



APS80-25 Skim Colostrum Powder

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Description and Suggested Applications

APS80-25 (80% minimum protein, 25% minimum IgG) is an agglomerated, water soluble, pasteurized, reduced fat, high protein, colostrum powder produced from first milking colostrum only. APS80-25 is processed both at low pressures and temperatures and is spray dried using indirect steam to maintain maximum bioactivity. The colostrum used to produce APS80-25 is from antibiotic free sources.

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

Major Active Component Analysis

| | <u>Specification</u> | <u>Typical</u> | <u>Method*</u> |
|--|----------------------|----------------|------------------------------------|
| Protein, % (Nx6.38) db | 80.0 min | 84.1 | AOAC 991.20 18th Ed., page 33.2.11 |
| Total Immunoglobulins, % | 26.0 min | 26.2 | HPLC (IX, dry basis) |
| Immunoglobulins (Type G1 & G2), % | 25.0 min | 25.8 | HPLC (IX, dry basis) |
| Immunoglobulins (Type A), % | 0.60 min | 0.65 | HPLC (IX, dry basis) |
| Immunoglobulins (Type M), % | 0.30 min | 0.35 | HPLC (IX, dry basis) |
| Immunoglobulins (Type D), % | 0.03 min | 0.035 | HPLC (IX, dry basis) |
| Immunoglobulins (Type E), % | 0.01 min | 0.02 | HPLC (IX, dry basis) |
| Lactoferrin, % | 1.0 min | 1.5 | HPLC (IX, dry basis) |
| Transferrin, mg/g | 4.5 min | 5.0 | HPLC (IX, dry basis) |
| Lactoperoxidase-thiocyanate, % | 0.5 min | 0.65 | HPLC (IX, dry basis) |
| Proline-Rich Polypeptides (PRPs), % | 3.5 min | 4.0 | HPLC (IX, dry basis) |
| Insulin Growth Factor (Type 1), µg/g | 1.0 min | 1.7 | ELISA (dry basis) |
| Insulin Growth Factor (Type 2), ng/g | 120 min | 140 | ELISA (dry basis) |
| Derived Platelet Growth Factor, ng/g | 4.0 min | 5.0 | HPLC (dry basis) |
| Epidermal Growth Factor, µg/g | 1.0 min | 1.45 | ELISA (dry basis) |
| Fibroblast Platelet Growth Factor, ng/g | 6.0 min | 7.3 | ELISA (dry basis) |
| Transforming Growth Factor α , mcg/100g | 1.8 min | 2.2 | ELISA (dry basis) |
| Transforming Growth Factor β , mcg/100g | 0.01 min | 0.02 | ELISA (dry basis) |
| Nerve Growth Factor, ng/g | 12.0 min | 12.3 | ELISA (dry basis) |
| Leptin, ng/g | 50.0 min | 56.0 | ELISA (dry basis) |

Vitamin Analysis

| | | | |
|-------------------|----------|------|-----------------------------------|
| Vitamin A, µg/g | 6.0 min | 6.2 | AOAC985.30 18th Ed., page 50.1.01 |
| Vitamin B1, µg/g | 30.0 min | 38.0 | AOAC986.27 18th Ed., page 50.1.08 |
| Vitamin B2, µg/g | 10 min | 19.3 | AOAC970.65 18th Ed., page 45.1.08 |
| Vitamin B5, µg/g | 0.7 min | 1.0 | AOAC992.07 18th Ed., page 50.1.22 |
| Vitamin B6, µg/g | 6.0 min | 6.9 | AOAC985.32 18th Ed., page 50.1.18 |
| Vitamin B12, µg/g | 0.04 min | 0.05 | AOAC986.23 18th Ed., page 50.1.20 |
| Vitamin C, µg/g | 0.1 min | 0.2 | AOAC985.33 18th Ed., page 50.1.09 |
| Vitamin E, µg/g | 0.08 min | 0.09 | AOAC992.03 18th Ed., page 50.1.04 |
| Folic Acid, µg/g | 0.5 min | 0.7 | AOAC992.05 18th Ed., page 50.1.21 |



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Analytical Analysis

| | | <u>Specification</u> | <u>Typical</u> | <u>Method</u> |
|------------------------|----|----------------------|----------------|--|
| Moisture, % | < | 5.0 | 4.6 | AOAC 934.01/4.103 16th Ed. |
| Ash, % | < | 10.0 | 5.5 | AOAC 945.46 18th Ed., pg 33.2.10. |
| Total Fat, % | < | 5.0 | 2.9 | AOAC 989.04 18th Ed., pg 33.2.27 |
| Trans Fat, % | < | 1.0 | Not Detected | AOAC 989.04 18th Ed., pg 33.2.27 |
| Cholesterol, % | < | 0.1 | 0.04 | AOAC 994.10 18 th Ed., pg 45.4.10 |
| Caloric, cal/g | < | 10 | 4 | FDA CFR Method |
| Lactose, % | < | 15.0 | 2.9 | By difference |
| Dietary Fiber, % | < | 1.0 | Not Detected | AOAC 991.43 18 th Ed., pg 32.1.17 |
| Scorched Particle Disc | | B | A | AOAC 952.21 18th Ed., pg 16.3.01 |
| Insolubility Index, % | < | 0.25 | 0.2 | GEA Niro Method No. A 3a |
| pH | <> | 6.0 - 7.0 | 6.2 | 10% sol., 20°C |

Microbiological Analysis

| | | | | |
|----------------------------------|---|----------|----------|-----------------------------------|
| Aerobic Plate Count, CFU/g | < | 10,000 | 3,000 | AOAC 986.33 18th Ed., pg 17.3.02 |
| E. Coli, CFU/g | | Negative | Negative | AOAC 991.14 18th Ed., pg 17.3.04 |
| Coliform, CFU/g | < | 50 | Negative | AOAC 986.33 18th Ed., pg 17.3.02 |
| Yeast/Mold, CFU/g | < | 50 | Negative | AOAC 997.02 18th Ed., pg 17.2.09 |
| Listeria, CFU/g | | Negative | Negative | BAX Q7 PCR Method |
| Salmonella, CFU/g | | Negative | Negative | BAX Q7 PCR Method |
| Enterobacteriaceae, CFU/g | < | 50 | Negative | AOAC 2003.01 18th Ed., pg 17.3.10 |
| Bacillus Cereus, CFU/g | | Negative | Negative | AOAC 980.31 18th Ed., pg 17.8.01 |
| Enterotoxigenic E. coli, CFU/g | | Negative | Negative | BAX Q7 PCR Method |
| Shigella, CFU/g | | Negative | Negative | BAX Q7 PCR Method |
| Streptococcus hemolyticus, CFU/g | | Negative | Negative | AOAC 940.37 18th Ed., pg 17.1.03 |
| Staph. Aureus, CFU/g | | Negative | Negative | AOAC 2001.05 18th Ed., pg 17.5.07 |

Essential Amino Analysis (w/w 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% |

Vitamin and Mineral Analysis

| | | | | |
|---------------------|---|-----|------|----------------------------------|
| Calcium, mg/100g | > | 500 | 966 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Magnesium, mg/100g | > | 100 | 152 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Zinc, mg/100g | > | 3 | 6 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Sodium, mg/100g | > | 400 | 598 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Potassium, mg/100g | > | 900 | 1320 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Phosphorus, mg/100g | > | 500 | 990 | AOAC 984.27 18th Ed., pg 50.1.15 |
| Iron, mg/100g | > | 0.2 | 0.5 | AOAC 984.27 18th Ed., pg 50.1.15 |



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Other Contaminants

| | | <u>Specification</u> | <u>Typical</u> | <u>Method</u> |
|------------------------------------|---|----------------------|----------------|----------------------------------|
| Nitrite (NaNO ₂), ppm | < | 2 | 0.5 | AOAC 951.03 18th Ed., pg 32.1.30 |
| Nitrate (NaNO ₃), ppm | < | 80 | 10 | AOAC 951.03 18th Ed., pg 32.1.30 |
| Inhibitory Substances, ppb | < | 5 | Negative | CHARM SL M-a-85 |
| Aflatoxin M1, ppb | < | 0.25 | Negative | AOAC 974.17 18th Ed., pg 49.3.01 |
| Nitrofurantoin (AMOZ), ppb | < | 0.3 | Negative | Charm II 6600 (operating manual) |
| Nitrofurantoin (AOZ), ppb | < | 0.3 | Negative | Charm II 6600 (operating manual) |
| Dioxins, pg/g | < | 3 | Not detected | AOAC 968.23 18th Ed., pg 41.1.59 |
| Dioxins and Dioxin-like PCBs, pg/g | < | 4.5 | Not detected | AOAC 984.21 18th Ed., pg 10.2.02 |
| Melamine, ppm | < | 2 | Negative | FDA GCMS-MS |
| Titratible Acidity, % | < | 0.45 | 0.2 | GEA Niro Method No. A 19a |

Heavy Metals

| | | | | |
|---------------|---|------|--------------|------------------------------------|
| Arsenic, ppm | < | 0.5 | 0.03 | AOAC 986.15 18th Ed., page 9.1.01 |
| Lead, ppm | < | 0.02 | 0.018 | AOAC 986.15 18th Ed., page 9.1.01 |
| Mercury, ppm | < | 0.1 | 0.01 | AOAC 952.14 18th Ed., page 9.2.25 |
| Cadmium, ppm | < | 0.25 | 0.02 | AOAC 986.15 18th Ed., page 9.1.01 |
| Chromium, ppm | < | 0.4 | Not detected | AOAC 974.27 18th Ed., page 11.1.26 |
| Copper, ppm | < | 10 | 3 | AOAC 999.10 18th Ed., page 9.1.0 |

Physical Properties

| | | | | |
|---------------------------|---|--------------------|------|--------------|
| Appearance | | Milk yellow powder | Pass | Visual |
| Odor | | Creamy | Pass | Organoleptic |
| Taste | | Characteristic | Pass | Organoleptic |
| Solubility | | Good | Pass | Visual |
| Tapped Bulk Density, g/cc | > | 0.3 | 0.31 | In-house |
| Rough Pour Density, g/cc | > | 0.21 | 0.24 | In-house |

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

Packaging, Shipping and Storage

APS80-25 powder is packaged in color labeled bleached double walled 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 humidity's 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.