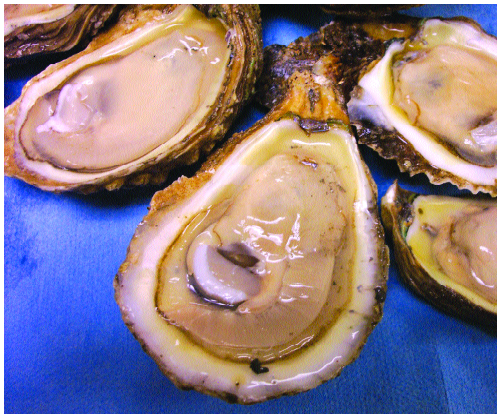
Post-Harvest Oyster Processing Technologies

To promote food safety, quality and extended shelf life

FACT SHEET

For Seafood Dealers and Processors

Innovative technologies are rapidly changing the oyster processing industry. Scientific research has produced post-harvest processing technologies that are now commercially available and that can provide a safe quality product. Although newer and better processes are still being developed and tested to answer the industry's needs, the ones adapted now are being tapped to help the industry deal with a bacteria that is naturally occurring in the waters where the oysters are also found. *Vibrio vulnificus* is a pathogenic bacterium that poses a health threat, especially to those immune-compromised people with liver disease, diabetes, HIV positive, the elderly, pregnant women and young children.



These technologies help decrease the harmful microorganisms and render them harmless to non-detectable levels.

Safety: Food safety is the centerpiece of food technology innovations in the 21st century. Everyone is more conscious now of food safety. Concerns focus on the handling, preparation and source of the food products eaten. Post-harvest processed raw oysters are safe to eat according to proponents of three commercially available processing systems.

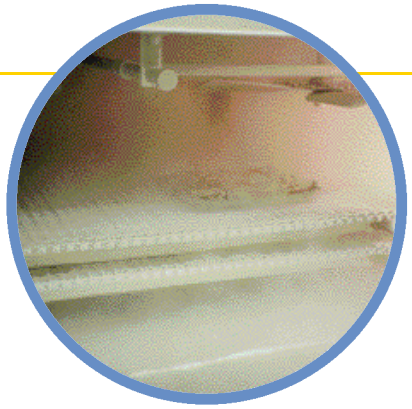
To achieve the safety standards, the oyster industry started the Individually Quick Frozen (IQF) system that freezes the half shelled oysters in trays going through a nitrogen (or carbon dioxide) freezing tunnel, after which glazing is done before it is packed and stored in freezers or sold to customers. High hydrostatic pressure (HHP) process, however, bands in-shell oysters before they undergo 3-5 minutes of 35,000 to 40,000 (psi) pressure to reduce levels of bacteria, also this process releases the adductor muscles so processing can be made easy and safe for oyster shuckers. Heat – cool pasteurization (HCP) process, also bands the in-shell oysters in trays and place them all in racks. These racks are dipped in both warm (to heat the meat at 126 degrees F for 24 minutes) and cold water (40 degrees F for 15 minutes) to stop the cooking of the oyster meat. These processes will kill the microorganisms in and on the oysters so they will no longer be a threat to consumers.

Quality: All three of these post-harvest processes provide a quality product. Quality is a necessity in the seafood business. Fresh taste, superior appearance and a safe product are a great advantage of these PHP products. One such product even earned national awards of excellence for the best quality and product consistency. The packaging of the new product not only promotes its own brand but also helps in the promotion of the industry in a positive manner.

Shelf Life: Post-harvest processing maintains freshness and quality while killing the spoilage bacteria and reducing microorganisms including *Vibrio* bacteria to non-detectable levels. The absence of spoilage bacteria increases the shelf life of the product. Extended shelf life on raw oysters is a major selling point of these three methods. It is the perfect combination of quality, safety and convenience of pre-shucked oysters.

For more information: This fact sheet is not a definitive publication of all commercially available post-harvest processing (PHP) treatment technologies on oysters. It is documentation of three currently available PHP technologies. The Mississippi Department of Marine Resources and Florida Sea Grant Program through the Gulf and South Atlantic Fisheries Foundation, Inc. funded this collaborative project under the Gulf Oyster Industry Program to provide information to anyone interested in these technologies. This fact sheet was produced in collaboration with the Mississippi and Louisiana seafood industries.

Post-Harvest Processes



Individually Quick Frozen (IQF)

Freezing oysters to extend shelf life was first applied in 1989; and, presently, there are several facilities using this technique with oysters. The process has also become popularized on a worldwide scale with Australia, Canada, New Zealand and the United States leading the pack. IQF processing of oysters is presently being applied by companies in California, Florida, Louisiana and Texas. It has the biggest market share of the PHP raw oyster market. Many would prefer the IQF oysters because of quality, taste and convenience. The IQF "fresh frozen" technology keeps all of the flavor and appeal of non-processed oysters – the major selling point of the process.

Heat – Cool Pasteurization (HCP)

Pasteurization of oysters was initially developed in 1995 by a private firm in Louisiana. This process involves submerging the raw product into warm water followed by immediate cold water immersion. This process reduces the *Vibrio vulnificus* to non-detectable levels. Shellstock is washed, graded, sorted, banded and pasteurized. Banded oysters are placed on a large tray and then a hoist lifts and places them in warm water at 127 degrees F for 24 minutes. Then the trays are lifted out and over to the cool water where they are placed for 15 minutes at 40 degrees F. The trays of cooled banded oysters are stacked on carts to drip dry ready for boxing and storage. The patented process guarantees quality, safety, taste, longer shelf life, high yield, appearance, laboratory assurance, peace of mind and great value.

High Hydrostatic Pressure (HHP)

Pressurization processing was pioneered in the meat and juice industries; however, its application to oysters was initiated in 1999 in Houma, LA. This type of processing starts with cleaning, washing, sorting or grading, then banding and containerizing (placed in a stainless steel cylinder) ready for the high hydrostatic pressurization. This will kill all pathogens. The oysters are then shucked for half shell or packaged as banded oysters. The whole process is patented for raw oyster product. Quality, taste, flavor, texture and packaging earned this process top awards.

For more information please contact:

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

Office of Marine Fisheries

1141 Bayview Avenue • Suite 101 • Biloxi, MS 39530 • (228)374-5000 • www.dmr.state.ms.us

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