme-labeled histamine (conjugate) for the antibody-binding sites. After a wash step, substrate is added which reacts with the bound enzyme conjugate to produce blue color. Red stopping reagent is added and the color of the sample is visually compared to the color of the control. If the sample has more blue color than the control, it contains less histamine than the control. If the sample contains less blue color (or more red) than the control, it contains more histamine than the control.

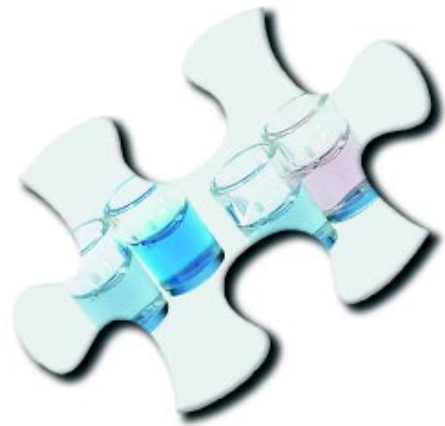
#9515 Alert for Histamine

#9520 Histamine Extraction Kit

#9303 Agri-Scan® Microwell Reader (optional)

#9528 Alert for Histamine Starter Kit

# ALERT® for Histamine



### The Advantages

#### Simple.

- No instrumentation required.
- Rapid results.
- Provides distinct visual color results.
- Eliminates the need for complicated chemical extraction of samples.
- No special training needed.

#### Accurate.

- Low false negative and false positive rates.
- Good reproducibility.
- Specific for histamine.

#### Supported.

- Service, training and support available.
- In-house R & D staff.

## Alert Procedure for Histamine

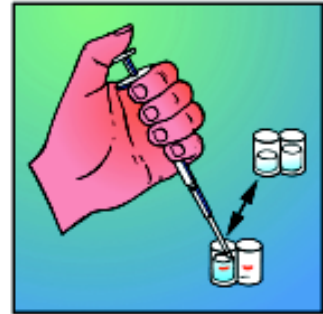
**Note: Please read kit instructions completely before performing test.**  
Questions? Call 800/234-5333 or 517/372-9200.



1. Place 100  $\mu$ L of conjugate into each mixing well.



2. Add 100  $\mu$ L of control and diluted sample to the respective mixing well.



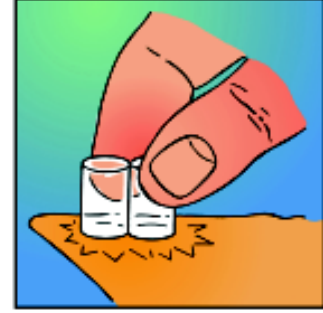
3. Transfer 100  $\mu$ L to the antibody wells. Incubate for 10 minutes.



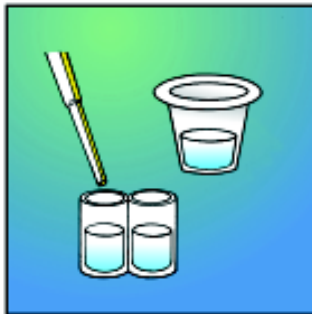
4. Dump liquid from antibody wells.



5. Wash wells thoroughly 4 times with diluted wash buffer.



6. Tap out remaining liquid on absorbent paper towel.



7. Add 100  $\mu$ L of K-Blue Substrate<sup>®</sup> to wells. Incubate for 10 minutes.



8. Add 100  $\mu$ L of Red Stop.



9. Visually read results.

### Product Specifications

Control provided:	50 ppm (optional levels upon dilution)
Testing time:	20 minutes
Antibody cross-reactivity:	Specific for histamine



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