

## LITMUS FQI SHIPPING SENSOR

This sensor is a small credit-card size device that is inserted into a closed shipping container at the point of origination. This sensor was developed for long term shipping situations like import movements over the ocean lasting at least a week. Another example would be across continent shipments lasting several days. Typical package types are frozen, on ice, and individually quick frozen, which are sealed in a bag in a closed container. This sensor is ideal for international exporters, importers, storage facilities, processors to wholesalers and retailers, and cross country deliveries. The objective here is to define the shelf life left for the particular box or carton of seafood. If the food is suspect and the shelf life is short, the product could be shipped to a cook plant or delivered to a client that would use the fish or shrimp immediately, thus salvaging the product. This early detection provides an opportunity to avoid potential losses by better managing the food chain.



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Seafood is one of the most difficult foods to keep fresh. From the day they are harvested until they appear on the kitchen table, keeping seafood fresh is a challenge. Frozen or packaged fish present an even tougher challenge. Being able to tell when seafood is of high quality is vitally important for – bulk producers and processors, wholesalers, brokers, exporters, importers, shippers, at home, in restaurants and in supermarkets.

## HOW LITMUS FQI WORKS

When food spoils, there is an undesirable change in color, flavor, odor and/or texture in the product. Microbes, primarily bacteria, cause food decomposition. The type of bacteria, environment and food product will dictate the odor or class of organic compound formed during the decomposition. LITMUS FQI's technology is based on a substrate and an indicator compound provided on the substrate. The indicator compound is colorimetrically responsive to volatile gases (TVB) generated by food decomposition. LITMUS FQI's color changing sensors provide an indication of the quality of a food product.

# SHIPPING SENSOR

The LITMUS FQI sensor is very simple to use. Just place inside the seafood bag, close the bag and seal the box or container for shipment. One typical application is frozen seafood that is transported over the ocean for weeks at a time. Typically, at the receiving end, one would expect to see 2-4 mm color change on each end of the card if the seafood is of very high quality. See illustration to the lower left. If the color change extends past the calibrated hash marks, the food is "Suspect", illustration to the lower right. If the sensor indicates "Suspect", a BULK PUMP AND STRAW test could be used to determine if the shipment should be frozen, cooked or delivered to a client that could use the fish or shrimp immediately, salvaging the product before it becomes unsafe. This early detection sensor provides an opportunity to recoup potential significant losses by better managing the food chain. Refer to the brochure on the LITMUS FQI BULK PUMP AND STRAW SENSOR for details.



**LITMUS FQI SHIPPING SENSOR SHOWING HIGH QUALITY SHRIMP WITH SOME DECOMPOSITION.**



**LITMUS FQI SHIPPING SENSOR SHOWING "Suspect" SHRIMP.**

## LITMUS FQI TECHNOLOGY

LITMUS FQI's technology was developed after years of research by leading, world class scientists at the U.S. Food and Drug Administration's National Center for Toxicological Research. These research scientists were presented with two awards from the FDA for the breakthrough. First was the 1999 Award for Excellence in Technology Transfer, followed by FDA's Award of Merit – the highest honor bestowed by the federal agency. The FDA commended the scientists for "significant and exceptional performance benefiting the public by designing and building a product that is a simple, quick and inexpensive method for determining the decomposition of food products".

## LITMUS FQI SENSORS ARE NOW AVAILABLE

Commercial validation and distribution is **Now Available** for LITMUS FQI seafood sensors. Companies interested in learning more about how this system can efficiently and cost-effectively warn of seafood spoilage are encouraged to contact LITMUS FQI. Inquiries on additional sensors, available beginning in the First Quarter 2008, including beef, poultry, pork, produce and cooked foods are encouraged. LITMUS FQI also welcomes the opportunity to develop sensors for applications beyond the food sector.

**For more information about LITMUS FQI:**

**e m a i l : j l e w i s @ l i t m u s g t i . c o m**

**w w w . l i t m u s f q i . c o m**

**For information other food safety products from LITMUS, visit [www.litmusrapid-b.com](http://www.litmusrapid-b.com)**

