

PRODUCT OVERVIEW



PROVIDING CONSISTENT COLOR AND RELIABLE PERFORMANCE EVERY TIME

Aquasta® is a naturally-sourced astaxanthin made from *Phaffia rhodozyma* yeast for use in both specialty and commercial-scale feed manufacturing and fish growing operations. Without a source of astaxanthin in their diet, farm-raised salmon would have a pale, off-white color with limited consumer appeal.

As the world's leading provider of naturally-sourced astaxanthin, Naturxan is dedicated to maximizing the value of your astaxanthin investment.

Naturxan, a joint venture between the Archer Daniels Midland Company and Igene, has served its customers large and small in major aquaculture markets around the world for more than a decade.

AQUASTA HIGHLIGHTS

Aquasta® is an effective, reliable and continuously available source of astaxanthin with:

- 10,000 ppm concentration
- 90% cell wall disruption to improve absorption
- a 12-month shelf life while in storage
- minimal losses when refrigerated or frozen
- Beta glucans, which are found in the cell walls of yeast and have been proven effective in supporting the immune system of salmon¹

IMPROVED BIO-AVAILABILITY

Aquasta® is a highly bio-available source of astaxanthin for aquaculture due to:

- our proprietary enzyme disruption process
- its similar optical isomer profile to antarctic krill
- a high concentration of *trans* isomers
- its 100% free, non-esterified form, which is absorbed more efficiently than esterified sources

PROVEN PERFORMANCE

Aquasta® naturally-sourced astaxanthin has been proven as effective as synthetic astaxanthin:

- through various extrusion processes, production timelines and storage temperatures
- in commercial field trials involving Atlantic Salmon, Coho Salmon and Rainbow Trout
- in fresh, frozen and smoked fish

RENEWABLE PRODUCT SOURCE

Aquasta® feed ingredients for aquaculture are:

- naturally-sourced from *Phaffia* yeast
- made with renewable ingredients
- free from petrochemicals
- made without recombinant DNA modification
- accepted in key organic programs



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INDUSTRY-LEADING SCIENCE

Naturxan's world-class R&D facility at our parent company, Igene, provides:

- more than two decades of pioneering research and development of the *Phaffia rhodozyma* yeast as a natural source of astaxanthin
- a reliable statistical model and pigmentation database for using Aquasta® during various stages of growth to achieve a desired color level
- the world's most accurate assay for analyzing astaxanthin concentration levels, which has been adopted by leading feed manufacturers

SCALABLE, YEAR-ROUND SUPPLY

Naturxan's production facility at our parent company, ADM, provides,

- the unmatched resources, stability and global presence of a 100-year-old, \$70 billion company with more than 28,000 employees worldwide
- significant capital and engineering resources to scale production capacity and maintain a stable, year-round supply of Aquasta®
- access to a vast, world-class transportation network to deliver Aquasta to feed manufacturers and fish producers, wherever they are located

DEDICATED CUSTOMER SUPPORT

Naturxan's team of renowned researchers and scientists provide:

- worldwide customer service and technical support to customers building their specialty feed line or pigmentation strategy around Aquasta®
- custom analysis and training services for feed manufacturers to minimize astaxanthin losses occurring throughout the feed-making process
- custom support services to fish producers to verify pigmentation levels, calculate color expression and analyze feeds to maximize profitability

References: 1. Engstad RE and Robertsen B (1995). Recognition of yeast cell wall glucan by Atlantic salmon (*Salmo salar* L.) macrophages. *Developmental and Comparative Immunology* 17: 319-330.