

Materials Science

<https://www.jabil.com/capabilities/materials-science.html>

Materials science drives product innovation. For example, material technologists studied graphite and synthesized graphene — flat carbon, one molecule thick, and a semiconductor. Because it is astoundingly strong, flexible, and conductive, its potential uses are extraordinary, from medical diagnostics to display screens. When scientists played with graphite, they created a galaxy of product possibilities.

Jabil is at the forefront of integrating advances like these into products and manufacturing techniques.

- To make smartphones and other connected devices lighter and smaller, Jabil uses lasers to etch plastic cases for plating with metal traces. The results are powerful, invisible, lightweight antennas.
- Medical device manufacturers have long injection-molded liquid silicone rubber (LSR) because it's chemically inert, resists bacteria, and is easy to sterilize. However, manufacturing constraints had limited cost effectiveness. Jabil expertise in precision injection mold tooling and prototyping enabled developing molds optimized for high-volume production of precision LSR parts. Jabil has also integrated bio-compatible LSR into a new generation of wearable e-textiles.
- To rapidly prototype new product designs and injection molds for low-volume manufacturing, comprehensive Jabil 3D printing (additive manufacturing) capabilities include using metals, ceramics, Nylon/ABS/polylactic acid (PLA) polymers, and combinations of materials.

Making intelligent material choices — sapphire glass or clear plastic, carbon fiber or thermoplastic composite — requires a deep understanding not only of material technology, but also of manufacturing processes, resource availability, sustainability, and costs. And innovative choices bring up new mandates for testing, regulatory compliance, and quality control. Jabil has unmatched experience balancing all these factors, and that's why the world's most recognizable brands consistently partner with Jabil for end-to-end manufacturing services.