

Conductive Pipette Tips

Formulating a Solution

PolyOne's sales, technical expertise helps lab products manufacturer enter new market

Situation

A manufacturer of high-quality laboratory research products was eager to expand into the conductive pipette tip market. Conductive pipette tips are primarily used in automated laboratory and production settings with robotic pipettors to measure and dispense exact amounts of liquid.

In this industry, precision is critical. When robotic pipettors draw liquid into pipette tips made from a conductive resin, the liquid completes a circuit and signals to the pipettor that the correct amount of liquid has been transferred. In some applications, conductivity is also needed to avoid static discharge that could give a false or inaccurate reading.

High-quality conductive pipette tips must meet a number of demanding performance criteria, including:

- Accurate measurement of minute quantities of liquid
- Hydrophobic properties to minimize fluid retention
- Concentric dimensions and warp resistance
- Excellent chemical resistance

The manufacturer asked PolyOne's product formulators for a specialized solution to meet these exacting needs in a timely and efficient manner so the company could capitalize on this market opportunity.

The PolyOne Difference

PolyOne's sales and technical professionals worked closely with the manufacturer to develop an effective solution. The first step was to fully understand the customer's needs including the demanding requirements of the end-use application, manufacturing considerations and cost.

PolyOne determined that the manufacturer required a compound with a unique combination of properties, including:

- **Processing ease** – high flow rate, ability to fill multi-cavity molds, thin-wall capabilities
- **Superior toughness** – strength and durability to ensure dimensional integrity of the part
- **Repeatable performance** – consistent conductivity for accurate measurement of liquids



The needs and input of the customer set the direction for the team as it applied extensive formulation and processing expertise to develop trial compounds and conduct field evaluations. PolyOne worked hard to understand the application requirements and to provide a material that met all of the customer's needs. The team's in-depth knowledge of compounds and processing techniques was a significant advantage in developing the right solution.

Communicating with the customer at every step, the team fine-tuned the customized compound until it provided the right balance of properties. This collaborative effort is representative of PolyOne's capabilities as a specialized solutions provider, dedicated to delivering the value-added materials, services and technologies that customers seek.

Delivering a Value-Added Solution

After a short period of thorough and rigorous development and evaluation, the team created a specialized polypropylene-based Stat-Tech™ Electrically Conductive Compound.

This specialized compound offers an outstanding balance of conductivity, flow, dimensional stability and toughness to meet the demanding physical needs of the pipette tip application. Its consistent conductivity ensures accurate pipettor readings and prevents static discharge. The resulting compound is also durable and offers high-flow characteristics and part-to-part consistency. When molded, the pipette tips tend to have less flash, and thus improved appearance, greater accuracy and less scrap.

PolyOne's willingness to invest the time and resources needed to ensure success enabled the customer to quickly and efficiently enter the conductive pipette tip market with a competitive, high-quality product. In addition, PolyOne's polymer and compounding expertise assured the customer that its product would meet the demanding physical and manufacturing requirements of the application.

Contact your PolyOne representative to learn how a customized solution can benefit you.

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