



Measuring the tiny volumes that our Differential Pipettor can handle, both with our preferred contact-free dispense and with conventional touchoff.

SCIENCE 2

Donald Schwartz, M.D., President

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Our Differential Pipettor™ aspirates extremely precisely and accurately in its differential mode from 20µL down to 200 nanoliters. It routinely dispenses this volume range cleanly contact-free, but it can also dispense by conventional touchoff. The Artel PCS® dual dye ratiometric photometry vial is designed to fully capture liquid that is touched-off to it, but it can also receive samples directly. This combination of powerful pipetting and measurement systems has let us explore and validate very low true here-to-there pipetting transfers. We also use weighing, but we find the Artel PCS is easier to use and more discriminating for the smallest volumes, and it also gets around many evaporation challenges. The clean contact-free delivery is powered by our non-differential “Single” mode, which delivers flow power that lets the sample breakaway from the very tip at the desired Tip Escape Velocity (TEVIA factor™).



Contact-free
(Blastoff /Plopoff)
Differential Pipetting



Contact-free dispensing to the PCS vial is done cleanly from a convenient height, and the tip does not need to be placed at any precise distance or angle.



Touchoff-and-drag
Conventional pipetting



Touchoff-and-drag dispensing to the PCS vial is done in the standard Artel manner by touching the tip to the inside wall and dragging it up while dispensing. The PCS mixing will capture all the liquid on the wall.



Aspiration is done in the fine Differential Mode, which has an unsurpassed excursion stroke through rugged seals.

A fast TEVIA or Blastoff™, such as 4-5 meters/second, lets a sample cleanly penetrate the surface of a receiving liquid. A slow TEVIA or Plopoff™, such as 1.5 - 2 meters/second, lets a sample break gently free from the tip and plop serenely down onto some firm surface target -- without damaging DNA strings or other fragile elements. The desired speed comes intuitively from user hand and eye.

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Differential Pipetting, Inc 11 Dory Road, Blackburn Industrial Park, Gloucester, Mass 01930 USA
www.DifferentialPipetting.com Science@DifferentialPipetting.com (978) 515-3392