 <b>INTERNATIONAL INGREDIENT CORPORATION</b>	150 Larkin Williams Industrial Ct • P.O. Box 26377 St. Louis, Missouri 63026 • 636-343-4111	
	Product Standard	
	GroBiotic® A	
	Issue 3	04-24-2014

### **Product Description**

GroBiotic® A is an all-natural prebiotic and immuno-stimulant with significant positive effects proven in shrimp, tilapia, catfish, trout, hybrid striped bass, red drum, golden shiners (baitfish), and other fish species. GroBiotic® A has been shown to enhance growth, feed efficiency, survivability, and immune function, positively alter gastrointestinal microbial populations, and increase nutrient digestion of plant protein-based diets. GroBiotic® A is proven effective during exposure to a variety of stressors, including bacterial (*Streptococcus iniae*, *Mycobacterium marinum*, *Flavobacterium columnare*), viral (IHNV), poor water quality, low salinity (shrimp), and general commercial conditions. Active components of GroBiotic® A include yeast and dairy fractions, as well as dried fermentation products. The product is natural, safe, and can be used in crumbled, extruded, or pelleted feeds.

### **Usage**

GroBiotic® A is recommended at an inclusion rate of 1 to 2% in feeds for aquatic species of all ages. GroBiotic® A is formulated to enhance growth performance and survivability of aquatic species under normal and stress conditions.

### **Product Analysis**

	<b>Guaranteed Analysis</b>	<b>Typical Value</b>	<b>Method</b>
<b>Physical</b>			
Color	Tan	NA	Organoleptic
Texture	Free flowing powder	NA	Organoleptic
<b>Chemical</b>			
**Crude Protein	30.0% min	32.0%	AOAC 954.01
**Crude Fat	0.1% min	2.0%	AOAC 954.02
**Crude Fiber	3.0% max	2.0%	AOAC 962.09
+Carbohydrate	*****	53.0%	Subtraction
Ash	*****	6.0%	AOAC 930.30
Moisture	*****	5.0%	AOAC 960.18
ME (calculated)	*****	3,580 kcal/kg	Atwater


\*\*Denotes analyses that are included on the certificate of analysis (CoA)

+Simple and complex carbohydrates including oligosaccharides

### **Ingredient Statement**

Dried yeast (per AAFCO 96.1), Dried whey solubles (per AAFCO 54.9), Dried citric acid fermentation solubles (per AAFCO 36.4), Yeast extract (per AAFCO 96.11)

Supersedes all previous Product Standard documentation. The information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise, is limited to the purchase price of the material.

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## **Nutritional Profile**

<b>Essential Amino Acid</b>	<b>Total Value %</b>	<b>Digestible Amino Acid %</b>
Arginine	1.74	1.39
Cysteine	0.39	0.19
Histidine	0.85	0.65
Isoleucine	1.53	1.10
Leucine	2.23	1.63
Lysine	2.27	1.68
Methionine	0.52	0.36
Phenylalanine	1.26	0.83
Threonine	1.59	1.05
Tryptophan	0.41	0.23
Tyrosine	1.15	0.74
Valine	1.83	1.21
<b>Minerals</b>	<b>Total Value %</b>	
Calcium	0.21	
Chloride	0.42	
Magnesium	0.19	
Phosphorus	0.99	
Potassium	2.70	
Sodium	0.30	

## **Country of Origin**

GroBiotic® A is manufactured from materials originating in the United States.

## **GMO Status**

IIC does not make any claims as to the GMO status of GroBiotic® A.

## **Manufacturing**


GroBiotic® A is manufactured in accordance with feed standards of the United States Food and Drug Administration and IIC's Quality Management System.

## **Packaging**

GroBiotic® A is available in:

- 50lb multi-walled poly lined paper bags
- 25kg multi-walled poly lined paper bags
- Totes and Bulk

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### **Storage and Shelf Life**

The shelf life for GroBiotic® A is 12 months from date of manufacture. This date may be amended based on country and customer requirements. To achieve maximum shelf life, the following storage guidelines must be followed:

- Product container integrity maintained
- Product stored on pallets, off the floor and out of contact with walls and ceilings
- Product stored in an area free from strong or objectionable odors
- Product stored at an average temperature below 70°F/21°C and relative humidity below 65%