Application Note: ANCCSESOMSYNC

UHPLC-UV Method for the Determination of Esomeprazole Using a Syncronis C18 1.7 µm Column

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Key Words

- Esomeprazole
- Syncronis C18
- Heartburn

Abstract

This application note demonstrates the use of the Thermo Scientific Syncronis C18 1.7 µm column for the determination of esomeprazole by UHPLC-UV.

Introduction

One of the key goals for the chromatographer is to achieve a consistent, reproducible separation. The selection of a highly reproducible HPLC column is essential if this goal is to be attained. The Syncronis™ column range has been engineered to provide exceptional reproducibility due to its highly pure, high surface area silica, dense bonding and double endcapping, all controlled and characterized through the use of rigorous testing.

Esomeprazole is a protein pump inhibitor and works by decreasing the amount of acid produced in the stomach. It is prescribed for treatment of gastro-esophageal reflux diseases such as heartburn. It is also used for the treatment of stomach ulcers caused by taking non-steroidal anti-inflammatory drugs (NSAIDs).

This application note demonstrates the successful analysis of esomeprazole using a Syncronis C18 1.7 µm column.

Experimental Details

Chemicals and Reagents	Part Number
Fisher Scientific HPLC grade water	W/0106/17
Fisher Scientific HPLC grade acetonitrile	A/0626/17
Fisher Scientific HPLC grade ammonia solution	A/3295/PB05
Esomeprazole purchased from Sigma Aldrich	

Sample Handling Equipment	
NSC Mass Spec Certified 2 mL clear vial with blue bonded PTFE silicone cap	MSCERT4000-34W

Separation Conditions			Part Number
Instrumentation:	Thermo Scientific Accela UHPLC system		
Column:	Syncronis C18 1.7 µm, 50 x 2.1 mm		97102-052130
Mobile phase A:	water + 0.1 % ammonia solution		
Mobile phase B:	acetonitrile		
Gradient:	Time (minutes)	% B	
	0.0	20	
	0.50	20	
	2.00	70	
	2.01	20	
	3.00	20	
Flow rate:	0.4 mL/min		
Column temperature:	30 °C		
Injection details:	1 µL partial loop		
Injection wash solvent:	80:20 (v/v) water:acetonitrile		
UV detector wavelength:	302 nm		
Backpressure:	450 bar		

Solutions
Working standard contained 50 µg/mL of esomeprazole in water

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Results

The analysis was performed on a Syncronis C18 1.7 µm, 50 x 2.1 mm column. As shown in Figure 1, esomeprazole was analyzed in less than 2 minutes. Table 1 shows the calculated results from six replicate injections.

	Esomeprazole
Retention time (minutes)	1.66
%RSD on retention time	0.6
Asymmetry	1.24
%RSD on asymmetry	1.6

Table 1: Retention time and asymmetry results for esomeprazole

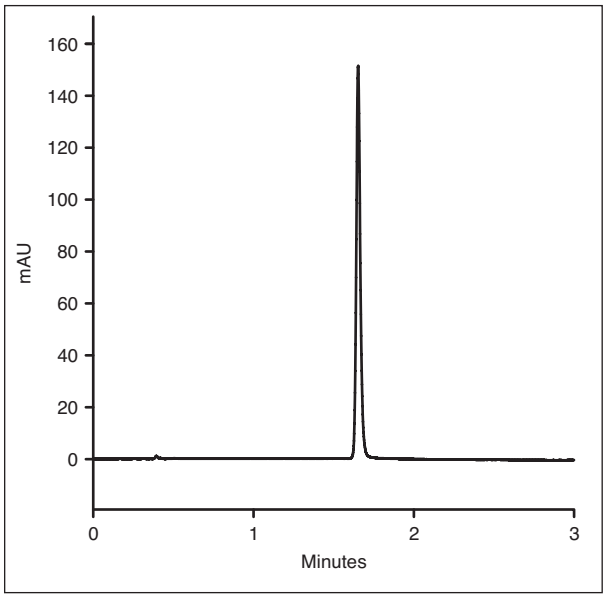

Figure 1: Chromatogram of esomeprazole analyzed using a Syncronis C18 1.7 µm, 50 x 2.1 mm column

Conclusions

The Syncronis C18 1.7 µm column successfully analyzed esomeprazole in less than 2 minutes. Replicate injections show stable and reproducible results. This demonstrates that Syncronis C18 is an excellent choice of column for the rapid analysis of esomeprazole, allowing high sample throughput.

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