



Reimagining Medical Device Design

Applying Advanced Performance Materials to Solve the Seemingly Unsolvable

Medical device designers and design engineers want to keep evolving to stay ahead of the rapid technological advancement in the field. However, when it comes time to turn vision into reality, conventional materials used throughout the industry often fall short. That's why it's time to find a materials science partner who can unlock new possibilities and help bring your next medical device design idea to life.

Tracking Top Trends in the Medical Device Industry



Today's trends are creating a need for better solutions with more advanced materials:

- Driving catheters to thinner walls**
 There's a need for new materials that can allow for elimination of multi-material layers, combine key properties such as lubricity and material hardness, and increase functionality without sacrificing the size of the catheter.
- Understanding the impact of sterilization on materials**
 From standard steam and ethylene oxide to E-Beam and hydrogen peroxide plasma, each method has a unique impact on the device. You must have deep materials and fundamental polymer chemistry knowledge to mitigate the effects on the underlying structure of the material.
- Improving heat-shrink properties without compromising design**
 Current catheter design involves heat-shrinkable tubing as a processing step and as catheters evolve, there's an increased drive towards materials that have a higher heat-shrink ratio, while retaining the ability to withstand high temperatures.

Did You Know?

Medical smart devices are expected to have a year-over-year growth of 7.8% from 2020 to 2025

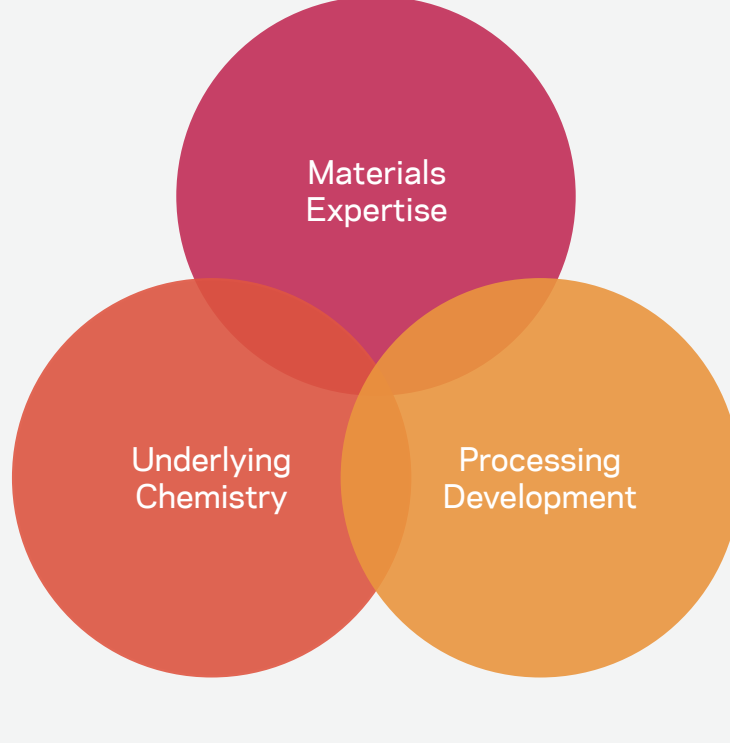
Unique Performance Properties Deliver Optimal Results

Chemours' advanced performance materials allow for more complex, higher-performing designs, taking medical devices to an entirely new level of imagination and innovation.

- Electrical**
 Low dissipation factor, dielectric
- Thermal**
 Resilience to high and low temperatures
- Chemical**
 Resistance over broad types of chemicals
- Weatherproof**
 UV and weather resistant
- Mechanical**
 Low coefficient of friction, high resistance
- Purity**
 Chemical inertness allows for food contact and pharmaceutical use
- Durability**
 Long-term durability keeps medicine in place

Bringing Medical Device Design Ideas to Life

Having all three of these competencies is critical to solving the unmet needs of the market. With three core competencies that drive our application development process, Chemours believes in a product-agnostic and collaborative, market-back approach to design solutions.



- Underlying chemistry**
 Leveraging our extensive knowledge in application development, Chemours works to be attentive to the customer's needs and strives to create the next generation of materials that meet evolving requirements.
- Materials expertise**
 We understand how to control, formulate, manipulate, and combine materials to reach the optimal physical properties.
- Processing development**
 With over 200 years of experience and many patents, we have the ability to develop manufacturing processes and products that address necessary performance requirements.

New Center for Innovation Maximizes Collaboration and Efficiency

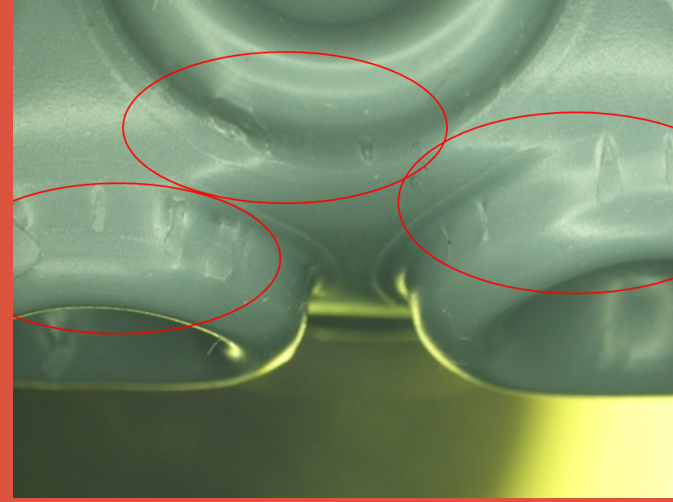
The Chemours world-class innovation center, The Discovery Hub, offers global R&D capabilities that can open up a world of new medical design advancements.



Improving Pharma Stopper Performance and More

Bring Chemours your challenges and we'll work together to deliver a solution. Here's an example of how we can use our underlying knowledge of chemistry to solve the problem for pharma stopper manufacturers as well as take on challenges in the more complicated world of medical devices.

Standard FEP



Trigger: Customer was experiencing unsustainable yield loss due to film cracking.

Unmet need: Film on a pharma stopper that does not deform and crack when applied to a stopper, and each deformation led to the batch being discarded, causing yield loss.

Solution: A proprietary resin was designed to produce a new "LF" film grade.

Chemours' Answer



Solving the unsolvable: Invented new film

- Made with a proprietary formulation that improved stopper performance
- Solution has a differentiated flex life compared to existing films in the market
- Allowed customer to use a thinner film, achieving the same performance with less material
- Partnered with the customer to optimize their process to ensure highest-quality finished product possible

Evaluation Checklist: Finding the Right Partner, Right from the Start

Whether you choose to work with material technical experts at Chemours or explore other options, it's good to know what you should look for in a performance materials partner.

- Fundamental expertise in materials, chemistry, and science
- Co-creator in both application and design
- Feels the same motivation you feel to deliver on your design
- Uses agile process and works collaboratively with you to deliver on your timeline
- Brings together an ecosystem of partners to solve difficult problems
- Understands your industry challenges

The Chemours Company, a Catalyst for Change

With vast expertise and knowledge in materials as well as fundamental polymer chemistry, Chemours has the science needed to help medical device designers and design engineers overcome challenges—and solve the seemingly unsolvable.



Ready to Partner and Make Your Next Medical Device Design a Reality?

[Learn more](#)