Pipetting per brand

Improve pipetting performance with pipette systems:

Finnpipette F2 pipettes and Finntip Flex pipette tips

Author: Research Group Thermo Fisher Scientific Oy, Vantaa, Finland



DOMINIQUE DUTSCHER SAS

Introduction

In this application note we test the pipetting performance of Thermo Scientific™ Finnpipette™ F2 manual pipettes with Thermo Scientific™ Finntip™ Flex tips at small volumes. We compared the pipetting results received with the Thermo Scientific pipetting system to results obtained with universal tips from other manufacturers.

The Finnpipette F2 product family has been designed to meet the demanding requirements of today's laboratory work. It offers robust and durable performance for heavy-duty applications as well as easy and efficient decontamination to guarantee sample purity and minimize contamination risks.

Finntip pipette tips are designed, developed and manufactured to ensure a perfect fit with Thermo Scientific Finnpipettes. Combining these two elements together form a complete, optimized pipetting system that brings advantages in both pipetting ergonomics and accuracy.

Finntip Flex tips are especially designed to enhance pipetting ergonomics. With its thin and flexible tip walls and special rack design, the tip attachment and ejection forces for Finntip Flex tips are minimized. In addition, all Finntip Flex tips are molded with diamond polished tooling to give an extra smooth tip surface and improved tip transparency. The smooth tip wall surface prevents liquid retention, providing better pipetting precision than with non-polished tips. The increased precision is most beneficial with small-volume pipetting where precision values can be improved remarkably.

Materials and Methods

- **Test pipette:** Finnpipette F2 1-10 µl
- **Test tips:** Finntip Flex 10 and for comparison universal 10 µl pipette tips from different tip manufacturers
- **Test liquid:** water

Five pipetting sequences of ten dispenses were performed with 1 µl and 10 µl test volumes using forward pipetting technique. The test conditions corresponded to the demands of EN ISO 8655 standard.

Results and Discussion

The pipetting results of Finnpipette F2 1-10 µl with Finntip Flex 10 are displayed in Figures 1 and 2. The figures show that both with 1 µl and with 10 µl, the dispensed volumes stayed within a narrow range and were easily within the specification limits of the pipette. These results indicate that Finnpipette F2 in combination with Finntip Flex forms an optimized pipetting system.

We also used universal pipette tips with Finnpipette F2. Figure 3 shows the imprecision results at 1 µl volume where the differences were most clear. The Finnpipette together with the Finntip performed better than with any of the universal tips. Even though all tested tips fit the pipette well, it was not a guarantee for optimal pipetting results. It is important to remember that the pipette specifications are only valid for tips specified by the pipette manufacturer.

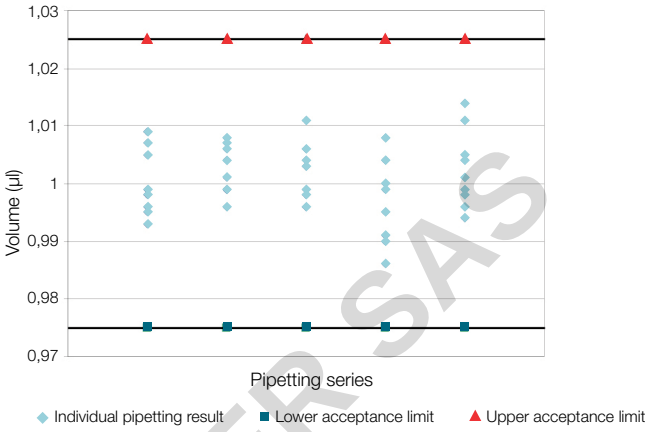


Figure 1. Pipetting results for water at 1 µl volume using Finnpipette F2 and Finntip Flex 10. The lower and upper acceptance limits are the inaccuracy specifications for the pipette model.

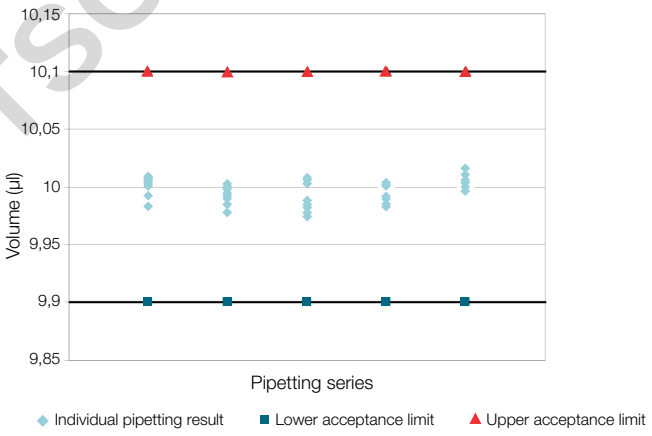


Figure 2. Pipetting results for water at 10 µl volume using Finnpipette F2 and Finntip Flex 10. The lower and upper acceptance limits are the inaccuracy specifications for the pipette model.

Conclusion

In this application note we showed the improved pipetting performance of the Finnpipette F2 and compatible Finntip Flex tip. When using a pipetting system where a pipette and a tip have been designed together, optimal pipetting performance can be ensured. The precision with these tips was better than with any of the tested universal tips from other manufacturers.

Inaccuracy (systematic error)

Inaccuracy is the difference between the dispensed volume and the selected volume of a pipette.

Imprecision (random error)

Imprecision refers to the repeatability of the pipettings.

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