

# 4282-043

## Enalapril and Hydrochlorothiazide Direct Compression

**Key Words:** Enalapril, Hydrochlorothiazide, Direct Compression  
**JRS Products:** PROSOLV® SMCC 50, VIVASTAR® P, PRUV®

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### Summary

Enalapril and Hydrochlorothiazide are two actives used in combination to treat high blood pressure. The synergistic effect of an angiotensin converting enzyme (ACE) inhibitor (Enalapril) and a diuretic (Hydrochlorothiazide) for the treatment of hypertension was observed years ago and applied successfully in many drug compositions. A formulation for

direct compression was developed using **PROSOLV® SMCC 50** as a filler and binder, **VIVASTAR® P** as a superdisintegrant, and **PRUV®** as a lubricant. The following is a formulation for a combination 10 mg Enalapril and 25 mg Hydrochlorothiazide tablet.

### Formulation

	Active content [mg]	mg/tablet	Contribution [%]
Enalapril	10.0	10.0	6.71
Hydrochlorothiazide	25.0	25.0	16.78
<b>PROSOLV® SMCC 50</b> (Silicified Microcrystalline Cellulose)		107.0	71.82
<b>VIVASTAR® P</b> (Sodium Starch Glycolate)		2.0	1.34
<b>PRUV®</b> (Sodium Stearyl Fumarate)		2.0	1.34
Sodium Hydrogencarbonate		3.0	2.01
Total		149.0	100.0

### Procedure

#### Blending:

All substances, except **PRUV®**, were blended for 15 minutes. **PRUV®** was added and the powder was mixed for another 3 minutes. The powder mixture was ready for direct compression.

#### Equipment:

Tablet Press:	Korsch EK 0
Turbula Mixer:	Type T2A
Hardness Tester:	Schleuniger 6D
Disintegration Tester:	Pharmatest Standard PTZ
Friability Tester:	Pharmatest Standard PTF

### Tablet Characteristics

Tablet Weight:	149 mg
Tablet Diameter:	8 mm
Compression Force:	6 kN
Crushing Strength:	110 N
Friability:	0.2 %
Disintegration Time:	15 s

**Disclaimer:** The information provided is based on thorough research and is believed to be completely reliable. Application suggestions are given to assist our customers, but are for guidance only. Circumstances in which our material is used vary and are beyond our control. Therefore, we cannot assume any responsibility for risks or liabilities, which may result from the use of this technical advice.