

New innovations in sample handling from Rudolph Research.

TECHNICAL BULLETIN 943

AutoFill™ Sample Handling



The Rudolph Fill Station™

United States of America
National Institute of Standards and Technology

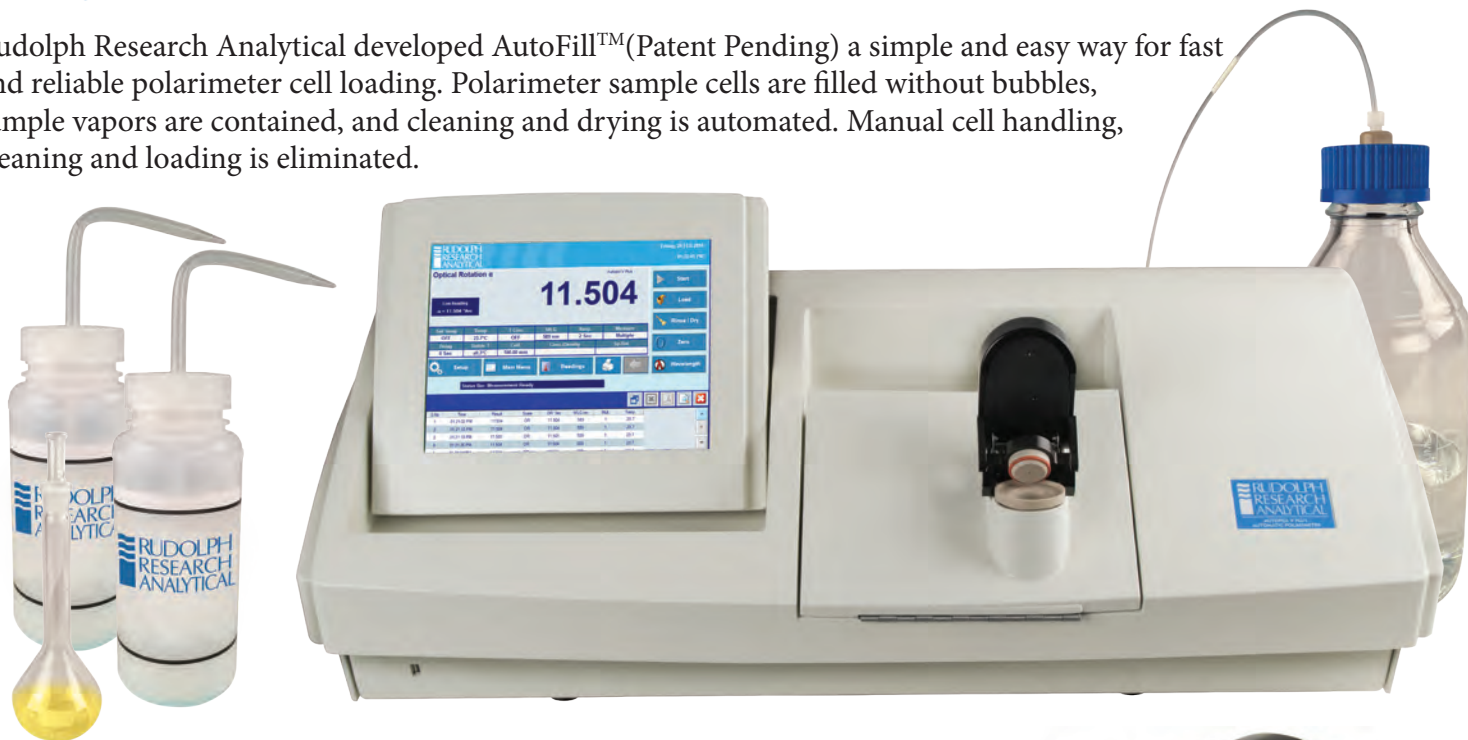


NVLAP LAB CODE: 200898-0
Accreditation to ISO/IEC 17025:2005

Introducing the Rudolph Research Analytical AutoFill™ (Patent Pending)

Filling a Polarimeter Cell has never been easier.

Rudolph Research Analytical developed AutoFill™ (Patent Pending) a simple and easy way for fast and reliable polarimeter cell loading. Polarimeter sample cells are filled without bubbles, sample vapors are contained, and cleaning and drying is automated. Manual cell handling, cleaning and loading is eliminated.



Simple operation engineered better for perfect fills every time.

Operation is as simple as opening the AutoFill™ chamber, pouring in your sample, closing the lid and pressing start. The sample will be advanced into the Polarimeter cell and stopped once full. The cell is now loaded and the measurement will automatically begin. When the measurement is complete the operator is prompted to open the AutoFill™ chamber and add a solvent. The AutoFill™ lid is closed and the solution is flushed through the cell to waste. Air drying will automatically begin and end. You are now ready for your next measurement.

The AutoFill™ saves you time.

- No need to inject samples with syringes. Samples are easily poured in the AutoFill™ sample well.
- Eliminate contact with acids and bases.
- The correct amount of cleaning solvents are used for each cleaning.
- Air dry is run for the correct amount of time to fully dry the cell.
- Cleaning is made effortless.

Perfect for labs where analysts have no time for cell loading and cleaning, but not enough samples to justify full automation

- Measurements are made without manual injection.
- Cleaning is faster and drying is automated.



Perfect for working with acids, highly evaporative and difficult samples.

- Sample is easily poured into the large AutoFill™ sample chamber.
- All wetted parts are made to stand up against the most aggressive samples including 6 Molar HCl
- All Materials are Teflon, Peek, and Kalrez®.
- You may choose to clean with a single solvent or a combination of solvents.

Sample loading and cleaning time is reduced.

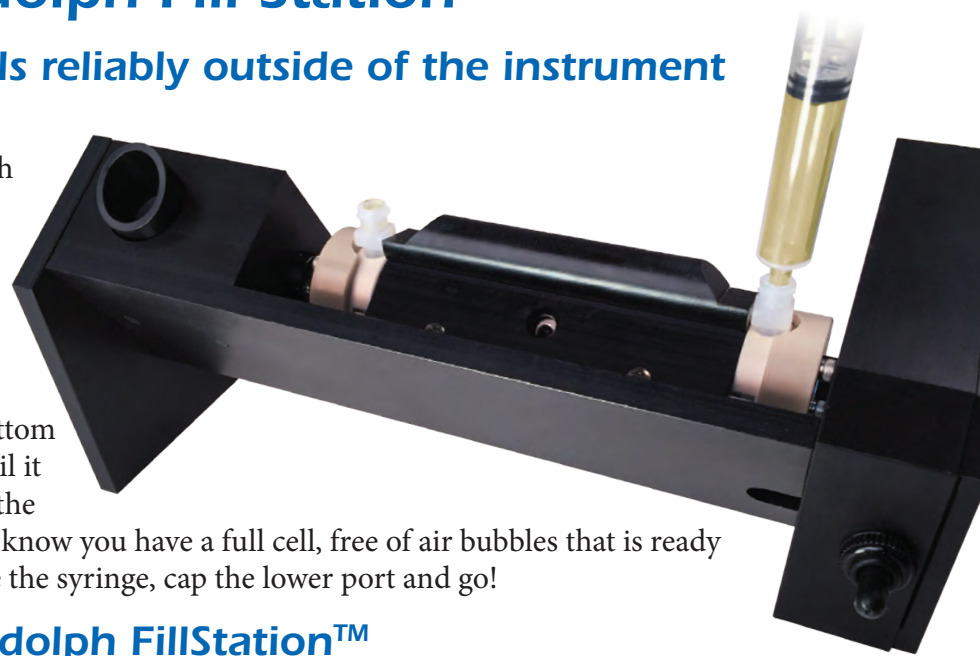
- The cell is never manually handled, loaded, rinsed or dried.
- The cleaning and drying process is straight forward and virtually eliminated.
- A perfect cell load is guaranteed everytime with Rudolph's exclusive Optical Rotation Homogeneity Inspection Solution.



The Rudolph Fill Station™

Fill Rudolph Polarimeter Cells reliably outside of the instrument

Many users prefer to load cells with samples outside of the Polarimeter. When this fits with your work flow, Rudolph has engineered a tool to assist you, the Rudolph Polarimeter FillStation™. Designed to sit on your laboratory bench and assist you in loading your Rudolph Polarimeter cell easily and reliably. The FillStation™ holds the cell at the right angle so you always fill the cell from bottom to top. Using a syringe, you inject sample until it begins to appear at the top port. Once filled, the monitoring light will become bright and you know you have a full cell, free of air bubbles that is ready for a measurement. Cap the top port, remove the syringe, cap the lower port and go!



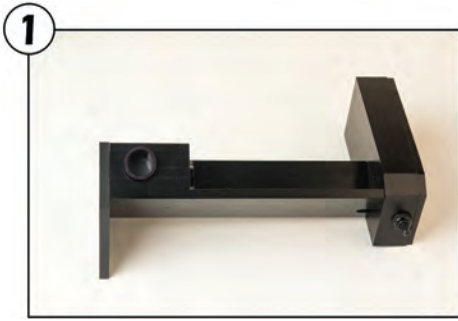
Advantages of using the Rudolph FillStation™

- The cell is held at the right angle and filled from the bottom just the way Rudolph cells were designed to be filled. Perfect every time.
- Filling from the bottom to top moves any air with the potential to cause a bubble up and out of the cell.
- Once you see the monitoring light go to bright there is no question that the cell is properly filled.
- Verification of air free sample loading for even inexperienced operators.
- Helps eliminate contact with acids, bases, or any sample the user does not want to come in contact with.
- Less experienced operators can learn to reliably fill cells with minimal training.

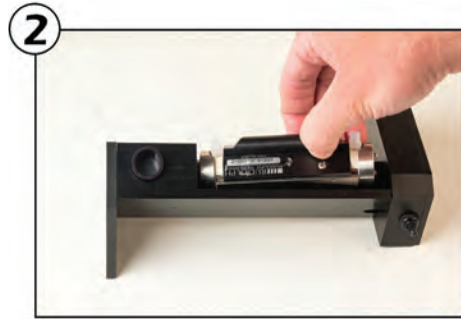
The AutoFill™ (Patent Pending) is available as an option on 2016, Autopol V Plus and Autopol VI Polarimeters
The FillStation™ is included standard with all Rudolph Autopol V, V PLUS, and VI Polarimeters.

How to use the FillStation™

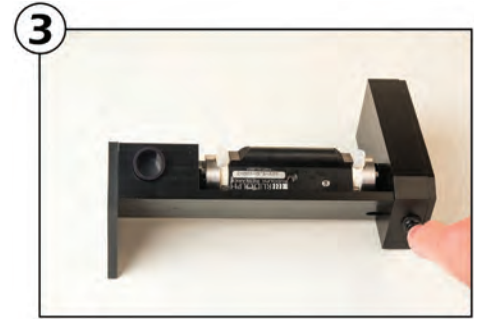
For users who prefer not to hold the cell while working with highly acidic or basic samples, the Rudolph Cell FillStation™ is simple and easy to use just follow the steps below:



By design, the FillStation™ will hold the cell at a suitable angle.



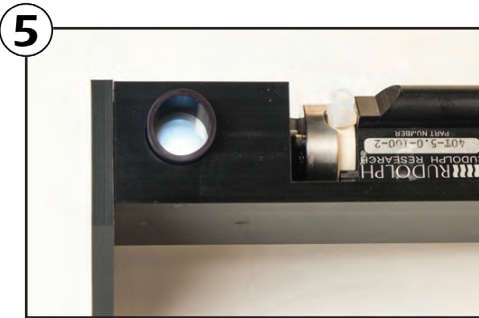
Place a 2.5mm or 5.0mm bore Polarimeter cell into the Rudolph FillStation™.



Turn the FillStation™ light on. The light will turn off automatically after a few minutes.



Make sure the cell is always clean and dry. Use compressed air and acetone for this process. Fill the cell from the lower inlet port with a Luer Syringe only. As the cell becomes filled and sample begins to appear at the upper inlet, cap off the upper then lower inlet port. Your cell is now filled and air bubble free.



The FillStation™ creates a light image that will go from darker to bright white circle when the cell is filled and air-bubble free. A bubble free cell shows a illuminated white circle as shown on the right.



Please Note:

Filling a Rudolph Polarimeter cell is easy and you can be assured of an air bubble free sample cell. It is important to note that when using highly acidic or basic solutions samples the cell should not be filled in the Polarimeter, doing so may allow spillage into the instrument which over time may damage the instrument.

The Rudolph Polarimeter Cell FillStation™ accessory is available for all Rudolph Autopol Polarimeters and included free of charge with Autopol V, Autopol VI PLUS, and Autopol VI Polarimeter Models.

How to fill cells manually

Designed for syringe loading

Rudolph Research Polarimeter Sample Cells are designed to be easily filled and cleaned with a Luer syringe.

When held at the correct angle and filled using the lower inlet port, the cell is filled with almost no possibility of leaving an air bubble in the cell. Filling from the lower inlet port forces any air bubbles up and out of the upper outlet port.

Rudolph cells are unlike other manufactures cells as they are uniquely designed to keep small air bubbles out of the light path. Filling the cell is as simple as holding the cell at a slight upward angle and filling from the bottom inlet using a Luer Syringe. When the sample appears near the top outlet port, simply place the Luer cap on the upper port and then lower port. Your cell is now filled, capped and air bubble free. Cells must be clean and dry to ensure proper filling with minimum sample.

