FOOD & BEVERAGE

Onyx™ Monolithic HPLC Solutions for the Food and Beverage Industry

Is your column lifetime too short ?

Do matrix components disrupt your chromatography ?

Does carryover affect your results ?

Does column backpressure limit your analysis options ?

Would you like to reduce your sample preparation time ?

Chromatographers in the food and beverage industry now have a new, innovative solution for analyzing complex samples like foodstuffs and wine. Onyx monolithic silica HPLC columns allow you to directly inject your sample and to separate closely related compounds while still delivering long lifetimes and maintaining low backpressures. If you answered yes to any of the questions above, you must read on to learn how Onyx will become your new favorite column in the lab.

Onyx™ monolithic HPLC columns: Novel technology for food & beverage applications

Applications:

- **Extracts of grains and foodstuffs**

  Onyx is resistant to column clogging due to sample matrix contaminants and has long column lifetimes for “messy” samples.

- **Beverage identity/integrity testing**

  Onyx delivers high efficiency for closely related compounds and column coupling can be used for increased resolving power.

- **Analysis of samples where SPE (solid phase extraction) and LLE (liquid, liquid extraction) is not possible**

  Onyx has very low backpressures and excellent flow characteristics which allow for injection of very viscous samples as well as excellent mixing of organic solvent slugs.

- **Analysis of dilute or low-level analytes**

  Flow rate range from 1 to 9 mL/min allows for direct, high-flow injection of very dilute samples as well as high flow rate washing and re-equilibration of the column.

Improved results for your most difficult samples:

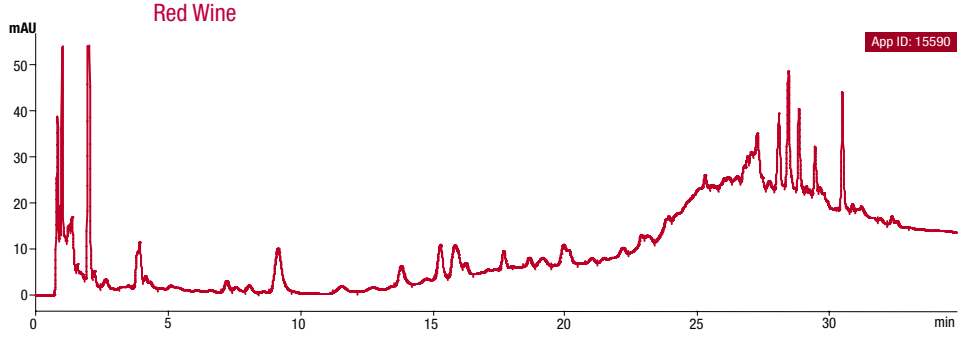
- Minimal clogging from sample contaminants
- Longer column lifetimes
- Higher flow rates with lower backpressures
- Faster column re-equilibration.

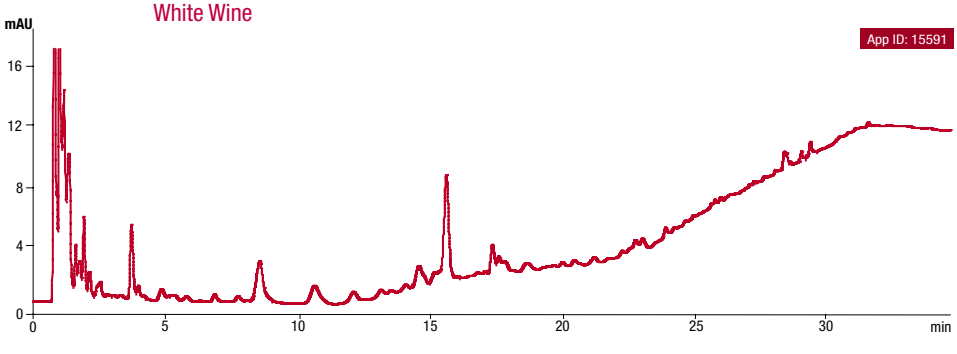
Analysis of phenols in wine

Background: Red and white wine samples are directly injected onto an Onyx column for comparison. Samples are monitored at 254 nm to analyze phenolytic compounds present in each sample.

#1		
	Challenge:	*Separate a wide variety of compounds present in wine samples.*
	Solution:	The macroporous structure of Onyx mixes solvent slugs quickly. Compounds retain on phase and still maintain excellent separation.

#2		
	Challenge:	*Avoid flow restrictions and overpressures due to salts, precipitated proteins, sugars, and lipids present in the sample.*
	Solution:	The low backpressures of Onyx columns make overpressures unlikely even at very high flow rates. In addition, the through-pores of the media make Onyx less likely to "plug up" from matrix contaminants.





Column:	Onyx Monolithic C18
Dimensions:	100 x 4.6mm
Order No.:	CH0-7643
Mobile phase:	A: 0.1% Phosphoric acid in water B: Methanol
Gradient:	Hold at 3% B from 0 - 10 minutes 3-18% B from 10 – 22 minutes 18-50% B from 22- 30 minutes
Flow rate:	2.0 mL/min
Temperature:	Ambient
Detection:	UV @ 254nm
Sample:	1. Red wine, 50µL injection 2. White wine, 50µL injection

Foodstuff extract: Multi-grain cereal using two Onyx columns coupled for increased efficiency

Background: Multi-grain cereal is extracted with methanol and injected onto an Onyx column to analyze aromatic compounds present in the sample.

#1

Challenge: *Methanol extracts of foodstuff contains large amounts of proteins as well as other contaminants that can interfere with analysis of small molecules.*

Solution: Wide macropores (2µm) of Onyx reduce interference due to the proteins present in a sample as well as reduce "clogging" of the column due to matrix contaminants.

#2

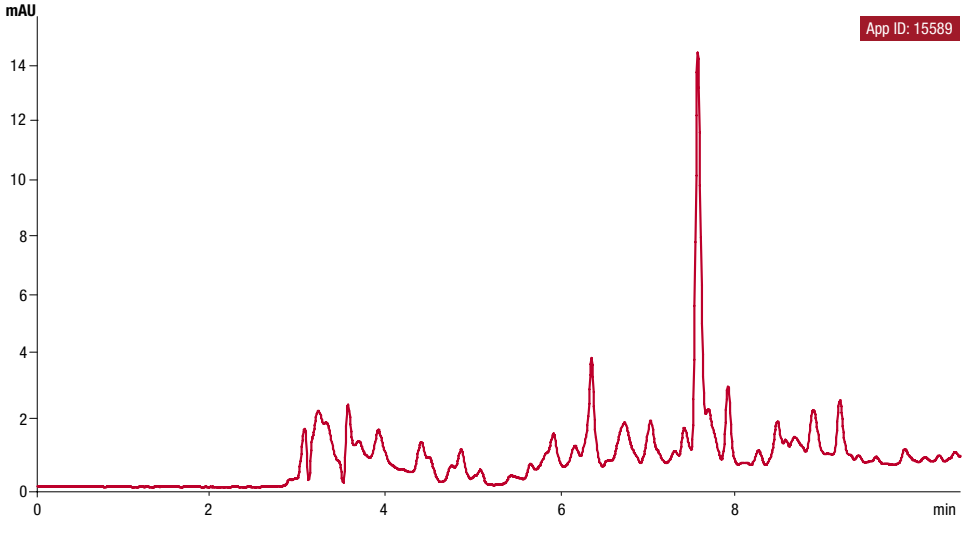
Challenge: *Get resolution of numerous, closely-related compounds.*

Solution: The low backpressures of Onyx monolithic columns allow for the coupling of two columns together to increase resolving power to seperate closely eluting compounds.

#3

Challenge: *Sample carryover can be problematic with complex samples.*

Solution: Improved flow characteristics of silica monoliths result in lower sample carryover, especially for complex matrices such as grain and food-stuff extracts.



Column: Onyx Monolithic C18
Dimensions: 200 x 4.6mm
(2 x 100 4.6mm columns coupled in series)
Order No.: CH0-7643
Mobile phase: A: 0.1% TFA in water
B: 0.08% TFA/90% in water
Gradient: 5-70% B L.C. 15 minutes
Flow rate: 1.0 mL/min
Temperature: Ambient
Detection: UV @ 280nm
Sample: 1. Multi-grain cereal

Key Onyx™ features & benefits for food and beverage applications

1) Minimal contaminant disruption

- The monolithic silica structure of Onyx is resistant to column plugging and chromatographic disruptions due to sample matrix contaminants.

2) Successfully analyze complex samples

- The low backpressure of Onyx allows you to couple columns together to in crease efficiency and obtain better separation of closely eluting compounds.

3) Optimization options

- Onyx is available in several different chemistries (C18, C8, and silica) for reversed phase, HILIC, and normal phase applications.
- Different column lengths, as well as column couplings, allow for optimization of speed and plate counts for any application.

4) Shorter run times & low backpressures

- Onyx typically delivers 60% less backpressure than particulate columns. Lower backpressures allow higher flow rates resulting in shorter run times and higher throughput.

Onyx™ products for food & beverage applications

Order No.	Description
CH0-7645	Onyx C18 25 x 4.6mm
CH0-7644	Onyx C18 50 x 4.6mm
CH0-7643	Onyx C18 100 x 4.6mm
CH0-7647	Onyx C8 100 x 4.6mm
CH0-7648	Onyx Si 100 x 4.6mm
KJ0-7651	Onyx C18 Guard Cartridge Kit (3 pk 5 x 4.6mm cartridges + holder + wrench)
CH0-7649	Onyx C18 Guard Cartridges 5 x 4.6mm (3/pk)
AQ0-7654	Onyx Column coupler

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	USA	Puerto Rico	Canada	France
mail:	411 Madrid Ave. Torrance, CA 90501-1430 USA	273 Sierra Morena, Suite #104 San Juan, Puerto Rico 00926	411 Madrid Ave. Torrance, CA 90501-1430 USA	118/130 avenue Jean Jaurès 75171 Paris Cedex 19 France
tel.:	(310) 212-0555	(800) 541-HPLC	(800) 543-3681	01 72 72 92 10
fax:	(310) 328-7768	(310) 328-7768	(310) 328-7768	01 72 72 92 11
email:	info@phenomenex.com	info@phenomenex.com	info@phenomenex.com	franceinfo@phenomenex.com

	United Kingdom	Germany	New Zealand	Australia
mail:	Queens Avenue, Hurdsfield Ind. Est., Macclesfield, Cheshire SK10 2BN, England	Zeppelinstr. 5 63741 Aschaffenburg Deutschland	P O Box 31601 Milford Auckland New Zealand	PO Box 4084 Lane Cove, NSW 2066 Australia
tel.:	01625-501367	06021-58830-0	09-4780951	02-9428-6444
fax:	01625-501796	06021-58830-11	09-4780952	02-9428-6445
email:	ukinfo@phenomenex.com	anfrage@phenomenex.com	info@phenomenex.co.nz	info@phenomenex.com.au

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