



APS-18FI -Biopharma (BP)

Description and Suggested Applications

APS-18FIBP is an instantized whole colostrum powder, with PRPs coated with a Biopharma's Liposome binder. This product is a custom product for Biopharma. It is produced from flash pasteurized colostrum liquid collected only from the first two milkings after birth. APS-18FIBP is processed both at low pressures and temperatures and is spray dried using indirect steam to maintain maximum bio-activity. The colostrum used to produce APS-18FIBP is from antibiotic free sources. The solubility is excellent. It is also lactose-free <0.4% on a wet-basis.

Suggested applications include: immune system enhancement, nutritional supplement, digestive health improvement, protein supplement and alternative treatment for general health.

Analytical and Microbiology Analysis*

	<u>Specification</u>	<u>Typical</u>	<u>Method</u>
Protein % (Nx6.38) db	45.0 min	50.0	Kjeldahl
Immunoglobulins %	15.0 min	18.0	HPLC (dry basis)
Lactoferrin %	0.5 min	1.75	HPLC (dry basis)
Moisture %	5.5 max	4.5	CEM
Ash %	9.0 max	7.0	Mass Spec.
Fat %	25.0 max	22.0	Mojonnier
Lactose %	1.0 max	0.4	HPLC
Proline Rich Polypeptide	5.50min	6.1	HPLC
Lyposome %	0.50min	0.55max	By weight.
Sediment	B	A	Pad
pH	6.5 < 7.5	7.0	10% sol., 20C
Bulk density	0.3 < 0.5	0.35	grams / cc
Standard Plate Count (CFU/g)	50,000 max	10,000	Standard**
Yeast and Mold (CFU/g)	10 max	<10	Standard**
Coliform (CFU/g)	10 max	<10	3M Petrifilm
E.Coli (CFU/g)	10 max	<1	3M Petrifilm
Salmonella sp.	Neg. / 200g	Neg.	ELISA
Listeria sp.	Neg. / 25g	Neg.	ELISA
Antibiotics	Neg.	Neg.	CHARM
Pesticides	Neg.	Neg.	DELVO

Mineral Analysis* and Physical Properties

<u>Minerals</u>	<u>Specification</u> mg/100gm	<u>Typical</u> mg/100gm	<u>Heavy Metals</u>	<u>Properties</u>
Sodium	150 < 300	250	Lead <1ppm	Solubility: Good
Calcium	250 < 500	350	Nickel <1ppm	Color: Soft yellow
Phosphorus	250 < 400	300	Mercury <1ppm	Flavor: Clean & Bland
Potassium	450 < 750	500	Arsenic <0.2ppm	Odor: Clean
Magnesium	30 < 60	50		Appearance: Free flowing
Chloride	< 200	50		& non-caking

Packaging, Shipping and Storage

APS-18FIBP powder is packaged in color labeled bleached corrugated boxes with a polyethylene liner. The box is 20 in. x 15.5 in. x 14.5 in. Each box holds 15 kg net. There are 24 boxes per pallet. Colostrum proteins are hygroscopic and can absorb odors. Temperatures below 75 degrees F, relative humidity below 65% and an odor free environment will extend storage life. Stocks should be used in rotation and preferably within three years from date of manufacture.

Description and Suggested Applications

APS-18FI is a pasteurized, 100% whole colostrum powder produced from raw colostrum collected only from milkings within 16 hours after birth. APS-18FI is processed both at low pressures and temperatures and is spray dried using indirect steam to maintain maximum bio-activity. The colostrum used to produce APS-18FI is from antibiotic free sources. APS-18FI is encapsulated with a milk bio-lipid coating to help the colostrum transfer into the upper intestine without denaturing.

Suggested applications include: immune system enhancement, nutritional supplement, digestive health improvement, protein supplement and alternative treatment for general health.

Major Active Component Analysis

	<u>Specification</u>	<u>Typical</u>	<u>Method</u>
Protein % (Nx6.38) db	45.0 min	50.0	Kjeldahl
Total Immunoglobulins %	18.0 min	22.0	HPLC (dry basis)
Immunoglobulins (Type G1 & G2) %	15.0 min	18.0	HPLC (dry basis)
Immunoglobulins (Type A) %	2.0 min	2.60	HPLC (dry basis)
Immunoglobulins (Type M) %	0.75 min	1.40	HPLC (dry basis)
Immunoglobulins (Type D) %	0.15 min	0.20	HPLC (dry basis)
Immunoglobulins (Type E) %	0.10 min	0.15	HPLC (dry basis)
Lactoferrin %	0.5 min	0.75	HPLC (dry basis)
Transferrin (mg/g)	3.0 min	4.50	HPLC (dry basis)
Lactoperoxidase-thiocyanate %	0.3 min	0.45	HPLC (dry basis)
Proline-Rich Polypeptides (PRPs) %	3.0 min	4.0	HPLC (dry basis)
Insulin Growth Factor (Type 1) µg/g	1.0 min	2.3	ELISA (dry basis)
Insulin Growth Factor (Type 2) ng/g	100 min	140	ELISA (dry basis)
Derived Platelet Growth Factor ng/g	3.5 min	4.2	HPLC (dry basis)
Epidermal Growth Factor µg/g	0.8 min	1.1	ELISA (dry basis)
Fibroblast Platelet Growth Factor ng/g	4.0 min	5.0	ELISA (dry basis)
Transforming Growth Factor Alpha ng/g	15.0 min	22.0	ELISA (dry basis)
Transforming Growth Factor Beta mg/g	0.15 min	0.21	ELISA (dry basis)
Nerve Growth Factor ng/g	8.0 min	11.0	ELISA (dry basis)
Leptin ng/g	35.0 min	50.0	ELISA (dry basis)

Vitamin Analysis*

Vitamin B6 µg/g	10.0 min	15.0	Mass spec. (wet basis)
Vitamin B12 µg/g	0.10 min	0.16	Mass spec. (wet basis)
Vitamin E µg/g	0.15 min	0.20	Mass spec. (wet basis)
Vitamin A µg/g	15.0 min	20.0	Mass spec. (wet basis)
Vitamin C µg/g	0.25 min	0.40	Mass spec. (wet basis)
Vitamin D µg/g	1.00 min	1.20	Mass spec. (wet basis)
Thiamin (Vitamin B1) µg/g	100.0 min	150	Mass spec. (wet basis)
Folic Acid µg/g	2.0 min	2.3	Mass spec. (wet basis)
Pantothenic Acid µg/g	2.0 min	2.3	Mass spec. (wet basis)
Riboflavin (Vitamin B2) µg/g	50.0 min	60.0	Mass spec. (wet basis)
Beta-carotene µg/g	180 min	220	Mass spec. (wet basis)
Glycoconjugates µg/g	2.0 min	2.4	Mass spec. (wet basis)
Glycogen µg/g	40.0 min	56.0	Mass spec. (wet basis)
Retinoic Acid µg/g	5.0 min	8.0	Mass spec. (wet basis)

Analytical and Microbiological Analysis*

	<u>Specification</u>	<u>Typical</u>	<u>Method</u>
Moisture %	5.0 max	4.50	CEM
Protein % (Nx6.38) db	45.0 min	50.0	Kjeldahl
Ash %	9.0 max	7.0	Mass Spec.
Fat %	24.0 max	22.0	Mojonnier
Lactose %	20.0 max.	16.5	by difference
Sediment	B	A	Pad
pH	6.5 < 7.5	7.0	10% sol., 20C
Bulk density	0.25 < 0.35	0.30	grams / cc
Standard Plate Count (col/g)	50,000 max	5,000	Standard**
Yeast and Mold (col/g)	10 max	<10	Standard**
Coliform (col/g)	10 max.	<10	3M Petrifilm
E.Coli (col/g)	10 max.	<1	3M Petrifilm
Salmonella sp.	Neg. / 25g	Neg.	ELISA
Listeria sp.	Neg. / 25g	Neg.	ELISA

Essential Amino Acid Analysis* (weight/weight basis)(GC/MS)

Non Essential Amino Acid Analysis*(w/w) (GC/MS)

Isoleucine	1.46%	Arginine	2.30%
Leucine	2.37%	Cystine	1.12%
Histidine	1.46%	Glutamic Acid	9.13%
Methionine	4.08%	Alanine	2.50%
Lysine	4.18%	Tyrosine	4.96%
Threonine	4.03%	Glycine	1.77%
Phenylalanine	2.42%	Proline	5.12%
Valine	2.16%	Aspartic Acid	5.57%
Tryptophan	1.17%	Serine	4.77%

Other Minor Components not Quantified

Beta 2- microglobulin, Enzymes, Haemopexin, Haptoglobin, Orotic Acid, Peroxidase, Xanthine Oxidase Enzyme, Gonadotropin-Releasing Hormone (GnRH), Prolactin, Insulin, Sulfur, Glycoproteins: - (Including Protease and Trypsin Inhibitors), Lactalbumin, Multimeric a-Lactalbumin, Cytokines, Lysozymes, Gamma Globulin, B Lactoglobulin, Complement 3 & 4 (C3 & C4), Kappa Casein, Alpha 2-AP glycoprotein, Alpha 1- antitrypsin, Alpha 2- macroglobulin, Orosomucoids, Prealbumin, Albumin, Oligosaccharides, Non Specific Inhibitors (NSI's), Secretory IgA (SigA), IgA Specific Helper

Mineral Analysis* and Physical Properties

<u>mg/100gm</u>	<u>Specification</u>	<u>Typical</u>	<u>Heavy Metals</u>	<u>Properties</u>
Sodium	150 < 300	200	Lead <1ppm	Solubility: Good
Calcium	150 < 400	250	Mercury <1ppm	Flavor: Clean & Bland
Potassium	150 < 400	250	Arsenic <1ppm	Odor: Clean
Magnesium	250 <500	400		Appearance: Free flowing & non-caking
Chromium	30 < 60	40		
Zinc	30 < 60	40		
Chloride	< 100	40		

Packaging, Shipping and Storage

APS-18FI powder is packaged in color labeled bleached corrugated boxes with a polyethylene liner. The box is 20.0 in. x 15.5in x 14.5 in.. Each box holds 20 kg net. There are 24 boxes per pallet. Colostrum proteins are hygroscopic and can absorb odors. Temperatures below 75 degrees F, relative humidities below 65% and an odor free environment will extend storage life. Stocks should be used in rotation and preferably within three years.

* Where not specified results are reported on "as is" basis except. ** Standard Methods for Examination of Dairy Products, 16th Edition