

Amino Acid Profile of Peptone

Peptones (protein hydrolysates) are widely used as a protein source in culture media. These complex mixtures of polypeptides and amino acids are also rich in water-soluble minerals and micronutrients derived from the original protein source. Therefore, peptones provide critical nutritional support for cell growth and proliferation, microbial fermentation, and production of recombinant proteins. There are 4 commonly used peptones (i.e., meat peptone, soytone, animal-free soytone, and tryptone) that originate from plant or animal sources and differ slightly in nitrogen and amino acid content (Table 1).

Meat Peptone is an enzymatic digest of animal bovine tissue (e.g., muscle, bone, skin, and pancreas). It is used for the cultivation of fastidious and non-fastidious microorganisms.

Soytone (soy peptone) is a pancreatic digest of defatted soybean meal, while **animal-free soytone** is a papain (from papaya) digest of defatted soybean meal. As good sources of vitamins and carbohydrates, soytone is used in the cultivation of a wide variety of microorganisms, including bacteria and fungi.

Tryptone is a pancreatic digest of casein (a dairy protein) containing all amino acids and larger peptide fractions. This nutrient source is commonly used in media for production of antibiotics, toxins, enzymes, and other biological products through fermentation.

Table 1. Estimate of the nitrogen and amino acid profile of common peptones.

Component	Meat Peptone	Soytone (Soy Peptone)	Animal-Free Soytone	Tryptone
Nitrogen	%	%	%	%
Amino Nitrogen	3.4	2.2	2.2	3.9
Total Nitrogen	10	7	7	10
Amino Acids	Total g/100 g	Total g/100 g	Total g/100 g	Total g/100 g
Alanine	6.36	4.73	3.18	2.91
Arginine	4.88	4.31	3.05	3.3
Aspartic Acid	6.63	5.94	9	6.99
Cystine	0.43	0.34	0.79	0.44
Glutamic Acid	11.8	9.98	11.83	18.74
Glycine	10.8	11.38	2.47	1.86
Histidine	1.25	0.94	1.23	2.38
Isoleucine	2.96	1.56	2.55	4.45
Leucine	4.86	2.82	3.9	7.62
Lysine	4.94	3.03	3.85	6.6
Methionine	0.78	0.73	0.86	2.32
Phenylalanine	2.8	1.83	2.4	4.11
Proline	7.93	6.88	2.54	8.65
Serine	3.71	2.81	2.69	5.08
Threonine	2.96	1.78	2.61	3.91
Tryptophan	0.44	0.19	0.68	0.95
Tyrosine	1.15	1.06	1.38	1.86
Valine	3.75	2.09	2.94	5.51

Additional Resources

www.teknova.com/resource/overview-peptones-culture-media

www.teknova.com/resource/amino-acids

Related Products

Most Teknova media are offered as broth, plates, and dry mixes with or without supplements (e.g., antibiotics, additives, and dropout components). Additional options are available at www.teknova.com.

Name	Meat Peptone	Soytone	Animal-Free Soytone*	Tryptone	Size	SKU
Peptone						
Animal-Free Soytone			✓		454 g to 1 kg	S9050
Tryptone				✓	5 kg	T9012
Media						
EMB Agar Plates	✓				Varies	E0070
LB				✓	Varies	L8000, L1100
Tryptic Soy		✓		✓	Varies	T1550, T0144
YEPD/YPD	✓				Varies	Y9110, Y1000

* Broth and plate media are available with animal-free formulations.

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