4282-054

Creatine Chewable Tablet Direct Compression

Key Words: Creatine Monohydrate, Poor Flowability, Poor Compactibility, Direct Compression

JRS Products: EMDEX®

Summary

Creatine is an organic compound produced naturally in the body from three amino acids, the building-blocks of protein. Its function is to help recycle adenosine triphosphate (ATP), which is essential to energy output within the body's cells. Creatine is also found in protein-rich foods, such as meat and fish. Because it is associated with muscle strength, size, and endurance, creatine is popular among athletes and bodybuilders in the form of dietary supplements. Creatine is water-soluble but poorly compressible. The following formulation describes a 1,000 mg chewable tablet.

Formulation

	Active content [mg]	mg/tablet	Contribution [%]
Creatine H_2O (equales 1,000 mg Creatine)	1,044.0	1,044.0	74.6
EMDEX® (Dextrates)		336.4	24.0
Orange flavor (Firmenich)		12.6	0.9
Magnesium Stearate		7.0	0.5
Total		1,400.0	100.0

Procedure

Blending:

All excipients except Magnesium Stearate were blended for 15 minutes. Afterwards the Magnesium Stearate was added to the blend and mixed for an additional 3 minutes. The powder mixture was ready for direct compression.

Equipment:	
Tablet Press:	Korsch EK 0, 16 mm punch
Turbula Mixer:	Type T2A
Hardness Tester:	Schleuniger Tablet Tester 6D

Tablet Characteristics

Compaction force:	20 kN
Tablet diameter:	16 mm
Tablet weight:	1,400 mg
Crushing strength:	50 N

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