

## Fish Oil

Fish Oil is derived from the fresh cuttings of fish processed for human consumption at inspected, domestic fish processing facilities. The raw material is cooked; and the oil is separated, purified, and stabilized with synthetic antioxidants.

Fish Oil is a blended product containing oil from marine whitefish, marine bottomfish, and salmon. It is a crude oil and retains a complete profile of all naturally-occurring fatty acids. It has applications in a variety of animal feeds to provide dietary energy and critical omega-3 fatty acids.

Fish Oil is a natural, sustainable feed ingredient. Wild Pacific whiting (*Merluccius productus*) and bottomfish harvested by the Pacific Seafood Group are certified as “sustainable” by the Marine Stewardship Council.

Fish Oil is a product of the United States of America. It is traceable with documentation showing source and disposition of all raw material utilized in manufacturing.

### TECHNICAL DATA

#### Guaranteed Analysis

|                           |        |
|---------------------------|--------|
| Crude Fat (min)           | 98.5 % |
| Moisture/Impurities (max) | 1.5 %  |
| Free Fatty Acids (max)    | 4.5 %  |

#### Typical Composition

|                             |                 |
|-----------------------------|-----------------|
| Free Fatty Acids (as oleic) | 3.0 %           |
| Iodine Value (Wijs)         | 115-160         |
| Moisture Impurities         | 0.5 %           |
| Vitamin A                   | 900,000 IU / kg |
| Vitamin D                   | 15,000 IU / kg  |

| <b>Fatty Acid Profile</b>   |           | <b>Typical (% Oil)</b> | <b>Range (% Oil)</b> |
|-----------------------------|-----------|------------------------|----------------------|
| Myristic                    | C14:0     | 4.0                    | 3.0 – 5.0            |
| Palmitic                    | C16:0     | 18.5                   | 16.0 – 22.0          |
| Palmitoleic                 | C16:1     | 9.0                    | 8.0 – 11.0           |
| Stearic                     | C18:0     | 4.0                    | 2.5 – 4.5            |
| Cis-Oleic                   | C18:1 n-9 | 32.5                   | 25.0 – 35.0          |
| Cis-Linoleic                | C18:2 n-6 | 2.0                    | 1.5 – 5.0            |
| α-Linolenic                 | C18-3 n-3 | 1.0                    | 0.5 – 2.0            |
| Cis-11,14,17-Eicosatrienoic | C20:3 n-3 | 0.5                    | 0.2 – 1.0            |
| Arachidonic                 | C20:4 n-6 | 1.5                    | 0.5 – 3.5            |
| Eicopentaenoic (EPA)        | C20:5 n-3 | 8.5                    | 6.0 – 14.0           |
| Erucic                      | C22:1 n-9 | 1.0                    | 0.5 – 2.0            |
| Docosahexaenoic (DHA)       | C22:6 n-3 | 4.5                    | 4.0 – 7.5            |
| Saturated                   |           | 30.0                   | 23.0 – 30.0          |
| Mono-unsaturated            |           | 40.0                   | 35.0 – 47.0          |
| Poly-unsaturated            |           | 25.0                   | 20.0 -30.0           |
| Omega-3                     |           | 14.0                   | 12.0 – 24.0          |
| Omega-6                     |           | 6.5                    | 3.5 – 10.0           |

### **Fat Stability**

|                               |              |
|-------------------------------|--------------|
| Ethoxyquin                    | 600 ppm      |
| Peroxide Value                | 1.5 mEq / kg |
| Oxygen Stability Index (80°C) | 45 hours     |

### **Product Characteristics**

|           |                                    |
|-----------|------------------------------------|
| Color     | Tan to amber                       |
| Odor      | Mild fish                          |
| Physical  | Liquid at room temperature         |
| Density   | 7.25 – 7.75 lb / gal               |
| pH        | 6.0 – 6.25                         |
| Storage   | Store in a cool, dry location      |
| Stability | 6 months when appropriately stored |

### **Packaging**

2,000 lb liquid totes or bulk tankers

### **Ingredient Label**

Fish Oil

**Manufacturer**

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\*Values for typical composition, fatty acids, fat stability, and product characteristics are typical values.