

Guard column accessories

Introduction to the Thermo Scientific Uniguard system

Introduction

It is widely known that a guard column in front of your HPLC column will help you protect the column and increase the lifetime. Historically, a guard column was a shorter column placed in front of the analytical column. The size was about 50 mm long as the guard meant to have as little impact on chromatography as possible, mere functioning as a particular and chemical filter for the main analytical column.

With the increasing improvements happening on the instrumentation side and the aim to create shorter and more efficient methods, the guard column became a factor for increased dead volume and essentially affected the overall chromatography, widening peaks, and shifting retention times. There was a need for better technology.

Uniguard System overview

The Thermo Scientific™ Uniguard™ direct-connection guard cartridge holders were introduced to battle the challenges with the older technology guards. The Uniguard cartridge holders directly connect with the column and can be attached much like a column fitting. Direct connection reduces the dead volume of the connection.

Historical guard columns needed to be attached as a separate column, with tubing dominating the space between the guard and analytical column. With the new Uniguard system, the guard can be directly attached to the column, reducing the number of connections that may be a source of extra dead volume. The distance the sample must travel reduces the dispersion of the analytes before the sample reached the columns head.



Uniguard technical description

The Uniguard system houses exchangeable cartridges, where also the mass of column sorbent is significantly reduced. As we know that particulates and chemical interference will adhere to the column, there is no actual need for more than a mere 10 mm guard system to assure that the analytical column is protected. The Uniguard cartridges consist of 10 mm sorbent with stationary phase of your analytical column packed in a small tablet-like housing. The cartridge will need to be exchanged regularly. Speak with your local sales representative for advice on frequency.

The Uniguard holder consists of two parts, the fitting that connects the holder directly to the analytical column, and the nut that inserts the cartridge and assembles the holder. The Uniguard holder can be disassembled while still attached to the analytical column, making the exchange of the guard cartridge fast and easy.

Installation

Always remove the UniGuard guard cartridge holders from the column prior to installation. Unscrew the nut (a wrench may be needed to do this). Place the drop-in cartridge with the smallest end facing into the holder. Screw the nut back on to the holder and tighten lightly with wrenches. Screw the assembled UniGuard holder onto the column and tighten by finger-tightening. Be aware that overtightened with a wrench can crush the PEEK fitting on the tip of the holder and cause clogging or leaks. Replacement tips are available (PN 850-RT standard tips).

Conclusion

The UniGuard systems design allows for protection of your analytical column at lowest possible dead volume. The cartridges are easily exchanged and ensures longer lifetimes of your LC column. The effects of using a guard holder and cartridge system can clearly be seen in Figure 1.

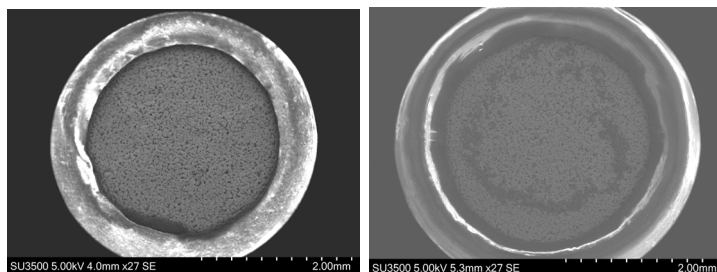


Figure 1: Electron microscope images of a new (left) and used (right) guard cartridge. The used guard cartridge was run on a paracetamol impurity assay for 20 days before exchange.

Ordering information

Description		Cat. no. link
Reversed-phase, hydrophobic retention columns		
Acclaim	C18	Cartridge
Accucore	C18	Cartridge
Accucore XL	C18	Cartridge
Hypersil GOLD	C18	Cartridge
Acclaim	C8	Cartridge
Accucore	C8	Cartridge
Accucore XL	C8	Cartridge
Hypersil GOLD	C8	Cartridge
Accucore	C4	Cartridge
Hypersil GOLD	C4	Cartridge
Acclaim	C30	Cartridge
Accucore	C30	Cartridge
Accucore	RP-MS	Cartridge
Accucore	Polar Premium	Cartridge
Acclaim	Polar advantage II	Cartridge
Acclaim	Polar advantage I	Cartridge
Accucore	C18 aQ	Cartridge
Hypersil GOLD	C18 aQ	Cartridge
Reversed-phase, aromatic retention columns		
Accucore	Phenyl-X	Cartridge
Accucore	Phenyl-Hexyl	Cartridge
Hypersil GOLD	Phenyl	Cartridge
Acclaim	Phenyl-1	Cartridge
Hypersil GOLD	PFP	Cartridge
Accucore	PFP	Cartridge
Accucore	Biphenyl	Cartridge
HILIC and normale phase columns		
Accucore	Amide HILIC	Cartridge
Hypersil GOLD	PEI HILIC	Cartridge
Acclaim	HILIC-10	Cartridge
Accucore	HILIC	Cartridge
Hypersil GOLD	Cyano	Cartridge
Hypersil GOLD	Amino	Cartridge
Hypersil GOLD	Silica	Cartridge
Application specific columns		
Acclaim	Surfactant	Cartridge
Acclaim	Organic Acid	Cartridge
Acclaim	Explosives E2	Cartridge
Mixed-mode columns		
Acclaim	Trinity P1	Cartridge
Acclaim	Trinity P2	Cartridge
Acclaim	Trinity Q1	Cartridge
Acclaim	MM WAX-1	Cartridge
Acclaim	MM WCX-1	Cartridge
Acclaim	MM HILIC-1	Cartridge

 Learn more at thermofisher.com/lccolumns

For Research Use Only. Not for use in diagnostic procedures. 2023. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. This information is presented as an example of the capabilities of Thermo Fisher Scientific Inc. products. It is not intended to encourage use of these products in any manners that might infringe the intellectual property rights of others. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details. **FL001126 0123**