RUDOLPH RESEARCH ANALYTICAL

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Versatile Instrument Combinations to Fit Your Application

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Combined Density / Refractive Index Instruments

Some applications require both refractive index and density measurements on the same sample and find a combined instrument is a convenient alternative to two completely separate instruments. The advantages of a combined system are:

- A shared interface reduces the overall cost of the system.
- There may be less operator time needed to load and clean when the samples are low viscosity.
- Many laboratories combine the density and refractive index results and use them to calculate a third parameter. Having both results exported into the same file keeps all the results in one place.

Instrument Configurations

1. BASIC CONFIGURATION: DENSITY METER AND REFRACTOMETER OPTICS MODULE

DESCRIPTION

This configuration combines the optical module from a Rudolph J457 Series Refractometer with DDM Series Density Meter. The user loads and cleans each measurement system exactly the same way they do with two separate instruments, but the refractometer shares the density meter interface.

WHO SHOULD CONSIDER THIS SYSTEM?

- Laboratories with sample volumes of 2ml or less.
- Smaller laboratories that have high viscosity samples like creams and resins.
- Laboratories that want to combine density results with refractive index results and calculate a third parameter from them.
- Laboratories with viscous samples that do not flow easily.

2. FLOW THROUGH CONFIGURATION: DENSITY METER AND REFRACTOMETER OPTICS MODULE WITH MANUAL SAMPLE INJECTION

DESCRIPTION

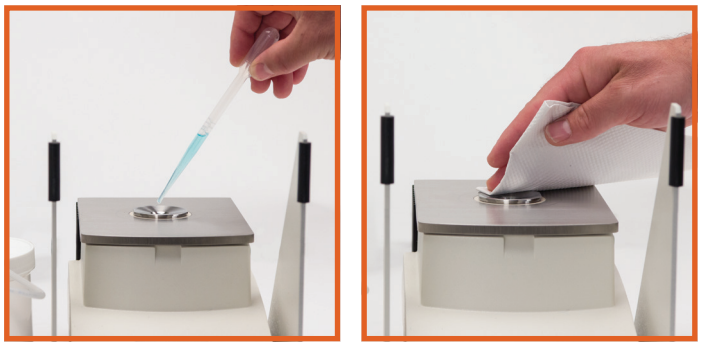
This system is similar to the basic configuration but uses the DP (Dual Purpose) optics module to allow a single load between the Refractometer and Density Meter. Utilizing a syringe users can load both instruments simultaneously (see Figure A) or remove the DP Presser Cover and use both instruments in manual mode with two separate sample loads (see Figure B).

FIGURE A

SAMPLE INJECTION AND CLEANING IN SYRINGE MODE

FIGURE B

SAMPLE LOADING AND CLEANING IN MANUAL MODE



WHO SHOULD CONSIDER THIS SYSTEM?

- Laboratories that plan on adding Automation or Pumping Systems in the future. With the DP (Dual Purpose) Presser Cover and stand removed, this system can be used exactly like the Basic Configuration. With the DP Presser Cover and Stand in place, the system is ready to be attached to an automatic loading and cleaning system.
- Laboratories that want to integrate with an external sampling system like an off stream from a pilot plant reactor.
- Laboratories measuring highly evaporative samples like hydronated ethers.

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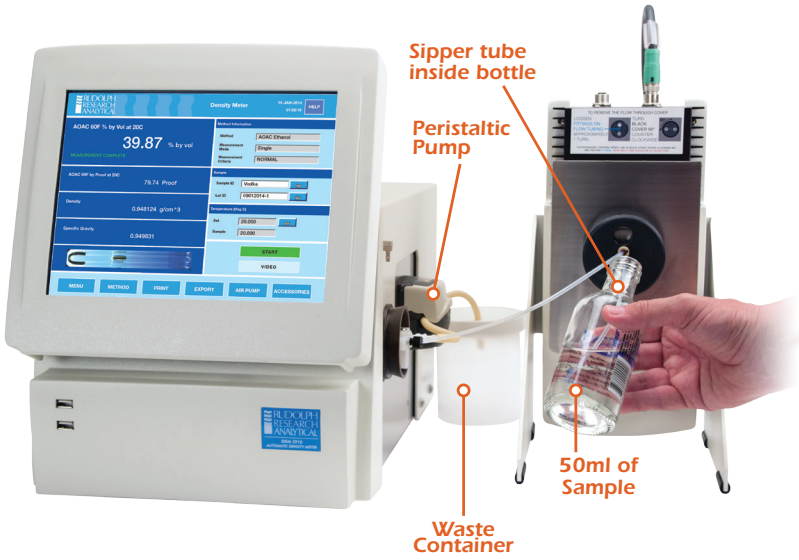
3. FLOW THROUGH CONFIGURATION WITH PERI PUMP: DENSITY METER, REFRACTOMETER OPTICS MODULE WITH PERISTALTIC PUMP SAMPLING SYSTEM

DESCRIPTION

A Peristaltic Pump draws the sample into both the Refractometer and Density Meter. The user drops a sipper tube into the sample and starts the Peri Pump from the display. The Peristaltic Pump draws the sample through both instruments and then measures. The measured sample is then displaced by the following sample.



WHO SHOULD CONSIDER THIS SYSTEM?

- Laboratories working with low viscosity samples such as beverages.
- Users who don't mind utilizing 50ml of sample for a measurement. A large amount of sample is needed to ensure all of the previous sample is displaced with the new sample.

4. FLOW THROUGH CONFIGURATION WITH ECS: DENSITY METER, REFRACTOMETER OPTICS MODULE WITH A RUDOLPH EASY CLEAN SAMPLING SYSTEM

DESCRIPTION

This configuration is the most versatile. The user loads the sample in a similar way to the peristaltic pump system but after measurement the instrument disposes of the sample to waste, rinses with two solvents and then dries with air from the built in pump.

WHO SHOULD CONSIDER THIS SYSTEM?

- Users who want the ease of automated loading and cleaning.
- Users with samples that have too high a viscosity to be pumped with a peristaltic pump.
- Users who have a significant amount of samples but not enough to require full automation.