



< TYPICAL RUNNER DESIGN
MTD OPTIMIZED RUNNER >

BE A FRONT-RUNNER IN BIOABSORBABLES.

When you're designing a breakthrough bioabsorbable medical component, runner optimization may not be top of mind.

But when you're ramping up production, it should be.

If you look at the runners above, you can clearly see the size difference. The larger runner is more than 10 times bigger than the optimized version.

What does this mean? With bioabsorbable resins costing around \$5 per gram and assuming an annual volume of 100,000 parts, this equates to an annual cost savings in material waste of over \$100,000.

Runner optimization is just one area for cost savings for bioabsorbable products. It's also critical to focus on production optimization, accurate forecasting, and risk mitigation.

Working with the right partner for micromolding bioabsorbables will allow you to get to market faster, with a production process that is focused on maximizing cost-effectiveness and superior part quality.

CRITERIA FOR A SUCCESSFUL BIOABSORBABLE PROJECT

MTD believes a successful bioabsorbable micromolding project will meet the following criteria:

- premium part quality from a robust molding process window,
- less invasive devices with increased precision and capability,
- superior post-mold mechanical and functional properties,
- consistent and minimal post-mold IV loss, and
- highly capable critical dimensions.

The 6 Keys to Bioabsorbable Success

1 RUNNER OPTIMIZATION

MTD's MicroRunner tool has a ratcheting runner system that varies in diameter and aids in determining the minimum runner size required to fill the volume of your part with the goal of sizing a runner system to adequately mold a product without sacrificing material. This is extremely important for bioabsorbable materials, given that they are so expensive.



\$250K

SAVINGS ON MATERIAL
PER YEAR

2 ROBUST VALIDATION

Validating a bioabsorbable part requires more steps than a non-bioabsorbable part, but with good planning and exact execution, the timeline to get to production is far from daunting. With a collaborative approach, MTD fully documents and customizes our validation processes for each client and project. We store each part's quality score with all the process data, providing a high level of traceability for all our micro medical device parts.



100%

SUCCESS WITH
IN-HOUSE VALIDATION

3 IN-HOUSE TESTING

Many micro molders need to outsource their testing for Inherent Viscosity (IV) and Differential Scanning Calorimetry (DSC), which can add weeks or months to the project timeframe. MTD has the in-house capability for real-time, continuous testing. This allows us to monitor, optimize, and report IV loss throughout the development and validation processes of a product as well as verify post-mold IV to release every production lot to the customer.



SAVES

WEEKS

IN DEVELOPMENT PROCESS

4 MINIMAL AND CONSISTENT IV LOSS

Post-mold IV loss is dependent on the micro molder and the material. More specifically, it depends on whether the micro molder has both the equipment and expertise to work with a particular material's complexities. On-site IV and DSC testing capability enables MTD to immediately adjust the impact of process variables on these outputs, allowing for a better optimized molding process, minimal and consistent IV loss, and improved capability. One of MTD's high volume production lines has a historical post-mold IV variation of less than 2%.



<2%

POST-MOLD
IV VARIATION

5 CONTROLLED HANDLING AND PACKAGING

Storage of sensitive bioabsorbable materials and molded inventory in temperature-controlled environments is critical. Temperature is constantly monitored and logged with alert limits and all manufacturing occurs in environmentally controlled ISO Class 8 cleanrooms. We also have implemented specialized shipping procedures to control and monitor temperature for sensitive materials, whether high or low volume shipments.



100%

ENVIRONMENTAL
CONTROL

6 CUSTOMIZED, SPECIALIZED EQUIPMENT

MTD invests in very specialized micromolding equipment to control critical bioabsorbable processing factors like residence time, shear, and degradation rate of material. We further customize and optimize this equipment once it arrives to best serve the unique needs of medical micro molding. We create customized screws in-house, specialty drying media, and procedures. Nothing is off the shelf.



100%

CUSTOMIZED
EQUIPMENT

Talk to us about your micromolding needs.

1.800.998.5549

www.mtdmicromolding.com