Animal proteins

Acceptance Guidelines for Raw Materials in a Feed Factory

H&N® INTERNATIONAL

Fish meal

General description

An animal by-product obtained by cooking, pressing, drying, and milling fresh raw fish or fish trimmings.

Other names: white or brown fish meal, low-temperature (LT) fish meal, prime fish meal.

General aspect

The colour of fish meal is brown. The commercial product is sold in a course flour form and must be absent of acidic, rancid, or musty odours as well as free from agglomerated particles.

Observation

Fish meal characteristics depend on depends on the source of fish or fishery by-products used and on the processing technology involved. It is recommended to check the regulatory status of this product before using it for livestock feeding. Due to its high variability it is advised to check all deliveries. To avoid batches with uncommon colour, and/or unusual smell. Due to its high risk of fat rancidity, store in a dry place, avoiding excessive stacking of bags and prolonged storage. Extreme processing conditions, such as prolonged time or high temperature, during the production process can negatively affect the protein quality of fishmeal. In such cases, there is a risk of protein degradation along wiht the formation of toxic biogenic amines. To monitored Total Volatile Basic Nitrogen (TVBN) and Biogenic Amine Index are methods of analysis that quantifies the freshness of the product. The inclusion of fish meal in the feed improves granulation performance but its inclusion at high levels can affect the quality of the pellets. To store a representative sample for complementary analysis.

General controls and acceptance requirements

Parameter to analyse	When	Parameter to analyse	Values		
			Normal	Reclaims	Decline
Humidity (%)	Before Unloading	Basic	<8		>10
Smell					Ammonia
Agglom. particles			Absence		Presence
Foreign material			Absence		Presence
Temperature[1] (°C)					>10
Protein (%)			60	1.5 point < contract	<58
Fat (%)		Extended	10		
Ash[2] (%)			<19		>12
Salmonella			Absence		Presence
Histamine (ppm)					>1000 ppm
B.A.I. (ppm)					250
B.N.V. (ppm)					>1500 ppm

[1]*respect environmental temperature.*

[2]*values for fish meal high protein.*

Hydrolysed feather meal

General description

An animal by-product obtained by hydrolysing, drying, and grinding poultry feathers.

Other names: Feather meal, poultry feather meal, hydrolysed poultry feather meal.

General aspect

The colour of hydrolysed feather meal is light to medium brown. Generally, the commercial product is sold as powder without agglomerated particles, without acidic, rancid, musty or damp odours.

Observation

Due to the different quality of the initial raw material used and the differences in the production process production process applied, a systematic analytic control of each batch and supplier's is recommended. Pepsin digestibility is used as a method of assessing the quality of feather meal. A minimum pepsin digestibility value of 75% indicates that the feather meal has been adequately processed. Long storage times should be avoided due to the risk of fat oxidation associated with the fat content of the product. Similarly, the high particle agglomerate capacity of hyrdolysed feather meal can result in vaults within the silo if stored for long periods. To store a representative sample for complementary analysis.

General controls and acceptance requirements

Parameter to analyse	When	Parameter to analyse	Values		
			Normal	Reclaims	Decline
Humidity (%)	Before Unloading	Basic	<7		>8
Smell					Rancid
Agglom. particles			Absence		Presence
Foreign material			Absence		Presence
Temperature[1] (°C)					>10
Protein (%)			80		<75
Digestibility pepsin in HCL (%)	After Unloading	Extended	80		<75

[1]*respect environmental temperature.*

Meat and Bone Meal

General description

The animal by-product derived from the rendering process of animal tissues, primarily from slaughterhouse waste. The original product contains, in various proportions, viscera and digestive tract contents, bones, blood, heads, lean tissues and fat. Sometimes it may contain parts of the other tissues such as skin or, in the case of poultry, feathers. In the EU, "meat meals" are only produced using a specific process described in the method described in the European regulations and is referred to as processed animal protein (PAPs)

Other names: MBM, PAPs.

General aspect

The colour of MBM varies depending on factors like the raw material composition, rendering process, and fat content. Generally, MBM from poultry or low-ash MBM presents a colour varying from light brown to golden brown. Higher-fat MBM shows a dark brown colour. Greyish or dull brown is found in high-ash MBM, and reddish or dark red brown colour may appear in MBM with residual blood or from overheating during rendering. Generally, the commercial product is sold as powder with a mild, meaty and slightly toasted odour; no rancidity or putrid odours should be present.

Observation

Due to the diversity of the initial materials and fat extraction system, chemical composition of MBM is highly variable. Strict quality control of MBM (microbiological and chemical safety tests) are required to detect adulterations and to grade the supplier. The labels of the MBM should indicate the original animal species, the transformed raw material (for example, bones), and the treatment used. It is recommended to check the colour, smell, humidity, HCl insoluble ash, fat and protein level and quality (digestibility in pepsin) of the batches. High protein levels are indicative of more meat and less bone in the meal. Extreme processing condition, as overheating of the MBM can affect protein quality reducing the availability of their amino acids. It is also important to check hexane content in the MBM extracted with solvents, which may contain up to 0.1% hexane. Prolonged storage under improper conditions can lead to rancidity or musty/moldy smells. High fat and/or very finely ground meals may also create caking problems in silos. To store a representative sample for complementary analysis.

General controls and acceptance requirements

Parameter to analyse	When	Parameter to analyse	Values		
			Normal	Reclaims	Decline
Humidity (%)	Before Unloading	Basic	<6		>8
Smell			Slightly toasted		Rancid
Colour			See general aspect chapter		
Agglom. particles			Absence		Presence
Foreign material			Absence		Presence
Temperature[1] (°C)					>10
Fat (%)			8–15		
Protein[2] (%)			45–65		1.5 point < contract
Ash (%)	After Unloading	Extended	20–30		
HCl insoluble ash (%)			0.5		>1.5%
Digestibility pepsin in HCL (%)			>90		<80
Hexane (ppm)			Absent or <10 ppm[3]		

[1]*respect environmental temperature.*
[2]*Dependent on the raw material used. Higher values are from poultry PAP than porcine PAP*
[3]*For solvent-extracted MBM*