
iQi
trusted petfood
ingredients
IQI dried animal
protein powders

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How to enhance pet food with IQI dried animal protein powders:

such as broths, hydrolyzed proteins, collagens and meat powders

What are dried animal protein powders?

Dried animal protein powders are generally more gently dried than traditional rendered protein meals. This improves their digestibility and the natural flavor (smell and taste) of the raw materials should also be better preserved.

Our dried protein powders are typically concentrated sources of protein and, as a result, they are low in ash.
Dried animal protein powders can be reconstituted, which means you can enhance your pet food by declaring the animal protein first on your list of ingredients. Dried animal protein powders can be produced from different species, using different kinds of raw material and therefore require different production technologies. Consequently, the final product may have different parameters in terms of technical functionality, palatability and digestibility.
In table 1 a schematic overview of the above is presented.

Table 1: overview of different species, raw materials, technologies and final product characteristics

Species:	Chicken	Turkey	Duck	Beef	Lamb	Pork
Raw materials:	Meat trimmings	Skin	Meaty bones	Carcasses	MDM	Organs
Technology:	(partial) Enzymatic hydrolysis	Mechanical separation	Spray drying	Air drying	Contact drying	Eva-poration
Final product characteristics:	Crude protein, ash, fat, etc.	Digestibility	Palatability	Water binding	Emulsification	Hypo-allergenic

Raw materials

IQI co-operates with high-quality processors in Oceania, Europe and North America, some of which are human grade. Other producers are non-human grade but maintain at least human-grade standards in production. This means that they use fresh and chilled raw materials to prevent the formation of biogenic amines. The range of raw materials used consists of meat trimmings,

meaty bones, carcasses/frames, MDM and skin. Depending on the required characteristics of the final product, a selection and/or combination of various raw materials can be made. The final product specs are determined in combination with the production technology (separation, hydrolysis, drying, grinding).

Technology

From a sustainability point of view, the pet food industry prefers to utilize all available meat sources. Certain animal protein sources, however, are only accessible with state-of-the-art processing technologies, such as enzymatic hydrolysis and/or mechanical deboning. The combination of the technology used and the raw materials has a major impact on the composition and functionality of the final product.

Hydrolyzed protein versus protein hydrolysate (peptide)

In the production of animal protein powders an enzyme technology can be used to separate the meat from the bones, which means that these products are only partially hydrolyzed, unlike a meat or collagen hydrolysate. These protein hydrolysate powders are strongly enzymatically hydrolyzed in order to obtain functional peptides (see frame). These peptides have various functional and nutritional properties. They are fully water-soluble and extremely rich in protein. For further reading on collagen peptides please check our IQI collagen WP.

Hyperlinks to articles about animal protein based functional peptides

https://onlinelibrary.wiley.com/doi/abs/10.1111/ijfs.14132

https://www.sciencedirect.com/science/article/abs/pii/S0309174014001673

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5707681/

Drying technology

The drying technology is another important factor in the application of the animal protein powder. For reconstitution purposes, it is advantageous if the animal protein powder can be easily dissolved or dispersed in cold water. In general, very gentle drying methods are recommended to attain high digestibility and prevent off-flavors. Typically, spray-drying techniques are used but hot-air drying or (vacuum) drum drying can be excellent gentle alternatives, especially in the case of non-soluble raw materials.

Legislation

The AAFCO sets definitions for the North American pet food market, which include a clear definition of meat (https://www.aafco.org/consumers/what-is-in-pet-food). The European pet food market refers to the FEDIAF code for good labelling practice. Specific labelling rules apply for reconstituting dehydrated meat. AAFCO also has clear definitions for broths. IQI can advise you on the required labeling but ultimately it is the responsibility of the pet food producer to utilize the appropriate label.

Final product characteristics

In order to determine which animal protein powder meets the customer's requirements it is important to know the final application. Many different factors may apply, such as if it concerns a straight forward replacement of a meat slurry, if a binding functionality is required, if palatability enhancement is required, if the product needs to be hypo allergenic, or if a low ash content is crucial.

IQI can advise you on an appropriate animal protein powder solution (hydrolysate, collagen, meat or broth powder) for each application and species. See table 2 for the available IQI portfolio.

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Table 2: IQI available animal protein powders with final product characteristics

pure lamb	pure beef	pure turkey	pure chicken	pure pork	pure duck
Lamb broth	Dried beef	Turkey meat powder	Chicken meat powder	Hydrolyzed pork	Duck broth
A, C, E	A, B, D	A, B, C	A, B, C	A, D, E	A, C, E
	Beef broth	Dried turkey	Dried chicken standard	(Spray) dried pork protein	Dried Duck
	A, D, E	B, C, D	B, D	A, C, D	B, D
	Beef greaves meal	Turkey meat hydrolysate	Chicken meat hydrolysate	Dried Pork	
	C, D	A, C, E	A, C, E	B, C, D	
	Beef collagen	Turkey broth	Chicken liver hydrolysate	Pork greaves meal	
	C, F	A, C, E	A, C, D, E	C, D	
	Beef collagen peptides		Chicken broth	Pork liver powder	
	A, B, E		A, C, E	A, C, D	
			Dried chicken collagen/FP82	Pork broth	
			B, C, D, F	A, C, E	
			Chicken plasma	Dried bacon	
			A, B, D, F	B, C, D	

A = spray dried

B = high digestibility

C = low ash (<10%)

D = very palatable

E = hydrolysate, avg Dalton size <10kD

F = techno functional (binding)