



# Save time in HPLC sample prep

**Intellectual Property Notice:** The Biopharma business of GE Healthcare was acquired by Danaher on 31 March 2020 and now operates under the Cytiva™ brand. Certain collateral materials (such as application notes, scientific posters, and white papers) were created prior to the Danaher acquisition and contain various GE owned trademarks and font designs. In order to maintain the familiarity of those materials for long-serving customers and to preserve the integrity of those scientific documents, those GE owned trademarks and font designs remain in place, it being specifically acknowledged by Danaher and the Cytiva business that GE owns such GE trademarks and font designs.

## cytiva.com

GE and the GE Monogram are trademarks of General Electric Company. Other trademarks listed as being owned by General Electric Company contained in materials that pre-date the Danaher acquisition and relate to products within Cytiva's portfolio are now trademarks of Global Life Sciences Solutions USA LLC or an affiliate doing business as Cytiva.

Cytiva and the Drop logo are trademarks of Global Life Sciences IP Holdco LLC or an affiliate. All other third-party trademarks are the property of their respective owners.

© 2020 Cytiva

All goods and services are sold subject to the terms and conditions of sale of the supplying company operating within the Cytiva business. A copy of those terms and conditions is available on request. Contact your local Cytiva representative for the most current information.

For local office contact information, visit [cytiva.com/contact](https://www.cytiva.com/contact)

CY14002-02Jun20-AN

## A Q&A

# Save Time in HPLC Sample Prep

### Mark Green

R&D Leader, Technology Leader,  
and Principal Engineer  
Life Science Laboratory  
Filtration Division  
GE Healthcare

To prepare samples for analysis with high performance liquid chromatography (HPLC) instruments, most laboratories use several different devices. This common sample prep practice can result in imprecision, forcing laboratories to lose valuable man-hours for re-analysis. To learn more about how to increase the accuracy and performance of sample preparation, LCGC spoke with Mark Green, R&D leader, technology leader, and principal engineer for the GE Healthcare Life Science Laboratory Filtration Division.

**LCGC: You have decades of experience developing lab filtration products with Whatman Filtration, one of the oldest and most well-known filter companies. What are some of the biggest factors that determine the direction of R&D for lab-scale filtration at Whatman?**

**Green:** We spend a lot of time looking at general trends in the market, especially in sample preparation and quite a bit of time talking to customers trying to identify trends and pain points. For example, we've seen over the last several years that chromatography, specifically HPLC, is a key focus area for many customers, and that focus drives their filtration performance requirements.

A strong message that came from the customer base is that there is a need for consistency, which is considered to be the most valuable factor in sample analysis. We've heard that customers need the confidence from consistency to know that results are sample driven and not the result of contributions from something the sample may have encountered in the filter. Typically, analytical labs are tight resource models that don't really have the flexibility to assess if a contributing factor in an unexpected outcome could be the filter itself.

When we talk about developing products to help drive positive outcomes, eliminating the filter as a contributing factor is really what we have in mind.

**LCGC: Historically, customers have said that they struggle with consistency. Why is that?**

**Green:** I think it's important to understand what we mean by consistency.

Researchers and technicians typically make decisions based on chromatograms generated from an analytical process and need confidence that the chromatogram is suitable. For example, is the API stable under the conditions used? Is it safe to release a batch of food product?

To make these decisions quickly, they need the confidence that the chromatographic results are representative of the sample alone and not resulting from another substance the sample encountered in the filter. This situation leads to two challenges for customers. First, diverse sample types with differing chemical compatibility might require a diverse range of filter types to conduct a sample preparation. In this situation, the user may be unsure if an unexpected

SPONSORED BY



**LC|GC**  
north america

result occurs because of the sample or the changes in the filter types.

The physical matrix of the sample or the method of analysis can cause additional sample analysis challenges. For example, standard syringe filters may be appropriate for method development, but an autosampler useable format is more applicable when generating large amounts of data.

If unexpected data are obtained from a large number of samples that differ from those used in the original method development, it may not be easy to determine if the differences are from the sample itself or the result of the filter change. In both cases, inconsistent filter choice could lead to uncertain analysis.

### **LCGC: How does your product portfolio match with customers' sample prep needs?**

**Green:** We have worked on several key functional design areas within the Whatman portfolio.

We offer flexibility by designing the same membrane type into a range of encapsulated formats so that customers can align to a standard membrane by choosing the appropriate format. This flexibility is important because a customer's filtration needs differ from time to time. For example, we have product design formats for high-throughput applications, robotic HPLC preparation, difficult-to-filter samples where

high solid content is a challenge, and applications that require certification, as well as a general syringe filter. Even though these formats differ, the membrane inside is consistent.

Another key area is the development of a broad, compatible membrane to go into these formats in the form of regenerated cellulose. These regenerated cellulose membranes have been designed into the various formats outlined previously and makes standardization easy for the user.

### **LCGC: Can you tell us a bit more about the regenerated cellulose membrane?**

**Green:** Regenerated cellulose is a mechanically stable hydrophilic membrane with very good wet strength that can be sterilized. It offers broad compatibility with common aqueous and organic solvents including those commonly used in HPLC, which is important because compatibility with common solvents will minimize levels of extractables that might interfere with analytes of interest.

The membrane also offers low non-specific protein binding. Broad compatibility delivered in multiple platforms or formats is key to standardized offerings. The right filter is sometimes an individual preference, however, so if customers feel like there is more they can do to improve their filtration practices, we encourage them to please reach out to GE for product samples to try it out for themselves.

**GE Healthcare** provides transformational medical technologies and services that are shaping a new age of patient care. The company's broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help customers to deliver better care to more people around the world at a lower cost. In addition, GE Healthcare partners with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems. Headquartered in Chicago, IL, GE Healthcare is a unit of General Electric Company. Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries.