

What is Spirulina Pacifica®?

Spirulina is a microscopic blue-green vegetable algae that has been used as a significant food source for centuries: the most well-known examples are the Aztecs of Central America and the Kanembu of Lake Chad. In both of these cultures, the superior protein of Spirulina made it an important part of their diet and a very valuable commodity.

Spirulina Pacifica is a select strain of *Spirulina platensis* developed over many years of continuous cultivation in Hawaii. Strain development and perfection started in 1984. Our cultures in Hawaii represent the oldest continuously cultivated and harvested Spirulina in the world. Hawaii's year-round growing conditions and our integrated culture management system have made this possible. Spirulina Pacifica has been extensively analyzed by molecular biologists at the University of Hawaii who identified unique enzymes not previously found in other strains of *Spirulina platensis*.

Spirulina is a blue-green algae, but should not be confused with so-called wild blue-green algae harvested from uncontrolled lake conditions. The Spirulina that has been consumed as a nutritious food for centuries is a completely different genus and species than the ordinary lake algae. Modern culture systems are strictly controlled, assuring 100% purity of the strain for a safe and reliable supply.

Spirulina Pacifica is a highly absorbable source of protein, mixed carotenoids and other phytonutrients, B-Vitamins, GLA and essential amino acids. It is ideal for those preferring a whole food supplement over artificial nutrient sources and is offered in powder, flakes and tablets. The concentrated nutritional profile of Spirulina occurs naturally and, because it is a whole food, it is safe to eat-even in large quantities.

Of all the algae, Spirulina Pacifica has emerged as an especially potent and healthy food source for humans. In fact, Spirulina Pacifica is conceivably the most concentrated and nutritious whole food known.



CYANOTECH CORPORATION
WORLD'S LEADER IN MICROALGAE TECHNOLOGY

73-4460 Queen Kaahumanu Hwy. #102 • Kailua-Kona, Hawaii 96740 • Phone: (808) 329-4677 • Fax: (808) 329-4533 • e-mail: info@cyanotech.com

Why is Spirulina Pacifica® the Best in the World?

Cyanotech Corporation is the worldwide leader in development and commercialization of micro algae products. The premium quality of our lead product, Spirulina Pacifica, is the result of an unparalleled environment and advanced technology.

- **An Ideal Climate and Location** Kona, Hawaii, is the sunniest costal location in the United States providing perfect year-round temperatures and a 12- month growing season.
- **A Superior Strain** For more than 13 years-5,000 generations-Spirulina Pacifica has been adapting to the intense Hawaiian sun. These conditions have given birth to a distinctive carotene-rich strain known as Spirulina Pacifica, providing the highest levels of mixed carotenoids of any Spirulina in the world.
- **Ocean Source Minerals and Trace Elements** Our ponds are filled with fresh water drawn from wells in the rainforest aquifer, supplemented with nutrient-rich ocean water pumped from a depth of 2,000 feet. This vital resource provides a rich mixture of calcium, magnesium and trace elements-more than 90 different elements in all.
- **Pesticide Free, Herbicide Free and Nonirradiated** Spirulina Pacifica is regularly tested by an independent laboratory to insure that no pesticides or herbicides and is not irradiated.
- **State of the Art Technology** Our patented oxygen-free drying system, Ocean Chill Drying, allows Spirulina Pacifica to be dried in an environment which preserves high nutrient and enzyme concentrations by preventing oxidative damage. Oxygen barrier packaging and optional cold-press tabletting protect Spirulina Pacifica's superior nutritional profile while insuring its fresh taste.



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How Does Spirulina Pacifica® Benefit the Consumer?

Spirulina Pacifica provides more concentrated nutrition than any other whole food. People from all walks of life, including athletes, seniors and those with special nutritional needs, benefit from the whole food nutrition supplied by Spirulina Pacifica.

- **Most Concentrated Source of Mixed Carotenoids and Phytonutrients** On the basis of more than 200 studies of diet and health, nutritionists recommend increasing the intake of carotene-rich foods. Unlike synthetic beta-carotene supplements, Spirulina Pacifica supplies four different molecular forms of beta-carotene, as well as zeaxanthin and beta cryptoxanthin. No other whole food provides the concentration of mixed carotenoids found in Spirulina Pacifica.
- **Bio-Available Iron and Vitamins, B-2, B-6, B-12** Spirulina Pacifica is a natural source of iron and the B-complex vitamins. Iron intake is especially important for women and is required for red blood cell replacement. Spirulina Pacifica supplies 50 times more iron than spinach, without the oxalic acid that inhibits uptake. B-2 is crucial in the production of energy; B-6 is required for the functioning of more than 60 enzymes and for synthesis of nucleic acids and protein; B-12 is required for proper nerve function.
- **Richest Whole Food With GLA** (gamma linolenic acid) GLA is used by the body to make prostaglandin E1, a natural anti-inflammatory compound. Clinical trials with GLA supplementation have shown a significant effect in the relief of symptoms associated with arthritis.
- **Highly Digestible Protein** Spirulina Pacifica is the richest source of protein in the plant world-60% protein-three times that of beef. This protein is in a highly digestible and easily assimilated form supplying all the essential amino acids.
- **Peak Athletic Performance** Spirulina Pacifica can increase antioxidant intake (carotenoids), relieve inflammation due to unusual joint stress (GLA), and provide high quality protein without fat to enhance athletic endurance regimens. It is also a good source of other important nutrients such as iron, chlorophyll, B-vitamins and the electrolyte potassium. Athletes commonly report increased energy levels and faster recovery from events.
- **The Convenience of Tablet, Flake or Powder Form** Spirulina Pacifica can be taken in tablets, sprinkled on foods as flakes, or added directly to fruit drinks as powder. Because Spirulina Pacifica is a food, not a synthetic supplement, it may be consumed in high quantities.



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How is Spirulina Pacifica® Produced?

Spirulina Pacifica is a specially bred strain of the edible micro algae *Spirulina platensis*. It is cultured in shallow, open ponds (approximately 20 cm deep) adjacent to the Pacific Ocean. A combination of fresh water and supplemental deep ocean water is used to fill the ponds. The other major components required for growing Spirulina Pacifica and food-grade baking soda (sodium bicarbonate) and carbon dioxide. Food grade fertilizers are used and the deep-sea water is added as a rich source of minerals and trace elements. Paddle wheels agitate the water, ensuring even exposure of the algae to the sun for optimal growth and nutritional value.

We grow more than 300 metric tons of premium-quality Spirulina Pacifica per year at our 80-acre Hawaiian, oceanfront production facility. Customers choose Spirulina Pacifica because of the reliable supply, consistent quality and excellent value. The Hawaiian environment and our unique technology set Spirulina apart from the others.

- **The Intense Hawaiian Sun** We grow Spirulina Pacifica at 19 N latitude, where the powerful tropical sun beats down on our cultures year round. To counter the harmful effects of the sun's ultraviolet rays, Spirulina Pacifica produces an abundance of mixed carotenoids and antioxidant enzymes. This environment has encouraged the process of natural selection, birthing Spirulina Pacifica, a unique and superior carotene-rich strain of micro algae.
- **Harvesting** Spirulina Pacifica is pumped from the culture ponds to a process building where the culture medium is sifted and separated through stainless steel screens. It is then rinsed numerous times with fresh water, vacuum filtered and spray dried, resulting in a dark green powder with a mild sea-vegetable aroma and fresh, salt-free taste.
- **Ocean Chill Drying** Years of research and development resulted in the ultimate drying technology which eliminates the oxidation of carotenes and fatty acids that occurs in standard dryers. Our patented system, unique to Spirulina Pacifica, recovers carbon dioxide from the dryer air and allows the Spirulina Pacifica to be dried in a low oxygen environment, protecting the already naturally high levels of beta carotene and other Phytonutrients. The recovered carbon dioxide is then recycled back to the ponds to nourish the growing algae.
- **Quality Packaging** Dried powder or flakes are immediately sealed in metal laminate bags with an enclosed oxygen absorber. This method maintains the high carotenoid levels and insures a distinctive fresh taste.
- **Environmentally Friendly** One acre of Spirulina Pacifica can produce 20X the protein of an acre of soybeans and 200X the protein of beef, while using only one-third of the water for soybeans and 2% of the water for beef. Spirulina Pacifica is actually the world's most productive agricultural crop, and unlike conventional agriculture, there is no run-off to ground water-100%of the growing media is recycled.



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Premium Quality Tablets

Cyanotech Corporation produces premium grade Spirulina Pacifica tablets at our Hawaiian production plant. Our modern facility was expressly built to make these tablets efficiently and with minimal exposure to oxygen. Purchasing tablets directly from us solves several potential problems for the distributor.

- **Quality** Because Spirulina is a fine dusty powder, it is inherently difficult to tablet. Some manufacturers solve this problem with high levels of tablet binders or by using heat granulation which can degrade nutrients. At Cyanotech, we tablet only Spirulina and therefore have developed expertise in making superb tablets with less than 2% additives. And just as with our powder, tablets are packaged in heat-sealed oxygen-free metal laminate bags. Spirulina tablets arrive absolutely fresh, with a storage life of more than three years.
- **Save Valuable Production Time** Ordering tablets from Cyanotech means not waiting for lead times and extra shipping time to and from an outside tableting facility. Orders are shipped, ready to bottle.
- **Eliminate Hidden Expenses** Reduced lead times means no money invested in product not ready for sale. And, because there is no shipment to the tablet manufacturer, additional shipping costs are avoided. Finally, our tableting rates are extremely competitive.
- **Custom Tablet Formations and Shapes** We make tablets ranging in size from 200mg to 1000mg. Custom logos can be applied to tool sets for a distinctive, proprietary tablet to suit individual market needs. Unique tablet formulations can also be made in quantities of 200 kg or more.
- **Private Label** For those requiring finished goods, we offer Spirulina products bottled under our Nutrex label, or we will gladly apply individual apply private labels. All packaging is done at our Los Angeles warehouse. A large variety of bottles and closures are available.



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Spirulina Pacifica® Specification Sheet

General Description

Spirulina Pacifica is a fine, free-flowing, dark blue-green powder which is grown, dried and packaged in Kona, Hawaii, USA.

Ingredient Label Declaration

Spirulina Pacifica

General Specifications

Manufactured in accordance with Good Manufacturing Practices promulgated under the Federal Food, Drug and Cosmetic Act (FDA) and applicable State Statutes and Regulations.

Analytical Specifications

Property	Limits
Rapid identification of Spirulina species	Positive
Moisture	Maximum 8%
Protein	Minimum 50%
Heavy Metals (total)	Maximum 3 ppm
Arsenic	Maximum 1 ppm

Microbiological Specifications

This product is free of pesticides, synthetic dyes and preservatives.

Property	Limits
Total mesophilic aerobes	Maximum 10(5) per gram
Escherichia coli	Negative
Salmonella	Negative
Shigella	Negative
Staphylococcus	Negative
Total Coliforms	Maximum 10 per gram
Insect fragments	Maximum 5 per gram

Packaging Specifications

10-kg, 25-kg, 50-kg and 100-kg oxygen-barrier foil poly laminated bag in box/drum. Packaging is heat sealed to protect the contents from light, moisture, atmospheric gases, extraneous materials and product loss. Each package has an enclosed oxygen absorber and an interior polyethylene bag. Shipping dimensions (cm): 10KG- 25.4 x 25.4 x 25.4 25KG- 35.6 x 35.6 x 36.8 50KG- 48.3 x 43.2 x 45.7 100KG- 48.3 x 43.2 x 89

Labeling Specifications

The labeling on each container displays the following:

1. The product name and manufacturing plant identity.
2. The production lot identity code.
3. The net weight of contents.

Shipping Specification

Transport of the product should be under conditions that preclude all contamination and that protect against the deterioration of the product and container. A copy of loading tallies indicating lot(s) should accompany each freight container.

Storage Specifications

STORAGE CONDITIONS: Normal warehouse and transport conditions (below 110°F)
SHELF LIFE: 36 months



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