



## Black Spot and Louisiana Shrimp

### Why does black spot occur, and how does it affect shrimp sales?

**BLACK SPOT, OR MELANOSIS,** is caused by enzymes that are naturally present in the shrimp. Upon removing shrimp from the waters of the Gulf of Mexico, these enzymes react with the air and chemically transform colorless compounds in the shrimp into complex brown pigments near the shrimp surfaces and shell. These initial color changes are NOT an indication of bacteria spoilage.

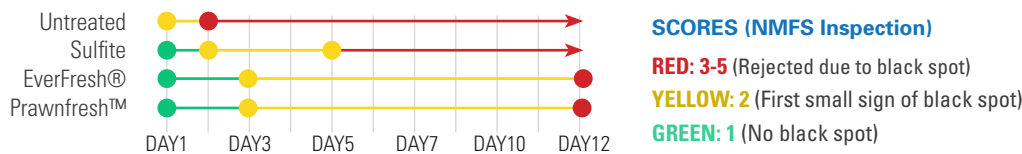
Since black spot is caused by enzymes naturally present in the shrimp, the darkening occurs before bacteria grow and cause deterioration and spoilage. However, even though we eat with our mouth, we buy with our eyes. Black spot is a color defect, and negatively affects quality perception and purchase by the customer.



### What will prevent black spot?

**SULFITE** (metabisulfite, sodium bisulfite) is commonly used in Louisiana as a dip for shrimp to prevent the development of black spot. However, sulfites are a known allergen and must be on all product labels. Alternative products, such as **EverFresh®** (powder) and **Prawnfresh™** (liquid), have entered the market to replace sulfite treatments. These products use a compound derived from kiwi fruit to reduce black spot development. This allows for producing "sulfite free" shrimp without black spot, which do not require a sulfite statement on the package label.

### How many days will shrimp retain quality?

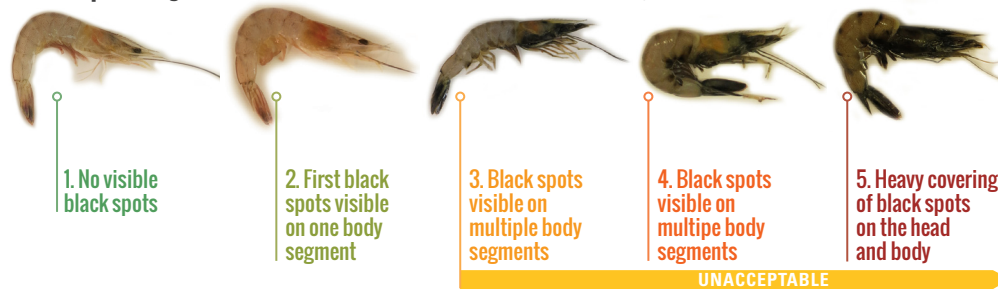


### How can this increase the value of the Louisiana fisherman's product?

As seen above, commonly used sulfites delayed the onset of melanosis by 1 to 2 days beyond untreated shrimp. Within 2 to 4 days out of the water, untreated and sulfite treated shrimp reached unacceptable levels. However, EverFresh and Prawnfresh reduced the development of black spot for several more days, and shrimp did not reach unacceptable levels until Day 12.

This means less shrimp must be thrown out or sold at a lower price. Both EverFresh and Prawnfresh have been approved for use in Europe, the United States, and many other countries. These products allow for targeting previously untapped markets where customers want sulfite free shrimp.

### Black Spot Progression Scale \*Based off of NOAA/NMFS Seafood Inspections



	Manufacturer Recommendations			LSU Research Recommendations		
	Treatment	Water Temp (°F)	Salinity (PPT)	Soak Time	Water Temp (°F)	Salinity (PPT)
Sulfite	Ambient	Fresh to Salty	1 min	Ambient	Fresh to Salty	1 min
EverFresh®	35-80	Fresh to Salty	2 min	Ambient	Fresh to Salty	2 min
Prawnfresh™	33-40	30+	10 min	Ambient	Fresh to Salty	2 min



### Will these other products work as well?

While these alternative products were developed elsewhere for other species, researchers with Louisiana Sea Grant and LSU AgCenter have found, through extensive testing, that Prawnfresh and EverFresh are actually more effective than sulfite dip at treating black spot in Louisiana white shrimp.

