



Science.
Applied to Life.™

3M Medical Materials and Technologies

Freedom of Design. Freedom of Movement.

Solutions for Continuous Health Monitoring

More options,

Bringing the Exam Room Home

Imagine making daily doctor visits to undergo tests and receive medical care for a chronic disease or rehab. The miles and the hours add up, restricting your ability to enjoy a more active life. What if you could bring that care into your own home instead?

A new generation of wearable medical technologies allows continuous health monitoring in the home, so patients can conveniently chart their wellness or progress electronically. This exciting and rapidly growing area of healthcare presents manufacturers with a wealth of new opportunities. 3M can help you take advantage of those opportunities, with solutions engineered to help you speed up the design process, improve reliability and reduce costs.



Material Selection

Designers and engineers of high-tech medical devices have to consider the human skin interface during product development –and not just as the last step before market. Will a device stay firmly attached to both dry and moist skin for the required wear time? How thick will the finished piece be? Additional considerations include materials compatibility, ergonomic requirements and target patient population characteristics.

Materials selected for wearable devices need to be of high quality – food grade¹ or “medical” grade components are smart and safe choices. For registered medical devices, the FDA requires safety testing of the entire finished device. Careful selection of quality materials during the concept stage can reduce the risk of re-engineering delays late in the development process. It is also good practice to consider

common skin allergens and irritants when selecting materials, especially for the outer layers of the sensor. The same is true for avoiding sensitizers such as natural rubber-based compounds, nickel in metal alloys, and plasticizers.

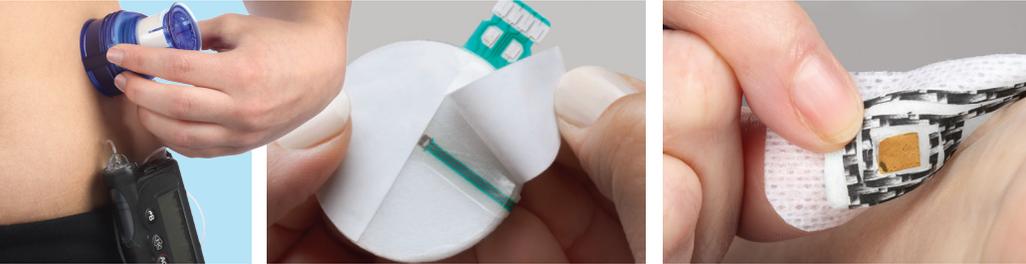
The choice of one material can also affect other materials of construction. For example, certain polymers such as plasticized PVC can interact with adhesives after assembly, causing them to fail.

By keeping these usability factors in mind from the start, product designers and materials engineers can select components that both function well together and help the skin in contact with the device to remain healthy.

If all that seems complicated, you're right. That's why it's good to know that 3M expertise can help make your materials selection process a whole lot easier.



more answers



3M Solutions for Continuous Health Monitoring

For over 50 years, non-sensitizing medical tapes, films and materials from 3M have been trusted by hospitals and clinics around the world for applications ranging from professional wound care dressings to device attachments and strappings.

- **Stick-to-skin:** Most 3M medical adhesives are designed to be "skin friendly" where devices are attached to patients. Our portfolio includes foam tapes; nonwoven and woven tapes; hydrocolloids; and polyurethanes.
- **Stick-to-device:** Adhesives for the construction of devices made from plastic films, foams and fabrics, including treated fabrics.
- **Bioassay compatible:** Diagnostic tapes and spacers that minimize the potential for chemical interference, as well as aid in the manufacturing and use of your device.
- **Structured materials:** Precisely-shaped, micro-replicated surface structures or channels are incorporated into substrates to provide a new, closely controlled dimension of physical, chemical and optical properties.
- **Microfluidic solutions:** Hydrophilic fluid transport technologies for fast and efficient spreading of a liquid sample through your device.
- **Membranes:** Porous films and membranes with the size and spacing of pores engineered to capture particles or to ensure that samples flow at the right rate.
- **Flexible circuits:** Flexible electronics and films help improve precision and accuracy of diagnostic devices.

From initial design through production, we put our industry expertise and broad technology portfolio to work for you – helping you bring the next generation of medical devices to life.

3M offers a variety of components that can be designed into wearable sensors for continuous health monitoring. From adhesives and electronics to drug delivery, our technologies are helping you change the way patient health is monitored outside of the hospital — while helping you improve manufacturing efficiency and the accuracy of your devices.

Trusted. Innovative. Global.

For over 50 years, 3M has been a leader in the health care industry. During that time, our advanced technologies have contributed to the creation of more than 10,000 new health care products worldwide. We supply the medical device manufacturing, design and supply industries with a carefully selected line of medical grade tapes, coatings and adhesive technologies, semi-finished components and selected bulk supplies of 3M branded products.

References

¹Per FDA 21CFR175 for plastics. Visit <http://www.fda.gov/>. The FDA does not define what constitutes “medical” grade for devices at this time. 3M Medical Materials and Technologies tests adhesive according to ISO:10993-5 & -10 for surface contact with intact skin and manufactures under medical device level cGMP conditions.

Visit our website to learn more: 3M.com/MedTech



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