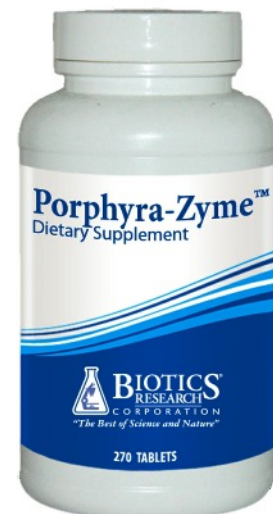


# Technical Support

No. TS015

Porphyra-Zyme™ #3202 & 3205

## Porphyra-Zyme™



### Porphyra-Zyme™ Binds Heavy Metals

In 1980, Biotics Research Corporation began investigating the use and production of Spirulina plankton. A leading expert from the University of Texas provided insight into methods of production, as well as pure Spirulina cultures that were the starting culture for our research and production.

Production was halted when scientists at Biotics isolated what they considered the "active" principal of Spirulina - the porphyrin ring of chlorophyll. While many claims for the nutritional value of Spirulina have been made, the consensus was the most significant value in Spirulina was chlorophyll. However, the chlorophyll content in Spirulina is low (typically less than 1%).

Porphyrins have the ability to bind divalent metal ions due to the nitrogen atoms of the tetrapyrrole nucleus. The central ion in chlorophyll is magnesium, which is freed from chlorophyll under acidic conditions, permitting other metals to bind in its place. Toxic metals, such as mercury, lead and arsenic, are complexed first. Then excess amounts of other divalent metals, such as calcium, can be complexed by porphyrins.

### Porphyra-Zyme™ - A Concentrated Porphyrin Product

Unlike traditional chlorophyll products, Porphyra-Zyme™ is a concentrated porphyrin supplement. By increasing the porphyrin content, the heavy metal binding capability is also increased, providing clinicians with a natural, effective "chelating" tool.

### Investigational Data on Porphyra-zyme™

Scientists at Biotics Research Corporation studied the ability of Porphyra-Zyme™ to bind heavy metals in-vitro. Porphyra-Zyme™ was dialyzed against aqueous solutions of heavy metal ions. Afterward, the concentration of heavy metal ion remaining in the dialysis medium was determined. As can be seen by the Investigational Data chart, Porphyra-Zyme™ proved to be very effective in binding heavy metals.

Using dialysis, the following exchange range for toxic metals was established:

	Initial Concentration	After Dialysis against a solution of Porphyra-Zyme	Amount Complexed	Percent
Lead	20 ppm	4.8 ppm	15.2 ppm	76%
Mercury	10 ppm	0.8 ppm	9.2 ppm	95%
Cobalt	30 ppm	3.4 ppm	26.6 ppm	88%
Cadmium	15 ppm	3.6 ppm	11.4 ppm	76%
Arsenic	10 ppm	1.4 ppm	8.6 ppm	86%
Aluminum	20 ppm	7.0 ppm	13.0 ppm	65%
Nickel	10 ppm	3.3 ppm	6.7 ppm	67%

Measurements were made using atomic absorption techniques (flame, furnace and hydride methods), using a Perkin-Elmer 603 spectrophotometer.

### Product Information

Tablets per bottle: 90 tablets & 270 tablets

Product code: #3202 & 3205

Product adjuncts: *Multi-Mins™, Multi-Mins™ Iron/Copper Free*

**Call 1-800-231-5777 for the name and number of your local Biotics Research distributor.**

**Biotics Research Corporation**  
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**THE STATEMENTS MADE HEREIN HAVE NOT BEEN EVALUATED BY THE U.S. FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.**