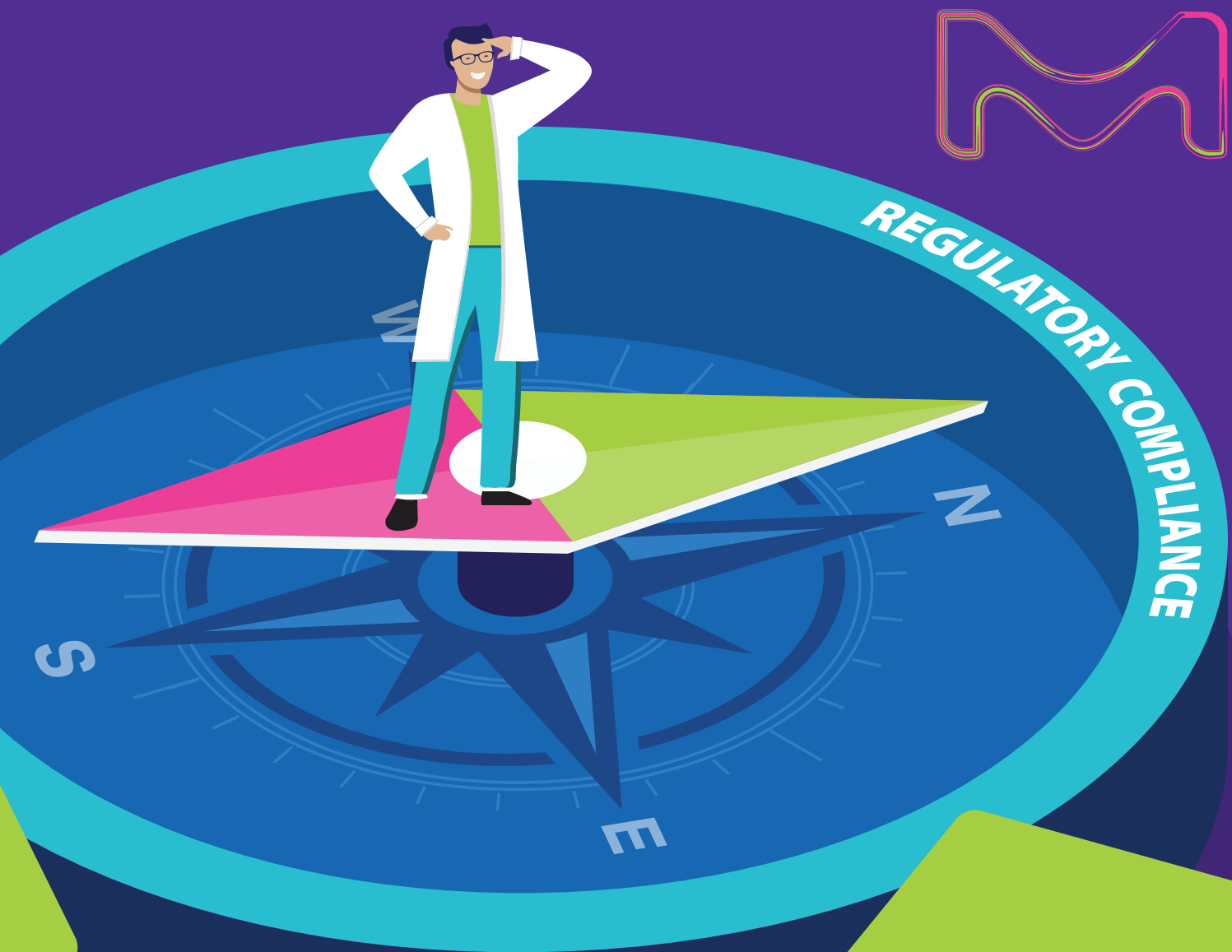
MilliporeSigma

BioReliance® Validation Services: Discover an Easier Way

Rely on Our Expertise and Consultative Support to Meet Your Regulatory Requirements



BioReliance®

Pharma & Biopharma Manufacturing & Testing Services

Validation Services for You: Manage Process Risks, Phase I Through Market

Across the globe, regulations have been put in place to safeguard patient safety. Production equipment should not be reactive, additive or absorptive so as to affect the safety, identity, strength, quality or purity of the drug product.

At MilliporeSigma, you benefit from our proven methods and established protocols for the latest filtration, single-use and membrane technologies. This includes detailed knowledge of MilliporeSigma products and the assurance of robust process scale-down and worst-case conditions.

MilliporeSigma provides top project management and customer support with access to a wide spectrum of experts to assist you with the validation process. We support you with well-known reliability and unmatched expertise in biopharmaceutical processing and process technology, backed by impeccable reports and documentation.

Whether your main focus is compliance with global guidelines or you rely on consultative expertise to implement compliant, robust and effective validation strategies, partner with MilliporeSigma for:

- Deep regulatory knowledge
- Technology leadership with almost 50 years of experience in pharma/biopharma filtration
- Industry recognition as a validation pioneer

Our Comprehensive Validation Offering Guarantees You an Easy Path Forward

As the validation pioneer, we have the expertise to develop your critical validation studies:

1987
First filter supplier to deliver validation services

5
labs around the globe

800+
bacterial retention tests per year

1,000+
E&L evaluations per year

Our new, simplified processes and price structure make it easy to obtain exactly the services you're looking for, whether you need:

- Extractables & Leachables Safety Evaluation
- Bacterial Retention Testing
- Filter Integrity Testing
- Chemical Compatibility Study
- Consultancy

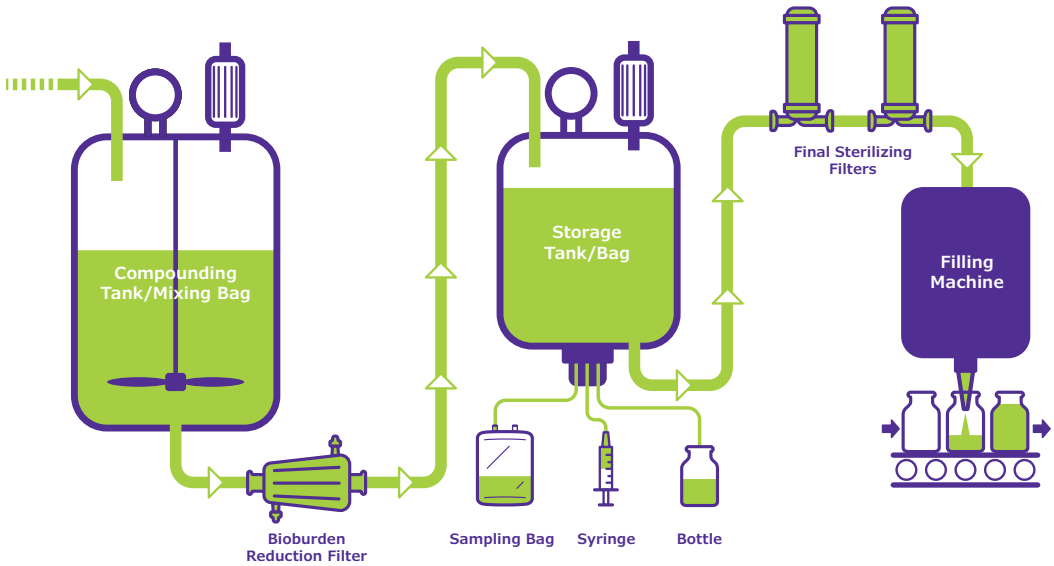
At MilliporeSigma, you select your path: simplicity and convenience, or flexible optionality. Either way, you'll feel confident with our second-to-none validation expertise and guidance.

Discover an Easier Way to Choose the Right Validation Services

Upstream to the Compounding Tank/Mixing Bag
- Chemical compatibility
- Extractables/patient safety
- For UF/DF cleaning, bioburden or endotoxin reduction

Final Storage Single-Use Assembly
- Chemical compatibility
- Extractables/patient safety/leachables
- Non-permeation test

Final Sterilizing Filters and/or Single-Use Assembly
- Bacterial retention validation
- Bubble point/diffusion determination
- Chemical compatibility
- Extractables/patient safety/leachables
- Binding study
- Particle shedding study
- Vmax confirmation



Bioburden Reduction Filter
- Chemical compatibility
- Extractables/patient safety
- Bubble point/diffusion determination

Sampling System
- Chemical compatibility
- Functionality test
- Non-permeation test

Regulatory Requirement
Recommendation, based on the pharmaceutical application and risk assessment

We partner with you to implement a compliant, robust and effective validation strategy.

Extractables & Leachables

Discover an Easier Way to Show That Plastic-Product-Contact Materials Do Not Adversely Affect Patient Safety

As the industry increases its reliance on single-use technologies, chemical migration from contact surface materials into the drug product is of increasing concern. To mitigate this situation, The BioPhorum Operations Group and USP have established industry guidance with the intent of implementing a standardized approach. MilliporeSigma has been an active participant in these efforts.

In line with this industry guidance, we help you conduct a risk assessment and recommend a risk-based approach to E&L testing:

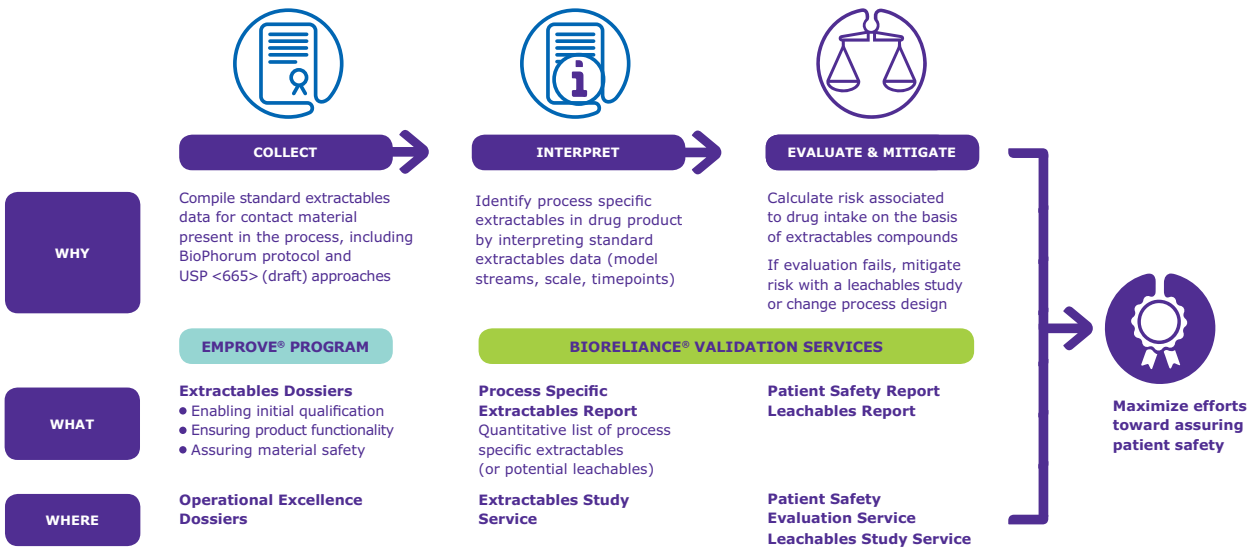
1. First, we perform a safety evaluation based on worst-case conditions:
   - We provide standard extractables (EXT) data: MilliporeSigma has developed an extensive library of standard EXT data covering 700 components, available on request
   - OR, if necessary, we perform EXT studies (e.g., lipid formulation, high organic concentration)
2. If negligible risk is not demonstrated, we perform a second safety evaluation on the basis of leachables — this second step considers actual process conditions

Discover an Easier Way to Access Standard Extractables Data: Emprove® Dossiers

The Emprove® Program contains over 400 raw and starting materials, and approximately 50 product families covering filters, single-use components, and chromatography resins. Each product portfolio is supported with Emprove® Dossiers which provide comprehensive, up-to-date documentation to help you navigate regulatory challenges, manage risk and improve your manufacturing processes.

The Emprove® Operational Excellence Dossiers for filters and single-use systems provide standard extractables data that align with industry standards such as the relevant BioPhorum protocol and USP general chapter.

An Easier Way to Achieve a Seamless and Robust E&L Assessment



Bacterial Retention Testing

Discover an Easier Way to Test Filter Performance

Validation of sterilizing-grade filter performance is a critical step in filter validation mandated by regulatory bodies throughout the world. Bacterial retention testing under end-user worst-case process conditions with at least one membrane at or near the minimum integrity specification ensures that when loaded with bacteria, the filter will produce a sterile effluent. At MilliporeSigma, highly skilled validation specialists perform these tests under scale-down end-user worst-case processing conditions in a controlled laboratory, using calibrated equipment and methods governed by a robust quality system.

Brevundimonas diminuta (B. diminuta) is commonly used as a challenge microorganism. Other strains can be evaluated per customer request.

BioReliance® Validation Testing Complies With Worldwide Regulations and Guidances

- FDA Guidance on Sterile Drug Products Produced by Aseptic Processing
- European Union, Japan and China Good Manufacturing Practices
- Parenteral Drug Association's (PDA) Technical Report 26
- Aseptic Processing of Health Care Products ISO 13408-2

Filter Integrity Testing

Discover an Easier Way to Establish Your Product's Filter Integrity Test Specification

Testing your sterilizing filter's integrity before or after use to check for leaks or damage is a necessary step in manufacturing sterile drug products.

A MilliporeSigma filter Certificate of Quality lists minimum integrity test specifications for the filter wetted with a standard fluid such as water or alcohol. To test with a different fluid such as product, buffer or other flushing fluid, a specific integrity test specification must be determined.

Developing a process-specific wetting fluid test can be worthwhile to minimize delays in production and product release because the process fluid's unique properties may alter the integrity test result. If not thoroughly flushed, bubble point suppression and false failures may occur.

We help you establish the water-to-product integrity ratio to determine the integrity test specification for filters wetted with your process fluid. We can also determine the integrity specification for a filter wetted with your drug product and rinsed with your specific rinsing fluid.

Chemical Compatibility Testing

Discover an Easier Way to Evaluate the Compatibility of Product Contact Components

Selecting and qualifying a filter or single-use assembly means a thorough evaluation of all components in contact with your drug product for chemical and physical compatibility. All filters and single-use systems used in your manufacturing process must be shown to be fit for use, compatible with your process and not reactive, additive or absorptive when confronted with your drug product.

In compliance with global GMP guidelines and U.S. federal regulations, we assess:

- Filter and single-use assembly materials
- Process fluid composition
- Process conditions
- Regional and intended market regulations

Chemical compatibility studies can be provided for a wide array of our products that contact your product. The recommended approach can range from a compatibility certification report based on existing compatibility data to testing the filter devices, comparing product performance attributes before and after exposure to your product under your processing conditions.

Validation Services Consultancy

Leverage Top-Performing Laboratories and Experts Worldwide

With BioReliance® Validation Services available through an expansive, global network of highest-quality laboratories and in-country/in-region experts, you can access rapid-response local assistance wherever you need it.

Our validation experts will develop a comprehensive and compliant validation strategy suitable for the country in which you manufacture and your market countries. We will determine:

- The right services needed for your submission
- The right validation plan to optimize studies

If the situation warrants, we can custom-design studies beyond the tests typically performed to meet your specific and precise needs.

We support all MilliporeSigma filtration devices and single-use components (bags, connectors) and assemblies.

Strategically Located, Harmonized Validation Services Provide the Support You Need

Discover an Easier Way to Global Compliance

Validation can involve many steps. Choosing and organizing the right validation package to cover what you need for global compliance can be a challenge.

New, Streamlined Ordering and Pricing for Better Value and a Better Experience

At MilliporeSigma, we make your life easier with a clear and predictable budget, greatly simplified service selection, globally harmonized testing and as much support as you need. At the same time, standardizing and streamlining our own processes allows us to plan operations better and provide you with a more accurate view of lead times and report dates.

What hasn't changed is our commitment to providing the same superb level of testing, compliance and support as ever. You benefit from:

- A simpler way to order the right validation services at the right time and phase of development
- A partner that will ensure you meet regulatory expectations for validation
- The right level of service for your needs, including customized solutions when desired

Choose the Classic or Advanced Package

We've simplified your process from the start with two predefined service levels and we'll help you determine the level of service you need. Whichever you choose, MilliporeSigma validation experts will be with you at every turn.

Classic

Rely on us for guidance. We'll do what's required to get your validation study done — with the highest quality standards.

Advanced

Let's collaborate. We'll discuss your specific requirements and customize a validation plan that works for your advanced needs and complex studies.

	Classic	Advanced
Satisfies Applicable Global Regulatory Expectations	•	•
Regulatory Query/Inquiry Assistance	•	•
Online Support	•	•
Call-in Support from Project Management Team	•	•
Test Customization[1]	—	•
Bacterial Retention and Compatibility Study Conditions	Process duration 48hr max Cold and room temperature	Maximum process duration Maximum process temperature
Extractables Study Conditions	Standard model streams in accordance with industry guidance	Custom
Integrity Testing	1 product lot	3 product lots
Templated Documentation	•	—
Customized Documentation	—	•
Documentation Revision	1 on specific fields[2]	Up to 3 on full document
Validation Summary Report[3]	—	•

1 Classic testing covers a predetermined range of process conditions with defined study parameters. Advanced testing provides a higher level of customization, including process conditions, additional test equipment/resources, and more complex study requirements.

2 Drug product and process information fields.

3 Validation summary report is integrated when two or more services are ordered.

BioReliance®

Pharma & Biopharma
Manufacturing &
Testing Services

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Request a quote:
EMDMillipore.com/validation-quote-request

EMDMillipore.com/validation-services
info-validation@milliporesigma.com

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