



Technical Brief

Specialty Compounds for PIPETTES

Customized Thermoplastic Solutions

Benefits

- ▶ Low liquid retention
- ▶ Precise pipette dose
- ▶ Hydrophobic material
- ▶ Consistent conductivity
- ▶ High flow, easy molding
- ▶ Low flash
- ▶ Low odor
- ▶ Global supply

Markets

- ▶ In vitro diagnostics
- ▶ Bioprocessing
- ▶ Genetic engineering
- ▶ Biotechnology
- ▶ Electronics

Applications

- ▶ Pipettes
- ▶ Automated liquid handling systems
- ▶ Micro wells
- ▶ Microtiters
- ▶ Plates
- ▶ Electronic packaging

Pipette Improvements

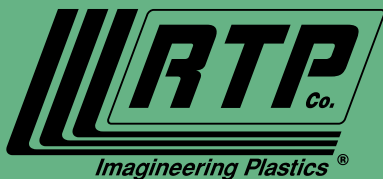
Automated liquid handling companies are upgrading their specifications in order to design pipettes that dose the exact amounts. RTP Company has developed thermoplastic products that are high-flow and have consistent conductivity and high liquid release capabilities.

Concentricity, straightness, length and the ability to form a good seal are essential physical properties that facilitate flawless pipetting in automated systems. RTP Company has conducted extensive design of experiments (DOE) on compounds for the pipette market. As a result, we have developed “best-in-class” conductive plastic compounds designed specifically for applications requiring inherently hydrophobic materials. These compounds flow into long, thin-wall sections and exhibit excellent conductivity on the pin-point tips and fingers of the pipette proboscis.

Hydrophobic for Low Liquid Retention (Release Properties)

The ability of the conductive pipette tip to fully release the liquids that it transports is directly related to the surface energy of the material. The more hydrophobic the material (lower surface energy), the more a given liquid will bead up and release off the surface. The RTP 100 Series polypropylene compounds developed for this application have been tested by an independent laboratory and demonstrated a 15% improvement in release properties over standard polypropylene. This property greatly improves the consistency and accuracy in dose amounts and also reduces cross contamination from liquid retention on the outside of the tip.





Specialty Compounds for

PIPETTES

Tip Sensing Enhancements (conductivity)

RTP Company's pipetting compounds have a surface resistivity of 10^4 ohm/sq and volume resistivity of less than 25 ohm/cm. This conductivity has shown to remain consistent throughout the length of the tip. Processors will see this consistency from box-to-box and lot-to-lot.

High Flow Improves Cycle Time

High flow rates are important in enabling the filling of new tips that incorporate very tiny fingers to sense the liquid level. At 20 g/10 minutes, RTP Company's pipette compounds have higher melt flows than currently available materials.

RTP Company's high-flow compounds easily fill the tips in the most demanding applications without creating flash. One example where this has been accomplished is in the long thin walls of the 1000 μ l pipettes. The

RTP 100 Series Polypropylene Compound will make going from an 8 cavity tool to 16 or 32 an easy transition. An additional benefit from the exceptional flow is the potential improvement in cycle time to reduce processing cost.

Reduce Your Down Time

No excessive clean-up of the molds are required when using these clean molding compounds.

Low or No Odor

RTP Company's pipette compounds are formulated using different raw materials that do not generate odors. Competitive products may emit foul odors that are especially noticeable in a sterile lab environment.

Global Availability

The IVD market is global and so is RTP Company. We have the ability to supply consistent global formulations and excellent product availability.

Select Properties Comparison

Physical Property	RTP 199 X Series	Competitor A	Competitor B
Melt Flow g/10 min	20	3	14
Tensile Strength (psi)	3000	3000	3600
Notched Izod Impact (ft-lb/in)	2.6	3.5	1.7
Volume Resistivity (ohm/cm)	<25	100-10,000	<100
Release Properties	Excellent	No Data	No Data

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