

FISH JAW OIL

By Joseph F. Puncochar*

Fish jaw oils have been used for centuries as lubricants for precision instruments. Manufacturers of horological instruments are well acquainted with the fine lubricating properties of oil of this type. Proper functioning and accuracy of delicate mechanisms require that the lubricant possess the following properties:

1. It must not oxidize rapidly
2. It must not evaporate, creep, or gum
3. It must be free-flowing at low temperatures

Properly refined fish jaw oil possesses all of these properties.

Although the demand for oil of this type is limited because of the small amounts necessary to lubricate precision instruments, it, nevertheless, contributes much to the precision instrument industry.

A long-established manufacturer of fish jaw oil, possibly the only producer in this country, indicated that during the past five years nearly the entire production of this oil was set aside for use in lubricating mechanisms of instruments used for military purposes.

Raw materials for the manufacture of fish jaw oil were formerly secured from the porpoise and blackfish. At the present time, however, blackfish are the sole

source of raw material. The principal source of supply of blackfish is in the region of Cape Cod. The animals are attracted by the squid, upon which they feed. They are captured by driving them to shallow beaches where they are lanced to death.



Porpoise

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Jaw oil is obtained from the jaw and jaw-pans of the animal. The lower jaw is cut off, and the jaw-pans are carefully removed. The melon, or junk, in the head of the blackfish also contains oil of similar properties. The melon is a fatty mass on the top of the head, extending from the spout hole to the end of the nose and weighing about 25 pounds. Jaw-pans and melons are washed free of blood, minced, and made ready for rendering.

The usual practice is to cook the head matter (melons and jaw-pans) of blackfish in fresh water. About 15 gallons of water is placed in the pot, the fat is added, and the whole is heated gently by a low fire. It is important that the temperature of extraction be not allowed to exceed 180° F. After extraction, the mixture is allowed to cool overnight and the oil is then skimmed off. The average yield of oil from a single blackfish head is about two gallons.

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In the manufacture of fish jaw oil, much depends upon the freshness of the raw material at the time the oil is rendered and the freedom of the extracted oil from adulterants (such as blubber oils) and foreign matter. Fresh raw material produces a much better oil than that which is partially decomposed. A peculiarity of oil of this type is that it improves with age. For this reason, oils are often a year or two old before marketing. More recently, however, it has been found that the process of refining the oil can be hastened through subjecting the oil to low temperatures to de-stearinate it. The oil is subjected to three successive degrees of freezing, each stage being at the temperature that will take out additional stearin. After refining, the oil is stored in chill rooms for storage.



The composition of the crude oil is approximately as follows:

15 percent unsaponifiable matter
 71 percent mixed acids
 14 percent gristle

Valeric acid constitutes 86 percent of the mixed acids
 Oleic and palmitic 13 percent

Inasmuch as the demand for oils of this type is limited, fishing for blackfish is carried out on a small scale and incidental to other types of fishing.

During normal times, a market can be found for 300 to 400 gallons of oil per annum. Prices paid to the fishermen for blackfish oil range from 10 to 15 dollars per gallon.

Specifications for oil of this type generally require that the oil contain not more than 3/10 of 1 percent fatty acids and have a pourpoint of -20° F.



SALT OR SMOKED FISH: Tasty variations in the menu are provided by salt or smoked fish. Salt fish ordinarily requires one-half to several hours' soaking before further preparation; while smoked fish usually is ready to eat as it is or may be heated.