

4282-016

Key Words: Metoprolol Tartrate,
Direct Compression
JRS Products: PROSOLV® SMCC 90, VIVASTAR® P

Metoprolol Tartrate Direct Compression

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Summary

Metoprolol is a selective β_1 -adrenoreceptor blocking agent (or beta-blocker), primarily used to reduce blood pressure and control hypertension. It is also prescribed to prevent angina pectoris (cardiac chest pain) and help control cardiac arrhythmia (irregular heartbeat) and heart failure.

It is a highly soluble API and can be directly compressed using **PROSOLV® SMCC 90** as a binder. Dosages of 50 and 100 mg are most common.

Formulation

	Active content [mg]	mg/tablet	Contribution [%]
Metoprolol Tartrate	50.88	50.88	27.5
PROSOLV® SMCC 90 (Silicified Microcrystalline Cellulose)		124.88	67.5
VIVASTAR® P (Sodium Starch Glycolate)		7.40	4.0
Magnesium Stearate		1.84	1.5
Total		185.0	100.0

Procedure

Blending:

Metoprolol Tartrate, **PROSOLV® SMCC 90** and **VIVASTAR® P** were mixed in a turbula mixer for 15 minutes. Then sieved Magnesium Stearate was added and mixed for another 3 minutes. The powder mix was ready for direct compression.

Equipment:

Tablet Press:	Korsch EK 0 eccentric press, 8 mm punch, biplane
Turbula Mixer:	Type T2A
Hardness Tester:	Pharmatest PTB 311
Disintegration Tester:	Erweka ZT 3
Dissolution Tester:	Pharmatest PTW II, with 6 vessels, flat blade paddle
Spectrophotometer:	Shimadzu UV-2101 PC

Tablet Characteristics

Tablet Weight:	185 mg
Tablet Diameter:	8 mm
Compaction Force:	33 kN
Crushing Strength:	80 N
Disintegration Time:	180 s

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Dissolution Test:

Dissolution Medium: 900 mL 0.1 N HCl, 37°C, n=6

Samples were taken after 5, 10, 15, 20, 30, 45 and 60 minutes. The sample volume was 3 mL. Samples were diluted if necessary. The determination of the active ingredient was done by an UV-spectrophotometer at $\lambda = 222 \text{ nm}$.

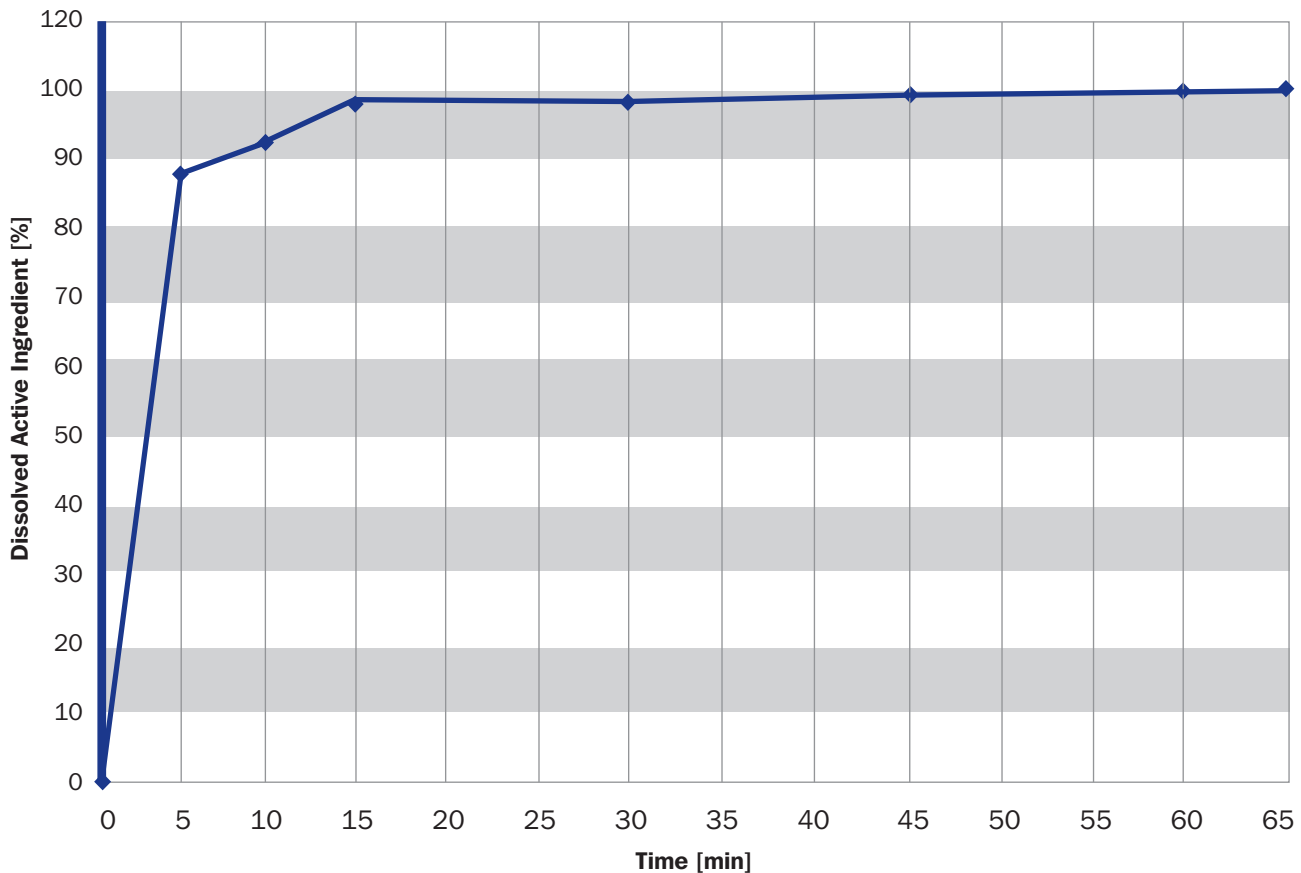


Diagram 1:

Typical dissolution profile diagram of a Metoprolol Tartrate tablet, produced according to the above formulation.

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