Determination of High Sugar Concentrations in a Malbec Wine Sample Using a Compact Ion Chromatography System

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Key Words

HPAE-PAD, Dionex Integrion RFIC System, Dionex CarboPac PA20 Column, Dionex EGC 500 KOH Eluent Generator, Alcohol

Introduction

This application proof note demonstrates the determination of glucose in a 100-fold diluted Malbec wine sample by HPAE-PAD. Typically, samples with g/L concentrations require greater than 10,000-fold dilutions to remain in the linear range of the very sensitive HPAE-PAD technique. However, in this proof note, the method is performed using a Thermo Scientific™ Dionex™ Integrion™ RFIC™ system equipped with a 0.4 µL internal injection loop and the Thermo Scientific™ High Concentration Carbohydrate Analysis Kit¹ to extend the linearity from low mg/L to g/L concentrations. A wood hydrolysate application using this technique is available for reference.²

Method

IC System:	Thermo Scientific Dionex Integrion RFIC system with column heater
Columns:	Thermo Scientific™ Dionex™ CarboPac™ PA20 Analytical (3 × 150 mm) Thermo Scientific Dionex CarboPac PA20 Guard (3 × 30 mm)
Eluent:	35 mM KOH with 100 mM KOH wash
Flow Rate:	0.50 mL/min
Injection Volume	: 0.4 µL
Temperature:	30 °C
Detection:	Pulsed amperometry, disposable Au on PTFE working electrode, 62 mil gasket

Reference

- 1. Thermo Scientific Product Specification 70749: Thermo Scientific High Concentration Carbohydrate Analysis Kit. Sunnyvale, CA [Online] https://www.thermoscientific.com/content/dam/tfs/ATG/CMD/CMD%20 Documents/Product%20Manuals%20&%20Specifications/PS-70749-High-Concentration-Carbohydrate-Analysis-Kit-PS70749-EN.pdf (accessed Jan. 8, 2016)
- 2. Thermo Scientific Application Note 1089: Determination of Carbohydrates in Acid Hydrolysates of Wood. Sunnyvale, CA [Online] http://www. thermoscientific.com/content/dam/tfs/ATG/CMD/CMD%20Documents/ Application%20&%20Technical%20Notes/Chromatography/Ion%20 Chromatography/AN-1089-Carbohydrates-Acid-Hydrolysates-Wood-AN70941-EN.pdf (accessed Jan. 8, 2016)



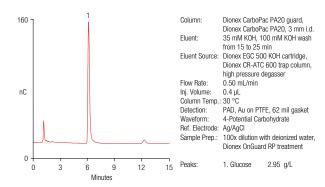


Figure 1. Glucose in a Malbec wine sample.

For application support, visit the AppsLab Library where you can find detailed method information, chromatograms and related compound information. All the information needed to run, process and report the analysis is available in ready-to-use eWorkflows, which can be executed directly in your chromatography data system. www. thermoscientific.com/appslab









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