

The effect of spray dried chicken on pets well-being



Human grade chicken protein

Unlike humans and husbandry animals, pets form a group apart that, up until now, never have got a lot of attention from a nutritional point of view. Many research has been done to optimize human nutrition from hypo-allergenic baby food up to healthy aging, from successful weaning of piglets up to optimized feed conversion of beef. In all those cases, protein quality and stability play a crucial role.

Today terms like “pet food” are no longer common. “Pet Nutrition” is the new definition in a world where pets are a part of the family, growing up among children, sharing happiness and sorrows. As such, manufacturers are continuously seeking convenient and nutritious solutions to comfort pets and their human companions. This is also called the “humanization of pet food”: optimizing all factors that guarantee the wellness and health of our favorite cats and dogs.

For decades, chicken has been promoted as being one of the best animal protein sources with optimal amino acid composition, full of healthy unsaturated fatty acids, less impact on the environment and for sure... plenty of taste!

Focusing on *Chicken Meat Powders (CMP)*

Chicken meat powder, CMP, is in no way comparable to chicken meal by product due to the differences in raw materials and processing techniques.

Raw material selection

In order to obtain the optimal protein composition, rich in lysine, essential amino acids and optimal biogenic amine index, CMP is based on food grade chicken. No raw materials such as intestines, feather, giblets, heads nor feet are used. A selection of chicken carcasses such as backs, breastbones, necks and skins are used resulting in optimal AAS (amino acid score). This selection also forms the foundation for optimal BAI (biogenic amine index) and gluten free status as food grade chicken do not contain grains in contradiction to meals based on guts containing feed residues.

Freshness and traceability of the raw materials from farmer to CMP powder guarantees transparency and quality assurance in the supply chain. Only food grade raw materials from reliable suppliers can assure full compliance resulting in premium protein powders.



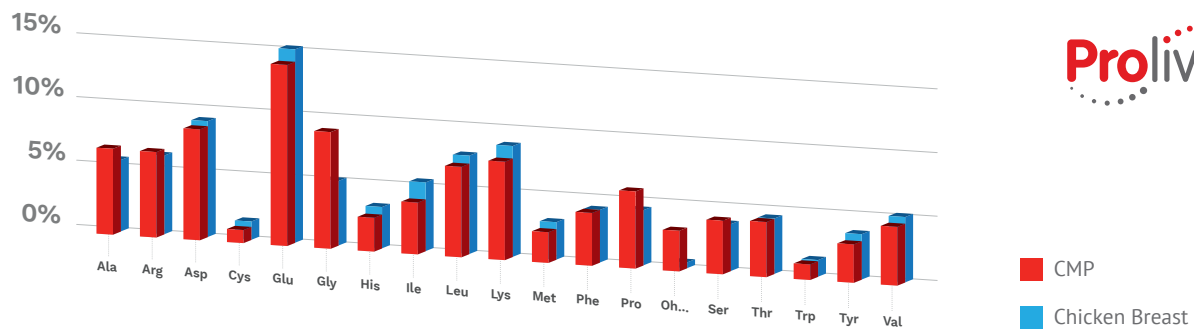


fig 1. Amino acid composition (protein basis) of chicken meat powder (CMP) and chicken breast (meat without skin)

Processing techniques

Even the best raw materials can be ruined during processing. Freshness of raw materials and low temperature treatment are key points to preserve the nutritional quality of a protein.

The raw materials are shortly simmered to get the meat off the bones followed by a mild enzymatic hydrolysis of the protein fraction. This hydrolysis procedure partially turns the meat fibers into smaller bioactive peptides and amino acids which improve digestibility, palatability and hypo-allergenicity of the protein. A fully automated process guarantees repeatability of the target molecular weight distribution of the peptides.

By removing the bones and fat, CMP is turned into a low-calorie ingredient containing at least 75% crude protein with a quality more than competitive to egg white proteins or whey proteins. This results in a low fat, low ash product with minimal calcium content but full of essential electrolytes.

Drying method is another key factor in preserving the protein and amino acid structures. Low temperature spray drying ensures that dehydration occurs with a minimum of heat in less than a minute, conserving the valuable benefits and bioactivities of the protein.

Results and benefits

The combination of raw material selection and minimal processing results in a new human grade pet food ingredient that delivers the benefits where a premium pet food manufacturer and a pet owner are looking for.

Human grade protein

Food grade chicken, processed in a food grade facility compliant with food legislation as well as pet food legislation.

Protein completeness

Lysine is often used as an indicator for protein quality, but next to measuring lysine levels (more than 7% on protein), the full amino acid composition was evaluated and shows that CMP delivers a very balanced portfolio of amino acids (fig. 1) wherein the amount of essential amino acids play a very important role. These essential amino acids cannot be synthesized by the pet itself but must come from its nutrition, thus emphasizing the importance of a protein like CMP in a diet without the need of blending in synthetic amino acids.

Protein digestibility

Analysis shows a protein digestibility of more than 92%. In combination with the already high protein content (more than 75% protein), CMP supplies a cost-effective chicken protein to premium pet food manufacturers and support to the digestive tract of the pets.

Protein palatability

Chicken as such contains an amino acid profile which is already well appreciated by pets. The enzymatic hydrolysis will increase palatability due to the created small peptides and free amino acids. This makes CMP a good alternative to reduce the use of expensive palatants and to provide nutrition at the same time.

Protein bioactivity

Besides the nutritional value of the protein, CMP delivers bioactive peptides that can have positive effects on digestive health, immunity response factors and obesity prevention. Next to antioxidant, hypoglycemic, immunomodulatory, and antihypertensive effects, CMP can also contribute to joint health or anti-arthritis.

Powdered meat versus raw meat inclusion

- *Cost effective powder:* spray dried powders take less space than liquid products and need no special transport nor storage conditions.
- *Shelf stable powder:* no risk on deterioration during shelf life, storage at ambient temperature.
- *Hygiene control:* reduced risk of cross contamination in between wet and dry pet food production areas. CMP is an agglomerated powder which controls dust forming and prevents bridging.
- *Reconstitution of powder:* spray drying does not alter the protein characteristics. The agglomerated powders are free-flowing and can easily be mixed with water. They will also balance the moisture content in case of extrusion

Meet Proliver

Proliver was founded in 2010 by a family owned leading chicken processor. 3 generations experience in chicken processing and rendering led to this new activity turning edible chicken into protein, broth, meat and liver powders. Initially solely developed for food applications, soon demand increased for pet food applications where humanization and the need for highest quality chicken proteins grew over the years. Our food grade facility based in Belgium provides worldwide distribution and warehousing services.

Our principles:

Today Proliver still sticks to its base principles:

- Only use of edible raw materials, fresh and straight from nearby slaughterhouses, fully traceable.
- Food grade processing, producing the highest quality chicken products suitable for man and pet.
- Low temperature processing and gentle spray drying to preserve the nutritious and savory benefits.

These principles have proven their benefits for pet nutrition in lowest biogenic amine levels and highest protein nutritional value, digestibility and palatability. Enzymatic hydrolysis of the protein into peptides can play an important role in enhancing the above benefits inducing even higher digestibility and palatability and create hypoallergenic protein sources for sensitive pets. These techniques have already proven their benefits in human food, fish and husbandry.

We provide:

Chicken broth powders

- Appetizing replacement of water in your recipes.
- Fully soluble, no fat, golden clear broth without salt or taste enhancers.
- Highest digestibility and protein level up to 92%, source of essential electrolytes.
- From nutritious meat broths up to healing bone broths.

Chicken protein powders

- Spray dried cooked chicken meat and broth, concentrated after removal of bones and fat.
- At least 75% protein, minimal calcium and source of essential electrolytes.
- Enzymatically hydrolyzed to benefit the functionalities of bioactive peptides.
- The powerful powder is ideal for balancing protein levels in pet diets, increasing digestibility and reducing allergenicity.

Chicken hydrolyzed liver powders

- Produced by enzymatic hydrolysis of fresh food grade chicken liver.
- Delivering a 68% protein content full of hypoallergenic low molecular weight peptides and amino acids.
- Boosting digestibility and palatability.
- Base to create your personal pet nutrition flavor if combined with other ingredients to induce maillard reactions and palatability.



01

Only edible chicken

We use only fresh and food grade chicken. That way we ensure the best protein composition. This means no guts, no viscera, no feathers, no heads, no off spec.

- ✓ **Balanced protein composition**
- ✓ **Lowest biogenic amine level**
- ✓ **Traceability**

02

Food grade processing

Installations are completely emptied and cleaned in between batches. So no unnecessary additives, salt or carriers.

- ✓ **Lowest biogenic amine level**
- ✓ **Increased palatability**
- ✓ **Hypoallergenic**

03

Low temperature processing

No rendering and no scorching temperatures that degrade the protein. We spray dry at low temperature to preserve the protein.

- ✓ **Increased digestibility**
- ✓ **Hypoallergenic**