



AQUAFEED



MAZZOLENI



MAZZOLENI SPA, a European leader in animal nutrition, presents the new **AQUAFEED** line, technical products dedicated to the world of Aquaculture, designed and developed through the research done by its Technical staff and with the cooperation of many costumers, Research institutions and partners located all over the world.

AQUAFEED line is manufactured at the production plant Mazzoleni of Cappella Cantone, the modern plant opened in 2012 and is specialized in creating technical products.

Thanks to an innovative production Layout and to the presence of 75 automatic dosing silos, the facility allows great flexibility while ensuring absolute precision.

Thanks to these characteristics, we can design customized solutions to further expand the range of products to meet any technical and commercial need.

The aquafeed line using this production technology, in compliance with quality standards GMP+ and FAMI-QS, ensures for every product maximum quality and reliability.



The **AQUAFEED** line, has been designed to improve the performance of fish and shrimps, helping to prevent the most common diseases of the intestinal system and boosting the activity of the immune system. All is aimed to stress reduction and control of juvenile mortality, always working for a continuous production improvement.

Yeast cell walls, inactive yeasts, free nucleotides, short and medium chain fatty acids and protein concentrate are the heart of our products for aquaculture. Mazzoleni is also capable to produce tailor made products, to fit the need of our customers.

IMMUNE BOOSTER, GUT HEALTH AND DISEASE CONTROL

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- Granular 70
- Smart fish 68

IMMUNE BOOSTER, GUT HEALTH AND DISEASE CONTROL

SHORT AND MEDIUM CHAIN FATTY ACIDS (SMCFA):

- ANTIMICROBIALS
- ENERGY FOR GUT CELL
- ANTINFLAMMATORY

NUCLEOTIDES:

- TISSUE REGENERATION
- IMMUNE BOOSTER
- PREBIOTICS

MANNANE OLIGOSACCHARIDES (MOS):

- PREBIOTICS AND TOXIN BINDER
- IMMUNE BOOSTER
- ANTINFLAMMATORY

YEAST

- PREBIOTICS
- SOURCE OF B VITAMINS
- GOOD AMINOACID PROFILE

SANOFISH

Source of short and medium chain fatty acids and MOS

SANOFISH is a complementary feed with prebiotic effect able to contribute at different levels on the health and efficiency of the digestive tract.

Intestinal epithelium effects: **SANOFISH** acts in regulation of gene expression and of cell growth. This positive effect of **SANOFISH** on the growth and maturation of epithelial cells promoting a greater development of the intestinal wall measurable in vivo.

Activation of enzyme secretion: the infusion intraduodenal of fatty acid stimulates the exocrine pancreatic secretions of more species. Fatty acids with medium and short chain stimulate the secretion of fluid and amylase from the pancreas.

Bactericidal effect: This mechanism is mainly based on the AGV penetration inside of the cell wall. The non-differentiated AGVs are lipophilic and can cross the cell wall. One time inside the cell they are dissociated. Once dissociated they lose the ability to cross the cell wall, causing an increase of the intracellular concentration. If the microorganism wants to maintain a stable intracellular pH it will have to carry outside the H + ions released during the dissociation, the increased amount of dissociated AGV will kill the microorganism. By contrast the useful microorganisms are less

sensitive to changes in intracellular pH. The H + ions released leading to a decrease of pH can again bind to the AGV that, becoming lipophilic, will leave the cell.

COMPOSITION:

Monoglycerides, Triglycerides and Diglycerides of propionic, butyric, caproic, heptanoic, caprylic and lauric acids, Micronized carob, Yeast cell walls from *Saccharomyces cerevisiae*, Yeast from *Saccharomyces cerevisiae*.

ADDITIVES PER KG:

Trace elements

3b413 Cupric chelate of glycine hydrate _____ 936 mg
3b607 Zinc chelate of glycine hydrate _____ 1.986 mg
3b506 Manganese chelate of glycine hydrate ____ 1.914 mg

Binders

Silicic acid precipitated and dried E 551a ____ 300.000 mg

ANALYTICAL CONSTITUENTS (% , ON AS IS):

Crude protein _____	1.0%
Crude Oil and Fats _____	40.2%
Crude Cellulose _____	0.2%
Crude Ash _____	32.0%
Ash insoluble in HCL _____	30.0%
Methionine _____	0.5%

SUGGESTED DOSAGE:

Add to the components of complete feeds as follows:
Fish-Shrimps _____ from 2 to 5 Kg/Ton in complete feed



Bag 20 kg

NUCLEOSAFE 40

Concentrate of free nucleotides, prebiotic and immune booster

Effect of nucleotides contained in NUCLEOSAFE 40 on the intestinal epithelium:

- Improve villus height.
- Prevent the villous atrophy that occurs due to lower feed intake.
- Increase the replication of enterocytes with prompt repair of damaged mucosa.
- Increase the number of intra-epithelial Macrophages and Lymphocytes.
- Protect the cells against increasing of the membrane permeability caused E. coli toxins.
- Promote the growth of Bifidobacteria, lactic acid producers.



Effect, on the immune system, of the nucleotides contained in NUCLEOSAFE 40:

- Improve lymphocytes and leukocyte replication, leading to a higher antibody production.
- Increase aspecific immune function (macrophages, serum complement, lysozyme).
- Promote the synthesis of antinflammatory cytokines.
- Stimulation of the immune system in sick animals.
- Greater resistance to infectious stimuli, best response to the vaccine and more survival of young animals in case of disease or stress.

Effect of nucleotides contained in NUCLEOSAFE 40 on cell replication (mitotic activity) of rapidly growing tissues:

- Stimulate the production of red blood cells (greater tissue oxygenation).
- Support the cellular multiplication of the tissues in rapid growth and favor a substantial energetical saving.
- Facilitate the prompt recovery of tissue damage subsequent to a disease, particularly at the enteric level.

NUCLEOSAFE 40

Concentrate of free nucleotides, prebiotic and immune booster

NUCLEOSAFE 40

Yeast products rich in nucleotides

COMPOSITION:

Yeast products rich in nucleotides.

ANALYTICAL CONSTITUENTS (% ON AS IS):

Free nucleotides 5'	≥40.0%
Crude protein	60.0%
Moisture	8.0%

TYPICAL ANALYSIS:

AMP+IMP	17.28%
UMP	3.84%
CMP	2.82%
GMP	16.99%

SUGGESTED DOSAGE:

Mix in the diet at 0.5 - 1.0 kg/ton, according to the indication of the nutritionist.



Bag 20 kg



AQUAMOS

Yeast products rich in Mannan OligoSaccharides (M.O.S.)

AQUAMOS plays a preventive action against food poisoning caused by mycotoxins, and towards bacterial toxins formed in the enteric tract. In addition, thanks to a high concentration of β -glucans, **AQUAMOS** is characterized by a strong immunostimulant action, participating actively in the control of many diseases (virals and bacteria) present in all intensive farming nowadays. The sequestrant capacity against mycotoxins (Aflatoxin B1, Zearalenone, Deoxynivalenol, Fumonisin, T2, Ocratoxin...), bacterial and organic toxins, is due to the presence of Mannan Oligosaccharides (M.O.S.), oligomers of mannose non-digestible in the gastrointestinal tract. The direct contact between the feed and mannan oligosaccharides allows the chelation of mycotoxins contained in the

feed. Once M.O.S. reach the intestine, they come in contact with the bacterial flora and, specifically, with toxins and pathogenic bacteria. These bacteria are equipped with special fimbriae, thanks to which they can adhere to the intestinal wall and colonize the digestive tract. M.O.S., in these conditions, are able to bind the receptors of pathogens, giving origin to a inseparable complex (bacterium + M.O.S.) and thus allowing a rapid evacuation through the feces.

β -glucans are considered to be potent activators of the non-specific immune system. Both in vivo and in vitro trials confirm that they are able to increase the number of macrophages, the secretion of cytokines and the amount of immunoglobulin. β -glucans promote the production of monocytes, neutrophils, and increase the production of interleukins.

COMPOSITION:

Yeast products rich in mannan oligosaccharides.

NUTRITIONAL VALUES:

Crude protein	21.0%
Moisture	6.0%
Crude fiber	1.0%
β -glucans	25.0%
Mannan oligosaccharides	20.0%

SUGGESTED DOSAGE:

Fish	3 - 5 kg/ton
Shrimps	1 - 3 kg/ton



AQUAYEAST

Brewer's yeast from *Saccharomyces cerevisiae*

AQUAYEAST is a product consisting of a pure strain of *Saccharomyces cerevisiae*.

AQUAYEAST is a product naturally resulting from the fermentation of malt and it is characterized by a protein of high quality, by an excellent level of amino acids, vitamins of Group B, nucleotides and excellent palatability.

For the high degree of purity and absence of residues of fermentation granted by optimal system of filtration in the liquid phase and sieving **AQUAYEAST** stands as an innovative product, intended for the feeding of all animal species and of young subjects in particular. It promotes the proper use of nutritional components thanks to its function of control in the intestine.

AQUAYEAST in fact contributes to the maintenance of optimal conditions of the gastrointestinal tract, both in case of dietary errors, and in the occasion of therapeutic treatments.

The use of **AQUAYEAST** helps to improve general health status, ameliorating feed conversion and growth performance. The use of pure strains of *Saccharomyces cerevisiae* yeast to modulate enteric digestion is now a well-established practice.

The stress to which the enteric microflora is subjected, determined by formulations to achieve higher performances or enriched with antibiotics, in fact, risks jeopardizing the delicate digestive balance.

Only by maintaining optimal health conditions we can manage to obtain the best production performance.



AQUAYEAST

Brewer's yeast from *Saccharomyces cerevisiae*

AQUAYEAST effect on the gastrointestinal tract		ACTIVITIES / BENEFITS
Intestinal bacterial flora stabilizer	→	Improvement of digestion in general and especially in young subjects
Selection of the bacterial intestinal flora	→	It plays a positive effect on the intestinal bacterial population with beneficial action. It will control the development of potentially pathogenic bacteria (eg. <i>Vibrio parahaemolyticus</i> , <i>Vibrio mimicus</i> , <i>Aeromonas hydrophyla</i> , <i>Aeromonas salmonicida</i> , <i>Ureaplasma urealyticum</i> , <i>Streptococcus</i> , <i>Pseudomonas dermoalba</i> , <i>anguilliseptica</i> , <i>Pseudomonas</i> , <i>Flavobacterium columnar</i> , <i>Tenacibaculum maritimum</i> , <i>Damsale</i> , <i>Photobacterium</i> , <i>Vibrio alginolyticus</i> , <i>Yersinia ruckeri</i> , <i>Bacillus cereus</i>)
Increase the palatability of the feed	→	Increased feed intake

NUTRITIONAL VALUES (ON AS IS):

Moisture _____	6.0%
Crude Protein _____	40.8%

AMINOGRAM (ON AS IS):

Aspartic Acid _____	3.61%
Glutamic Acid _____	5.67%
Alanin _____	2.12%
Arginin _____	1.73%
Cistein _____	0.78%
Phenylalanin _____	1.73%
Glycin _____	1.64%

Isoleucine _____	1.53%
Istidine _____	0.78%
Leucine _____	2.65%
Lysine _____	2.90%
Methionine _____	0.70%
Prolin _____	1.59%
Serin _____	1.88%
Threonine _____	1.86%
Valine _____	1.76%

SUGGESTED DOSAGE:

Fish _____	5 - 10 kg/Ton
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Bag 25 kg



Big bag 1000 kg

AMINOPRO

Single Cell Protein

The high global demand for proteins of high biological value, the need to find substitutes of protein products of animal origin, and the high cost of vegetal raw materials, have stimulated the research of alternative sources of noble proteins (fish and meat, concentrated soy protein, potato protein, ...). **AMINOPRO** and **GRANULAR 70** are single cell protein very palatable, GMO Free, with a high bioavailability and with an excellent amino acid profile.

Characteristics:

- High palatability
- High digestibility and bioavailability (>90%)
- Excellent amino acid profile
- GMO free
- Free from antinutritional factors

A cost-effective protein source.

AMINOPRO

PRODUCT FROM CORYNEBACTERIUM GLUTAMICUM RICH IN PROTEIN

NUTRITIONAL VALUES:

Moisture	6.0%
Crude protein	70.0%
Crude Oil and Fats	2.5%
Crude Fiber	0.2%
Crude Ash	3.5%

AMINOGRAM (ON AS IS)/[DIGESTIBLE FRACTION (ON AS IS)*]:

Aspartic acid	5.8%	[5.22%]
Glutamic acid	9.24%	[8.31%]
Alanine	7.07%	[6.36%]
Arginine	2.37%	[2.13%]
Cysteine	0.45%	[0.41%]
Phenylalanine	2.27%	[2.04%]
Glycine	2.32%	[2.09%]
Isoleucine	2.62%	[2.36%]
Histidine	1.62%	[1.46%]
Leucine	4.44%	[4.00%]
Lysine	1.98%	[1.78%]
Methionine	0.84%	[0.76%]
Proline	2.38%	[2.14%]
Serine	2.28%	[2.05%]
Tyrosine	1.86%	[1.67%]
Threonine	1.95%	[1.76%]
Tryptophan	0.58%	[0.52%]
Valine	2.15%	[1.93%]

SUGGESTED DOSAGE:

Salmonids fish up to	4%
Non salmonids fish up to	6%
Shrimps up to	5%

*In vitro model, monogastric.



Bag 25 kg



Big bag 750 kg

GRANULAR 70

PRODUCT FROM CORYNEBACTERIUM GLUTAMICUM RICH IN PROTEIN

NUTRITIONAL VALUES:

Moisture	8.9%
Crude protein	70.0%
Crude Oil and Fats	3.7%
Crude Fiber	0.2%
Crude Ash	3.7%

AMINOGRAM (ON AS IS)/[DIGESTIBLE FRACTION (ON AS IS)*]:

Aspartic acid	3.8%	[3.38%]
Glutamic acid	6.5%	[5.79%]
Alanine	3.1%	[2.76%]
Arginine	2.2%	[1.96%]
Cysteine	0.6%	[0.53%]
Phenylalanine	1.9%	[1.69%]
Glycine	2.7%	[2.40%]
Isoleucine	2.5%	[2.23%]
Histidine	0.9%	[0.80%]
Leucine	3.2%	[2.85%]
Lysine	2.3%	[2.05%]
Methionine	0.8%	[0.71%]
Proline	1.6%	[1.42%]
Serine	1.5%	[1.34%]
Tyrosine	1.6%	[1.44%]
Threonine	11.1%	[10.02%]
Tryptophan	0.6%	[0.54%]
Valine	2.6%	[2.33%]

SUGGESTED DOSAGE:

Salmonids fish up to	4%
Non salmonids fish up to	6%
Shrimps up to	5%

*In vitro model, monogastric.



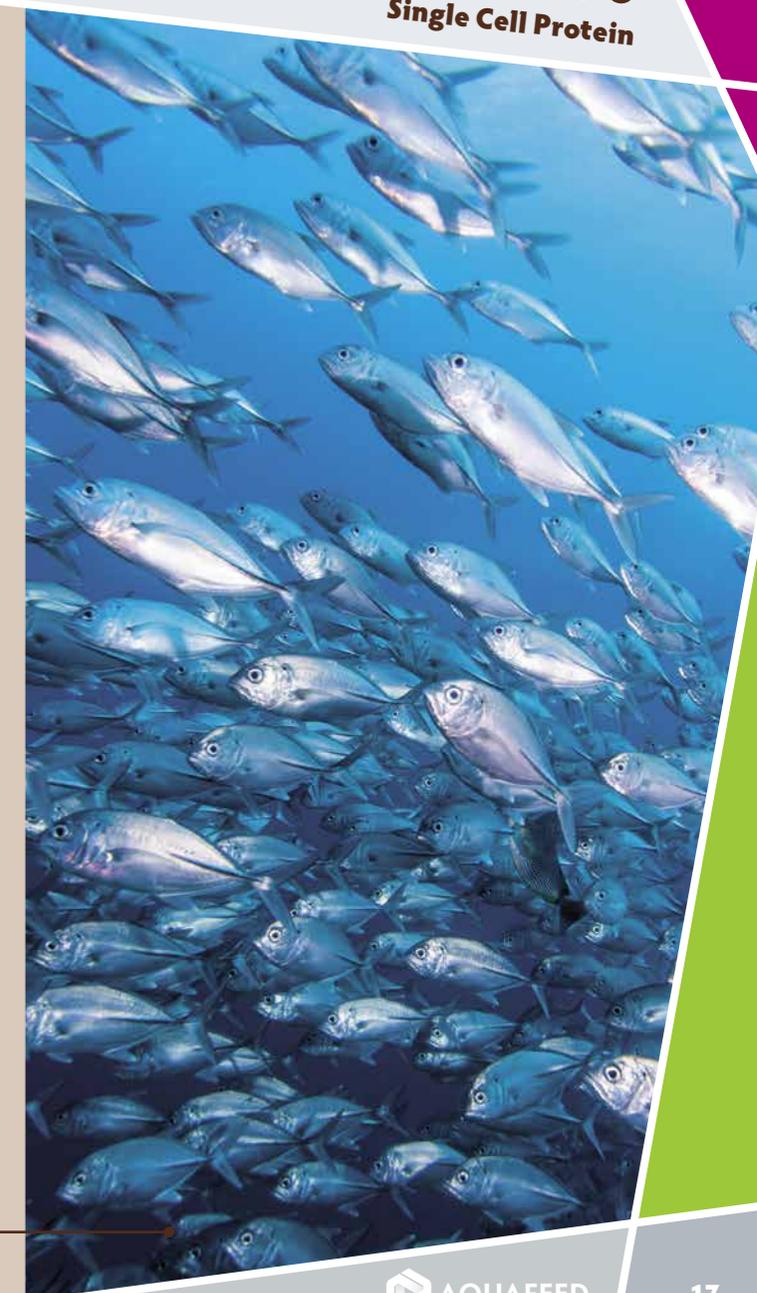
Bag 25 kg



Big bag 1200 kg

GRANULAR 70

Single Cell Protein



SMART FISH 68

Ideal replacement of fish meal

SMART FISH 68 is a premium product, designed to provide highly digestible and palatable protein to young animals and aquaculture in general.

SMART FISH 68 is the ideal replacement of proteins of animal origin, fish meal in particular. Obtained by mixing ingredients derived from the fermentation for the production of amino acids, inactivated yeast, yeast cell walls and nucleotides, **SMART FISH 68** has got a very high concentration of amino acids (Lysine and Methionine in particular) that allows the use of the product without any additional integration, even when used in place of fish meal.



SMART FISH 68, thanks to the specific components, is not only a protein source but is also active in the regulation of digestive processes (yeast and yeast cell wall) and in the stimulation of the immune system of young or particularly stressed subjects. As a matter of fact, nucleotides that enrich the product are able to stimulate all the processes related to the immune system (specific and nonspecific), supporting animals during pathological and high stress phases. Nucleotides are also actively involved in the cellular repair process initiated immediately after the beginning of diseases that hit and damage gastrointestinal tract. All this is associated with a sharp reduction in feed costs.



SMART FISH 68

COMPLEMENTARY FEED

COMPOSITION:

Product from *Corynebacterium glutamicum* rich in protein, Yeasts from *Saccharomyces cerevisiae*, Yeasts products (Yeast cell walls from *Saccharomyces cerevisiae*), Yeasts products (high in nucleotides 5' free, from NUCLEOSAFE 40®).

NUTRITIONAL VALUES:

Crude protein	68.0%
Crude Oil and Fats	3.0%
Crude Fiber	0.9%
Ashes	3.0%

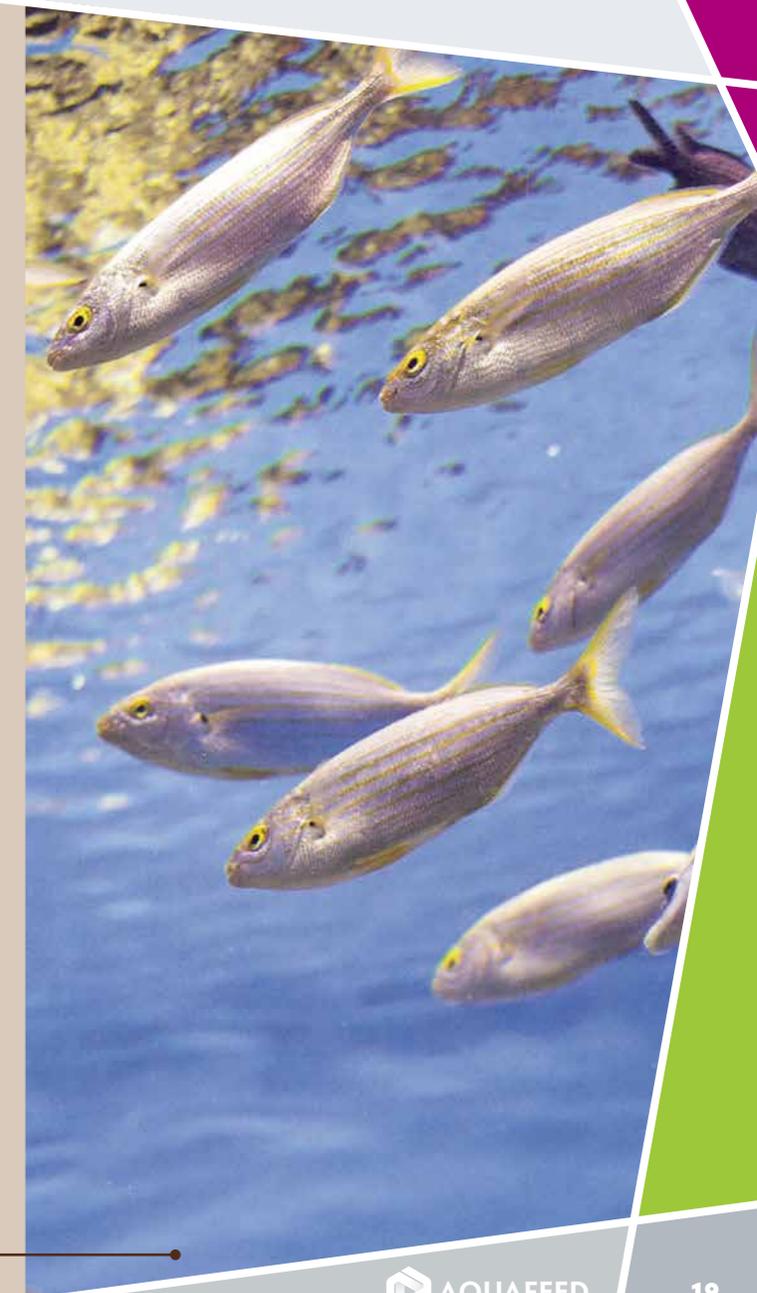
AMINO ACIDS (ON AS IS)/[DIGESTIBLE FRACTION (ON AS IS)*]:

Lysine	5.50% [5.13%]
Methionine	2.00% [1.87%]
Threonine	2.30% [1.75%]
Tryptophan	0.40% [0.31%]
Valine	2.50% [1.94%]
Isoleucine	2.00% [1.61%]
Cysteine	0.45% [0.33%]
Leucine	4.00% [3.33%]
Phenylalanine	2.06% [1.73%]
Tyrosine	1.68% [1.43%]
Histidine	1.45% [1.22%]
Arginine	2.16% [1.91%]
Alanine	6.23% [4.81%]
Aspartic acid	5.16% [4.07%]
Glutamic acid	8.45% [7.24%]
Glycine	2.10% [1.50%]
Serine	2.07% [1.67%]
Proline	2.22% [1.72%]

SUGGESTED DOSAGE:

Salmonids fish	4 - 5%
Non salmonids fish	5 - 7%
Shrimps	5 - 7%

*In vitro model, monogastric.





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