



Direct Compression Formulation Used to Produce Multivitamin Tablets

Formulation and Tablet Properties

Ingredients	Percent (w/w)	Ingredients	Percent (w/w)
Dicalcium Phosphate Granulation	35.585	Beta Carotene (167,000 IU Vitam in A/g)	1.149
Calcium Carbonate Granulation	4.341	Vitamin A Acetate(500 MU Vitamin A/g)	0.642
Magnesium Oxide Granulation (60.32% m g)	12.235	Biotin Trituration in DCP (1% Biotin)	0.224
Iron Fumarate 60% Coated (19.722%)	6.803	Potassium Chloride (52.44% Potassium) (47.56 Chloride)	11.263
d-Alpha Acetate S.D (500 IU Vitam in E/g)	4.649	Centrit plus Boron	1.476
Folic Acid Trituration (10% Folic Acid)	0.325	Zinc Oxide(80.34% Zinc)	1.392
Vitamin B-12 Trit on DCP(1% Vitamin B-12)	0.058	Manganese Sulfate 32.5% Manganese	0.803
Vitamin D Beadlets (850 MU Vitamin D/gm)	0.052	Copper Oxide Anh, 74% Copper	0.202
Pyridoxine HCL (82% Vitaminin B-6)	0.198	Potassium Iodide Granulation (7.5% I)	0.150
Phylloquinone Tituration (1% Vitamin K)	0.277	Silicon Dioxide (47.5% Si)	0.310
Riboflavin, USP	0.132	Croscarmellose Sodium	1.043
Thiamine Mononitrate, USP	0.122	STARCH 1500	1.047
Niacinamide Ascorbate	6.199	Microcrystalline Cellulose	7.494
d-Cal Pan, USP Granulation (92% Pan Acid)	0.963	Magnesium Stearate	0.866
Total			100.00

Tablet Properties

Compaction Force	25 kN
Tablet Properties	
Weight	1355.0 mg
Thickness	6.8 mm
Friability	0.22%
Tablet Hardness	17.5 kp
Disintegration Time (37 °C DI water)	< 6.0 min.

Process (Direct Compression)

- All ingredients except magnesium stearate were blended for 10 minutes in a twin-shell blender.
- Magnesium stearate was added and blended for an additional 5 minutes.
- Tablets were compressed using a Manesty 16 station Betapress rotary tablet machine.
- The tooling used was a modified oval shape with scored uppers.

Conclusion

The incorporation of Starch 1500 into this formulation, even at a small percentage, provided effective disintegration action along with significant cost savings compared to a superdisintegrant alone. For more information on the use of Starch 1500 in nutritional formulations, contact your Colorcon Technical Sales Representative.

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