AccuPore CFP®

Capillary Flow Porometer

micromeritics®

Operator Manual

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Rev A

micromeritics®

TRADEMARKS

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Copyright

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WARRANTY

MICROMERITICS INSTRUMENT CORPORATION warrants for one year from the date of shipment each instrument it manufactures to be free from defects in material and workmanship impairing its usefulness under normal use and service conditions except as noted herein.

Our liability under this warranty is limited to repair, servicing and adjustment, free of charge at our plant, of any instrument or defective parts when returned prepaid to us and which our examination discloses to have been defective. The purchaser is responsible for all transportation charges involving the shipment of materials for warranty repairs. Failure of any instrument or product due to operator error, improper installation, unauthorized repair or alteration, failure of utilities, or environmental contamination will not constitute a warranty claim. The materials of construction used in MICROMERITICS instruments and other products were chosen after extensive testing and experience for their reliability and durability. However, these materials cannot be totally guaranteed against wear and/or decomposition by chemical action (corrosion) as a result of normal use.

Repair parts are warranted to be free from defects in material and workmanship for 90 days from the date of shipment.

No instrument or product shall be returned to MICROMERITICS prior to notification of alleged defect and authorization to return the instrument or product. All repairs or replacements are made subject to factory inspection of returned parts.

MICROMERITICS shall be released from all obligations under its warranty in the event repairs or modifications are made by persons other than its own authorized service personnel unless such work is authorized in writing by MICROMERITICS.

The obligations of this warranty will be limited under the following conditions:

1. Certain products sold by MICROMERITICS are the products of reputable manufacturers, sold under their respective brand names or trade names. We, therefore, make no express or implied warranty as to such products. We shall use our best efforts to obtain from the manufacturer, in accordance with his customary practice, the repair or replacement of such of his products that may prove defective in workmanship or materials. Service charges made by such manufacturer are the responsibility of the ultimate purchaser. This states our entire liability in respect to such products, except as an authorized person of MICROMERITICS may otherwise agree to in writing.
2. If an instrument or product is found defective during the warranty period, replacement parts may, at the discretion of MICROMERITICS, be sent to be installed by the purchaser, e.g., printed circuit boards, check valves, seals, etc.
3. Expendable items, e.g., sample tubes, detector source lamps, indicator lamps, fuses, valve plugs (rotor) and stems, seals and O-rings, ferrules, etc., are excluded from this warranty except for manufacturing defects. Such items which perform satisfactorily during the first 45 days after the date of shipment are assumed to be free of manufacturing defects.

Purchaser agrees to hold MICROMERITICS harmless from any patent infringement action brought against MICROMERITICS if, at the request of the purchaser, MICROMERITICS modifies a standard product or manufactures a special product to the purchaser's specifications.

MICROMERITICS shall not be liable for consequential or other type damages resulting from the use of any of its products other than the liability stated above. This warranty is in lieu of all other warranties, express or implied, including but not limited to, the implied warranties of merchantability or fitness for use.

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Micromeritics is the global leader in analytical instrumentation for the physical characterization of particles, powders, and porous materials. Our advanced technologies provide precise measurement of density, surface area, porosity, activity, and powder flow, supporting research, product development, and quality control. Serving industries like materials science, chemicals, energy, and natural resources, our instruments enable critical advancements in fields such as battery materials, hydrogen economy, and carbon capture. Founded in 1962, Micromeritics operates globally with over 15,000 instruments in daily use, delivering expert support and cutting-edge solutions from our U.S. headquarters and international locations.For more information, please visit www.micromeritics.com.

PATENTS

For patent information, visit www.Micromeritics.com/patents.

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ABOUT THIS MANUAL

The following symbols or icons indicate safety precautions and/or supplemental information and may appear in this manual:

NOTE — Notes contain important information applicable to the topic.

CAUTION — Cautions contain information to help prevent actions that may damage the instrument or components.

WARNING — Warnings contain information to help prevent actions that may cause personal injury.

GENERAL SAFETY

Do not service or modify this instrument without authorization from Micromeritics Service Personnel. It does not include any user-serviceable parts.

Any piece of laboratory equipment can become dangerous to personnel when improperly operated or poorly maintained. All personnel operating and maintaining Micromeritics instruments should be familiar with its operation and should be thoroughly trained and instructed on safety.

- Read the operator manual for any special operational instructions for the instrument.
- Know how the instrument functions and understand the operating processes.

- Wear the appropriate personal protective equipment when operating this instrument — such as eye protection, lab coat, protective gloves, etc.
- When lifting or relocating the instrument, use appropriate lifting and transporting devices designed for heavy equipment. Ensure that enough personnel are available to assist with the movement of the instrument.

  The AccuPore CFP weighs approximately 41.5kg (92 lb).
- Always pay attention to the safety instructions provided on each label affixed to the instrument and do not alter or remove the labels. When inspecting the instrument, ensure that the safety labels have not become worn or damaged.
- Proper maintenance is critical to personnel safety and smooth instrument operation and performance. Instruments require regular maintenance to help promote safety, provide an optimum end test result, and prevent costly down time. Failure to practice proper maintenance procedures can lead to unsafe conditions and shorten the life of the instrument.
- Improper handling, disposal, or transportation of potentially hazardous materials can result in serious injury or damage to the instrument. Always consult the SDS when working with hazardous substances. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

HANDLING OF HIGH PRESSURE AND GAS CYLINDERS

- Ensure the cylinder is placed in a permanent location where it can be securely attached using a cylinder restraint (such as a wall- or floor-mounted bracket).
- Do not attach the cylinder to a movable object, such as a rolling workbench.
- Transporting a cylinder must be done using the proper equipment, such as a gas cylinder transfer cart. Ensure that the cylinder is securely strapped in an upright position to prevent it from falling over or rolling around during transport.

SOLVENTS/WETTING LIQUIDS

- Flammable solvents can only be used in the determination of bubble point. They should not be used beyond bubble point when gas begins to flow through the sample membrane.
- Alcohol can be used as a wetting liquid for determination of bubble point. Consult the Safety Data Sheet (SDS) for wetting liquids.
- The flammable solvent and membrane must be removed at the completion of the experiment.
- Do not leave flammable solvents in the chamber when not in use.
- Ensure adequate ventilation when using solvents.

VENTILATION

Either air or nitrogen can be used, however, air is recommended.

Proper ventilation is required for both flammable vapors (from use of alcohols as wetting fluid) or when using nitrogen instead of air.

O_2 monitoring may be required if using nitrogen instead of air. When using nitrogen, refer to the OSHA requirement or your local regulations for O_2 monitoring.

ASPHYXIATION HAZARD

Air is recommended. Refer to Ventilation requirements if using nitrogen.

INTENDED USE

The **AccuPore CFP** is an easy-to-use, accurate system for determination of through-pore size and distribution of filters, membranes, and sheet goods. This high-accuracy system delivers reliable through-pore size and distribution measurements by minimizing internal pressure-drop and providing the most accurate measurement of pressure and gas flow rate through the sample. The automated system is quick to use and easy to learn with an intuitive touchscreen interface for method definition analysis and data reporting. Innovative gas switching reduces overall cost of operation and ownership by intelligently switching between gas sources during experiments.

The instrument is intended to be operated by trained personnel familiar with the proper operation of the equipment as recommended by the manufacturer as well as relevant hazards involved and measures for hazard prevention. Other than what is described in this manual, all use is seen as unintended use and can cause a safety hazard.

The instrument is intended to be used as per applicable local and national regulations.

ENVIRONMENTALLY FRIENDLY USE PERIOD

Hazardous Substances Table

Part Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Cover	o	o	o	o	o	o
Power Supplies	o	o	o	o	o	o
Printed Circuit Boards	o	o	o	o	o	o
Cables, Connectors & Transducers	x	o	o	o	o	o

o Hazardous substance is below the specified limits as described in SJ/T11363-2006.

x Hazardous substance is above the specified limits as described in SJ/T11363-2006.

SYMBOLS THAT MAY APPEAR ON THE INSTRUMENT

The following symbols or icons indicate safety precautions and/or supplemental information and may appear on your instrument:

When working on the instrument where this symbol is displayed, refer to the Operator Manual for additional information.

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Table of Contents

1 ABOUT THE ACCUPORE CFP

Capillary Flow Porometry (CFP) is a fast, reliable method to determine the size and relative abundance of throughpores in sheets and membranes. This pressure-based technique measures the minimum diameter of a pore, averaging over a significant test area, without the need for model-fitting or image processing.

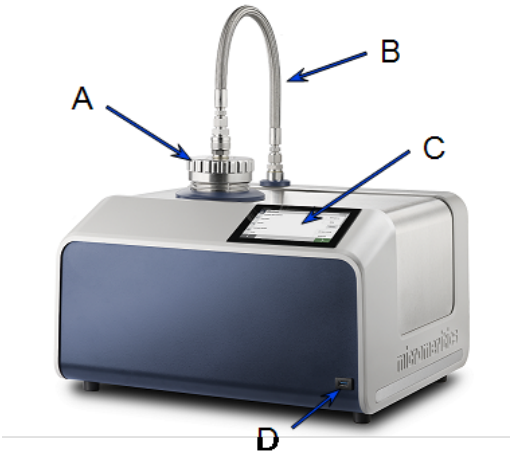
A sample is prepared by wetting the sample with a special fluid that fills every pore. Gas is applied to force the wetting fluid from the pores. Larger pores open at lower pressure. Increasing pressure opens more, smaller pores, increasing gas flow rate through the sample. After all pores are opened and all of the wetting fluid has been expelled from the sample, flow across the un-wetted dry film is measured.

Key features include the determination of the largest pore (also known as bubblepoint) which is the lowest pressure at which flow begins, the medium pore size (this is the intersection of the Wet curve with Dry curve divided by two), and smallest pore (intersection of the Wet and Dry curve at high pressure). The Flow and Pressure data is further processed to show the continuous distribution of the cumulative flow and the differential pore size, revealing the overall structure of pores in the sample. The cumulative flow shows relative sample permeability as a function of pressure, while the measured Flow as a function of pressure provides information on overall permeability of the sample.

Other features include exclusive pressure ramp and step capability, detailed pore distribution without curve fitting, and better measurement with the SmartFlow system, which provides precision control for porosimetry in either pressure ramp or step modes.

INSTRUMENT COMPONENTS

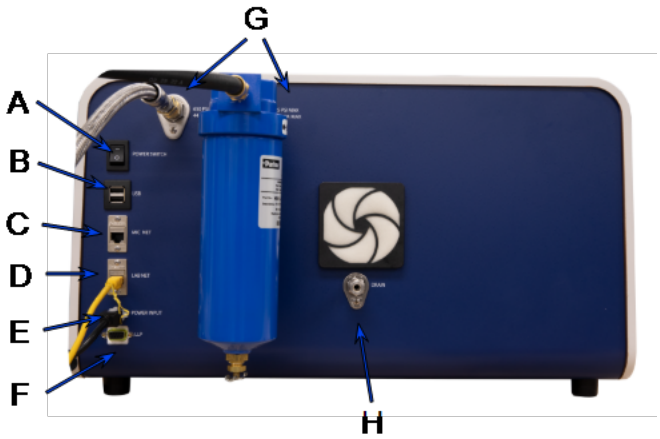
FRONT COMPONENTS



Front Components

Component		Description
A	Sample Chamber Cap	Unscrew to insert or remove sample material.
B	Hose	Affixed to cap and allows for movement of cap while keeping it attached to the instrument.
C	Touchscreen	Provides access to all software functionality.
D	USB Port	Allows exporting data to a USB drive, or connects a keyboard or other USB peripheral device.

BACK COMPONENTS



Back Components

Component		Description
A	Power Switch	Powers the instrument on and off.
B	USB Port	Connects the instrument to a network, imports/exports data, or updates software. The USB ports on the front and back can be used inter-changeably.
C	MIC NET	Connects to a network, local computers or other AccuPores.The MIC NET is used to connect the instrument to other AccuPores for sharing records, methods and presets.
D	LAB NET	Connects to a network, local computers or other AccuPores. The LAB NET is used to connect the instrument to a network or local computer.
E	Power Input	Connects the instrument to the power supply adapter.
F	LLP	Future Use.
G	Gas Ports	Attaches the high-pressure and low-pressure analysis gas supplies.
H	Drain	Dispenses surplus wetting fluid. The instrument has a 1/4" swagelok, and can accept any 1/4" tubing, which can be attached to the drain con-nection to carry the wetting fluid to a suitable waste container.

GAS REQUIREMENTS

Improper handling, disposal, or transportation of potentially hazardous materials can result in serious injury or damage to the instrument. Always consult the SDS when working with hazardous substances. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

Toxic, corrosive, flammable, poisonous, or injurious gases should not be used with this instrument.

The **AccuPore CFP** uses clean, dry air or nitrogen for analyses.

Two gas inlets are provided on the back of the instrument, one for 100 psig (690 kPag), and one for 500 psig (3450 kPag). Each gas source can be either an air compressor or bottled gas. Attach the supplied filters for the low-pressure input. The supplied air filter both filters & dries the gas (and includes a drain).

The low-pressure source and regulator must be capable of supplying up to 200 slpm (7 cfpm). A high-quality compressor is recommended to avoid frequent gas cylinder replacement. When using a compressor, the gas supply pressure must be at least 5 psig (35 kPag) greater than regulator setting to avoid fluctuations in input pressure.

The low-pressure input requires 85 psig (590 kPag) to drive the pneumatic valves and the internal high-pressure regulator. Do not exceed 125 psig (860 kPag). Inspect the low-pressure side filter regularly, and drain any collected liquid regularly. Replace the filter elements if it becomes clogged or contaminated.

The recommended high-pressure source pressure is 550 psig (3790 kPag). Do not exceed 650 psig (4480 kPag). The high-pressure input is usually supplied by a compressed gas cyclinder. However, if you routinely test high permeability, ≤ 0.1 µm pore samples, high-pressure air compressors are available.

SPECIFICATIONS

Environment

Temperature	10 °C to 35 °C (50 °F to 95 °F), operating 0 °C to 50 °C (32 °F to 122 °F), non-operating Maximum rate of change of 2 °C per hour
Humidity	20% to 80% relative, non-condensing
Indoor or Outdoor use	Indoor only (not suitable for wet locations) Altitude: 2000 m max (6500 ft) Pollution degree of the intended environment: 2
Location	Instrument should be located in a dust-free, vibration free environment, away from exposure to direct sunlight and direct air drafts.
Degree of Ingress Protection	IPX0

Physical

Height	635 mm (25 in)
Width	560 mm (22 in)
Depth	510 mm (20.1 in)
Weight	41.5kg (92 lb)

Electrical

Voltage	Input: 100-240 VAC (± 10%), 345 VA Output: 24 V, 11.7A (280 W) Overvoltage Category II	
Power	280 W	
Frequency	50-60 Hz	
External Power Adapter	Manufacturer: Part Number	Mean Well GST280A24-C6P

Gases

Gas Supply Low Pressure	Minimum of 85 psig (590 kPag) Maximum of 125 psig (860 kPag) Typically supplied by air compressor
Gas Supply High Pressure	Minimum of 60 psig (410 kPag) Maximum of 500-650 psig (3800-4480 kPag) Typically supplied by air tank  When measuring pore sizes larger than ~0.1um (~100 psig/690 kPag), then it is acceptable to run without gas input to the high-pressure side.
Gas Type	Dry air from compressor or gas cylinder. Clean/dry nitrogen (e.g., from LN_2 boil-off) can also be used.
Gas Cleanliness	■ Particles: Up to 10 particles of 1 to 5 µm per cubic meter of compressed air. ■ Water: Dewpoint -20 °C or lower ■ Oil: ≤ 0.01 mg of oil per cubic meter of compressed air. If using an air compressor, it should be capable of supplying at least 200 slpm (7 cfpm) continuously at a pressure at least 5 psig (35 kPag) above the working pressure. Normally, this requires a minimum 5 HP (3.7 kW) compressor.
Flow Rate	0 - 200 L/min
Pore Size Range	0.013 µm to 500 µm
Sample Size	Supported sample diameters are 13 mm, 25 mm, 47 mm. Standard sample tray supports samples from 10 um to 2 mm thickness. Contact the factory for other sample diameters and thicknesses.
Pressurizing Gas	Filtered and dried compressed air.
Pressure Range	0 - 500 psig (3450 kPag)

Physical Location

The instrument must be placed at least 10 cm (4 in) from any wall or bulkhead behind the instrument to allow for clearance.

2 ABOUT THE SOFTWARE

The intuitive touch interface in the AccuPore CFP software provides a large array of functions.

- Perform a measurement.
- Review detailed test data.
- Display pore size distribution curves.
- Export records in PDF, text, or Excel formats.
- Operate the instrument remotely through a web browser.

TOUCHSCREEN

The AccuPore CFP touchscreen is located on the front of the instrument, and provides access to all functions and operations. In addition to the touchscreen, the software can be accessed via a web browser by entering the IP address of the instrument in the URL field.

ICONS

The following icons are always displayed on the left side of the main screen:

Analysis. Start and monitor analyses.

Records. Display results of completed analyses.

Settings. Configure analysis parameters and instrument options.

Help. View system details, tips, videos and the activity log.

BUTTONS

Internal screens (those displayed when an icon is selected) may contain any of the following buttons:

Adds a new item for the selected function.

Confirms and Saves the information on the screen or acknowledges the information has been viewed (for screens showing results).

Deletes the currently displayed information and closes the screen.

Edits the information on the current screen.

Exports the currently displayed information to a USB or network drive. When exporting a document to a network drive, a location must be configured through **Settings > Communications > Export**.

List All methods on the current analysis screen.

Next moves ahead to the next screen.

OK acknowledges a message.

Previous returns to the previous screen.

Prints the currently displayed information. If a printer is not configured, the Printer icon is not shown. To verify a printer is configured, or to set up a new printer, see **Settings > Communications > Printer**.

Save as Copy when editing a Method. The copy name must be unique.

Saves after editing information.

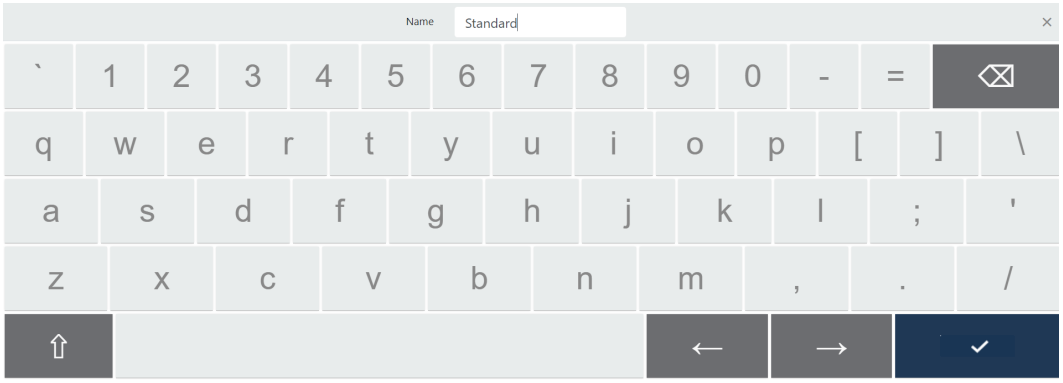
Termination discontinues the current operation.

KEYBOARD AND NUMERIC PAD

The appropriate screen is presented based upon the function selected.

An external keyboard and mouse can be connected to the instrument using the USB port.

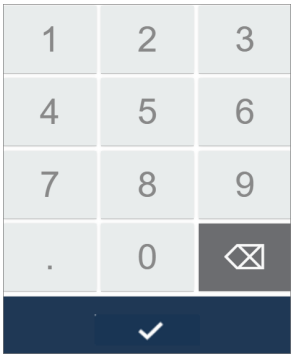
Text fields display the keyboard.



Keyboard Functions

Button		Description
Back Arrow		Moves left and erases a character or number.
Up Arrow		Switches the display between upper and lower case letters.
Left/Right Arrows		Moves left or right one character at a time but does not erase the letter, number, or symbol.
Checkmark		Confirms (saves) the information entered and closes the keyboard.

Number fields display the numeric pad.



Numeric Pad

Button	Description
Back Arrow	Moves left and erases the last number or symbol.
Checkmark	Confirms the information entered and closes the numeric pad.

SLIDER

Use the slider to enable or disable an option.

PERIPHERAL DEVICES

KEYBOARD

A USB keyboard can be attached to the instrument for completing entry fields. If a keyboard is connected while the software is running, it is available for immediate use. This item is optional and must be provided by the customer.

MOUSE

A USB mouse can be attached to this instrument. If the mouse is plugged in while the software is running, a restart is required in order to see the mouse cursor. If the mouse is unplugged while the software is running, the cursor still displays on screen. This item is optional and must be provided by the customer.

Wi-Fi

Wi-Fi is provided via a dongle that is inserted into a USB port on the instrument.

Set up

1. Insert the dongle into a USB port.
2. On the touchscreen, tap **Settings > Communications** and select *TCP/IP*.
3. In the *Wi-Fi* field, tap and select a Wi-Fi network. If a Wi-Fi network is not shown, or a connection cannot be made, contact your Micromeritics Service Representative for possible resolutions.
4. Enter the Wi-Fi password. If the Wi-Fi password is incorrect, an error message displays. Re-enter the correct password.
5. Tap ***Save***.

Wi-Fi Printer

1. Put the Wi-Fi printer and the instrument on the same network by either (1) connecting both the instrument and the printer to the same existing Wi-Fi network, or (2) setting up the printer to be a Wi-Fi network (server) on its own.
2. Select the Wi-Fi printer in the instrument software as the printer. This is done through **Settings > Communications > Printer**.
3. To disconnect the printer from the Wi-Fi, in the *Printer Type* field, select **None**.

Verification (Optional)

After setting up the Wi-Fi network, validate the Wi-Fi is operational by doing the following.

1. On the touchscreen, tap **Settings > Communications** and select *Printer*.
2. For the *Printer Type* (if Wi-Fi is not already selected), tap and select the *Wi-Fi* printer from the list.
3. Tap **Save**.
4. Tap **Records** and select a record to print.
5. Tap on one of the tabs such as **Results** or **Method**.
6. Tap **Print**. The report is sent to the printer. If the report does not print, contact your Micromeritics Service Representative for possible resolutions.

ANALYSIS

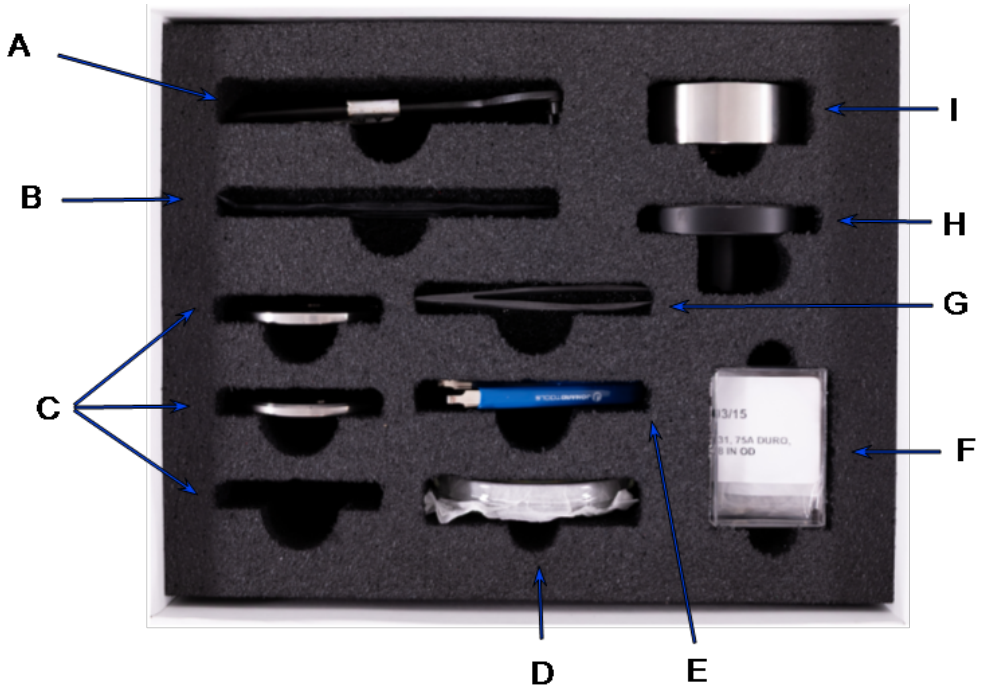
All the required tools to prepare for and run a sample analysis come with the instrument.

The Spacer Rest accessory allows for stacking of the plates in reverse order. This makes it both convenient to hold the sample plate while performing the prep work as well as protecting the O-ring from possible contamination.

From top to bottom, the components are:

- O-ring (See *O-ring Maintenance on page 3 - 9*.)
- Sample
- Mesh
- Bottom Adapter Plate
- Top Adapter Plate
- Sample Chamber Spacer
- Spacer Rest

The available mesh sizes are 13 mm, 25 mm and 47 mm. (A 5 mm restrictor can be used with the 25 mm mesh to restrict flow on high flow samples.)



A Spanner Wrench

B Sample Remover Pick

C Sample Adapter Plates (13 mm, 27 mm and 45 mm--only the 27 mm plate is included with this accessory kit)

D Petri Dish

E Space Removal Tool

F Sample Cell O-rings, Mesh Plates and Blank Plate

G Tweezers

H Spacer Reset

I Sample Chamber Spacer

Prepare a CFP Sample for Analysis

1. Select the mesh and place it on the bottom adapter plate.
2. Fill the petri dish with wetting fluid.
3. If the sample is already cut to the appropriate size, then skip ahead to step 4. If the sample is not appropriately sized, then cut it to size using a hole punch or scissors. Some samples may be difficult to cut with scissors. The sample does not need to be perfectly circular to fit in the standard sample holder.
4. Using tweezers, place the sample in the petri dish.
5. Pick up and tilt the petri dish to ensure an even coating of wetting fluid over the sample.
6. Using the tweezers, flip the sample over, pick up and tilt the petri dish to ensure the wetting fluid has covered the sample.
7. Using tweezers, lift the sample and allow excess wetting fluid to drip off. You can slightly shake the sample up and down to expedite the process.
8. Dab the bottom of the sample on the top of the petri dish rim to get rid of any remaining excess wetting fluid collecting at the bottom.
9. Place the sample onto the mesh on the bottom adapter plate.
10. Place the O-ring over the sample.

Run a CFP Sample Analysis

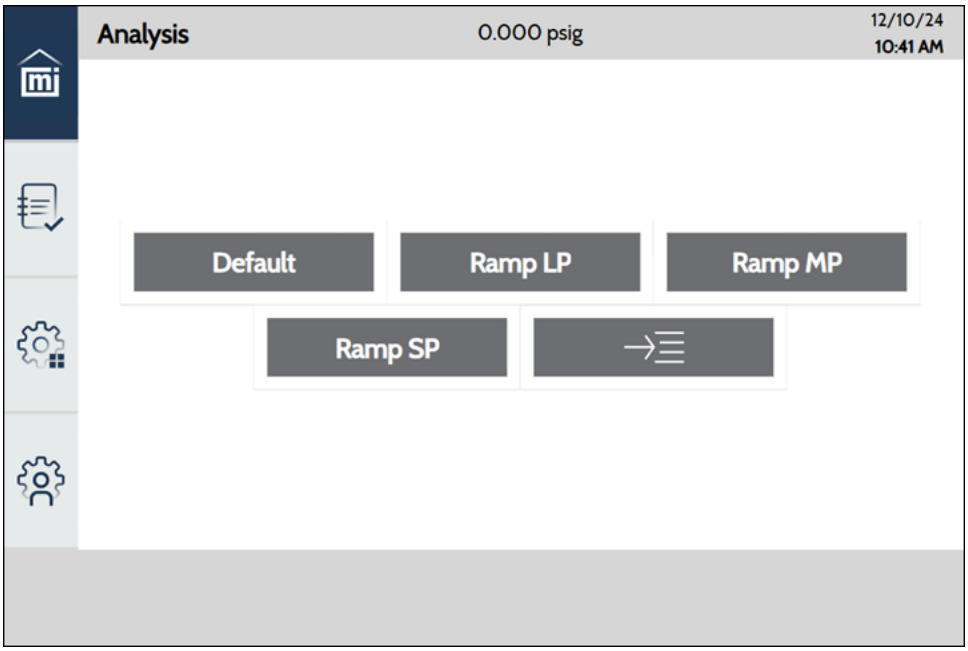
1. Remove the sample chamber cap.
2. Put the bottom adapter plate into the sample chamber using the provided plate extraction tool.
3. Put the top adapter plate in the chamber with the cone facing down.
4. Put the sample spacer in the chamber, making sure the ‘TOP’ marking is facing up.
5. Put the cap on the instrument and tighten it firmly using the provided wrench.

If the mesh is not easily removed from the bottom adapter plate, use the supplied sample remover pick to poke the sample mesh through from the underside of the bottom adapter plate.

Run Analysis Using Existing Methods

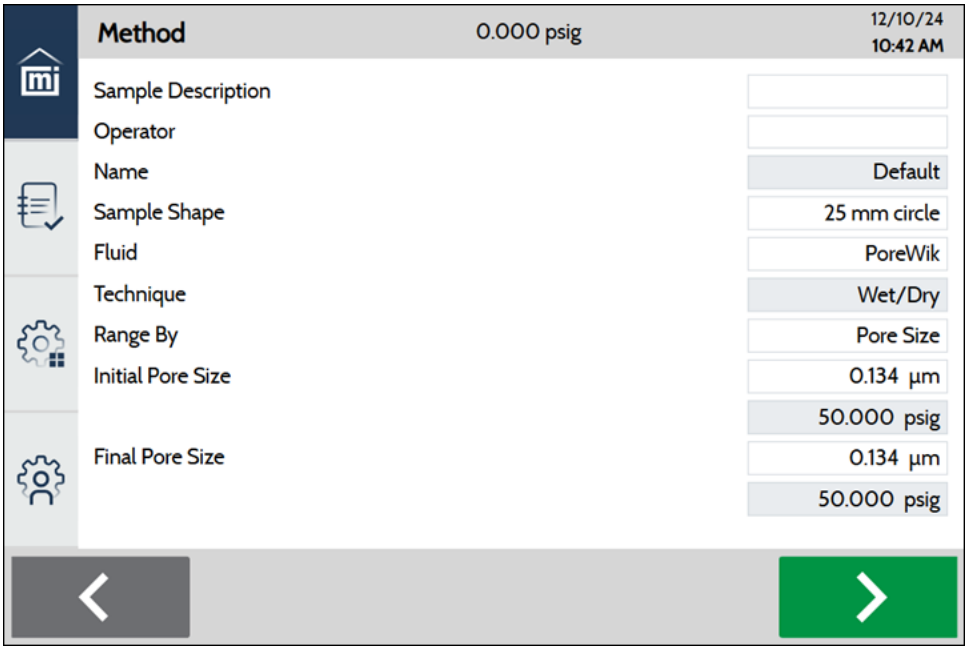
Use to run analyses using existing methods.

1. Tap the **Home** button.



2. Select a Method from the currently configured set of default methods, or tap the **List All** button to see and select a list of all available Methods.

3. On the Method screen, make changes to the existing information.



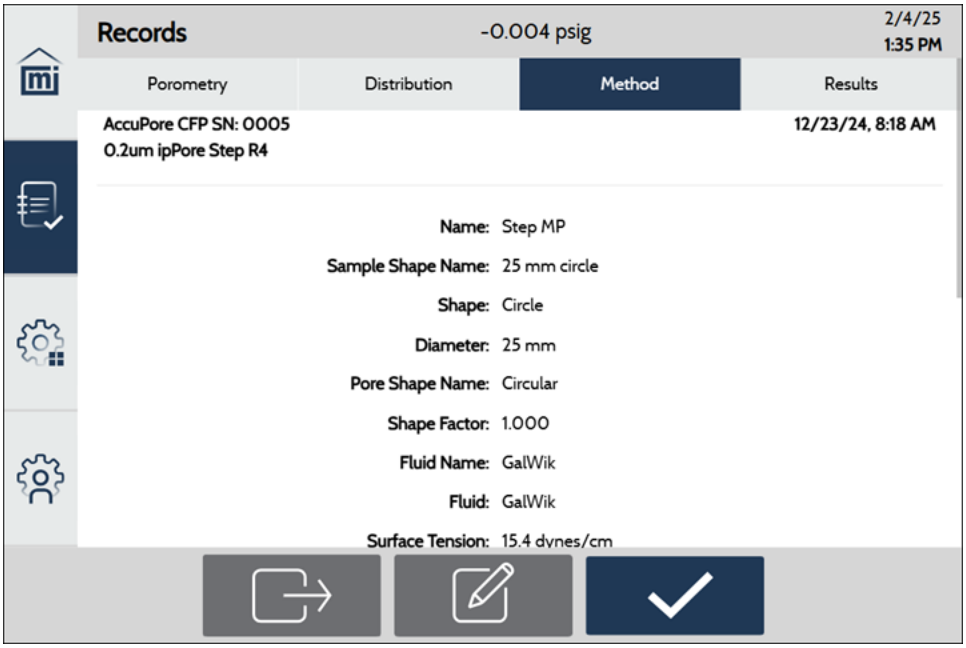
4. Tap **Next**.
5. Review the information screen (if Analysis Wizard is selected in ***Settings > Display***), then tap **Next**. The experiment begins. Once completed, the following information is available.

Porometry

Distribution

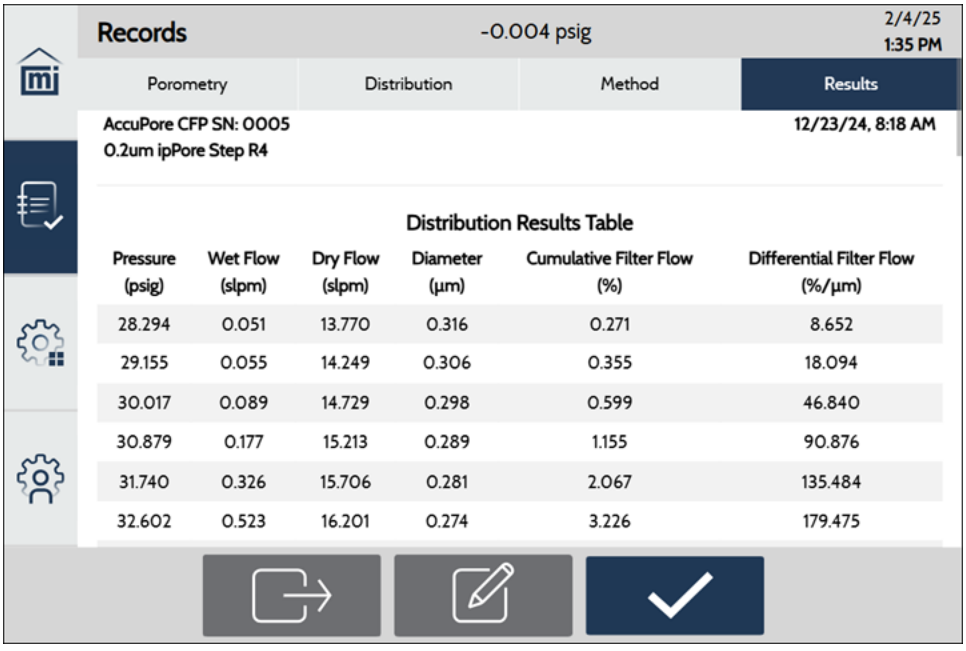
This tab is not displayed for Bubble Point Only analysis.

Method



Results

This tab is not displayed for Bubble Point Only analysis.



6. Tap **Print** to send the selected results to the configured printer.
7. Tap **Export** to export the selected results to a USB or network drive as a certain file type (PDF, XLSX, TXT, or RAW).
8. Tap **Edit** to view and edit the existing data.
9. When all the applicable actions are complete, tap **Save**.

RECORDS

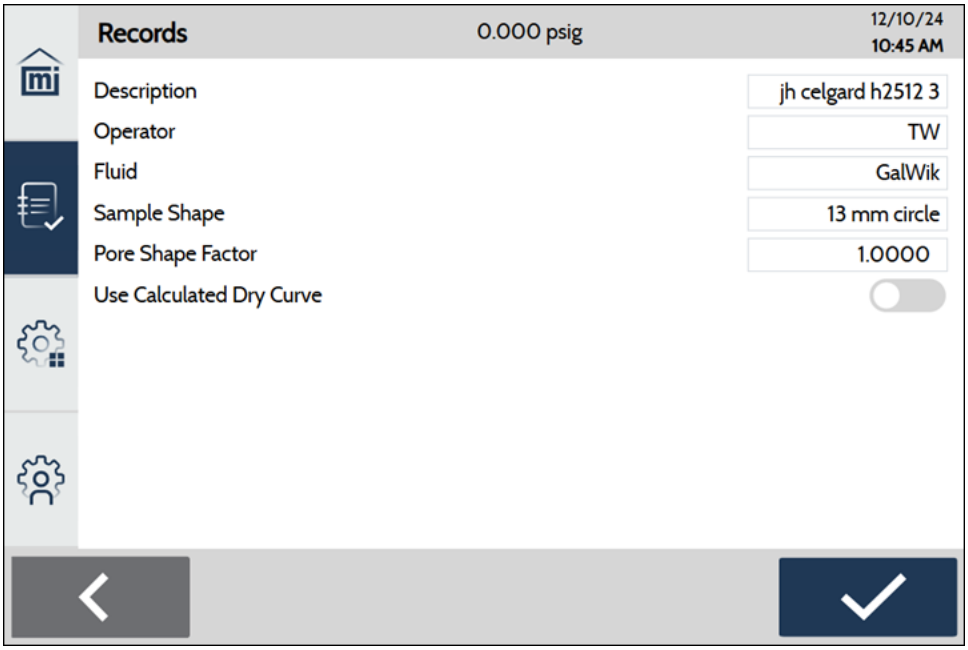
Use to view the analysis results.

If no results are shown on the Records screen for a specific analysis, adjust the filters and re-open the Records screen (refer to *Records Filtering Options*).

1. On the main screen, tap **Records**. The list of analysis results displays.
2. To view the details, tap a record.
3. Tap a tab to view the data for *Porometry*, *Distribution*, *Method* or *Results*. The *Distribution* and *Results* tabs are not displayed for Bubble Point Only analysis.
4. Tap **Print** to send the selected results to the configured printer.
5. Tap **Export** to export the selected results to a USB or network drive as a certain file type (PDF, XLSX, TXT, or RAW).

When exporting a document to a network drive, a location must be configured through ***Settings > Communications > Export***.

6. Tap **Edit** to view and modify the record information.

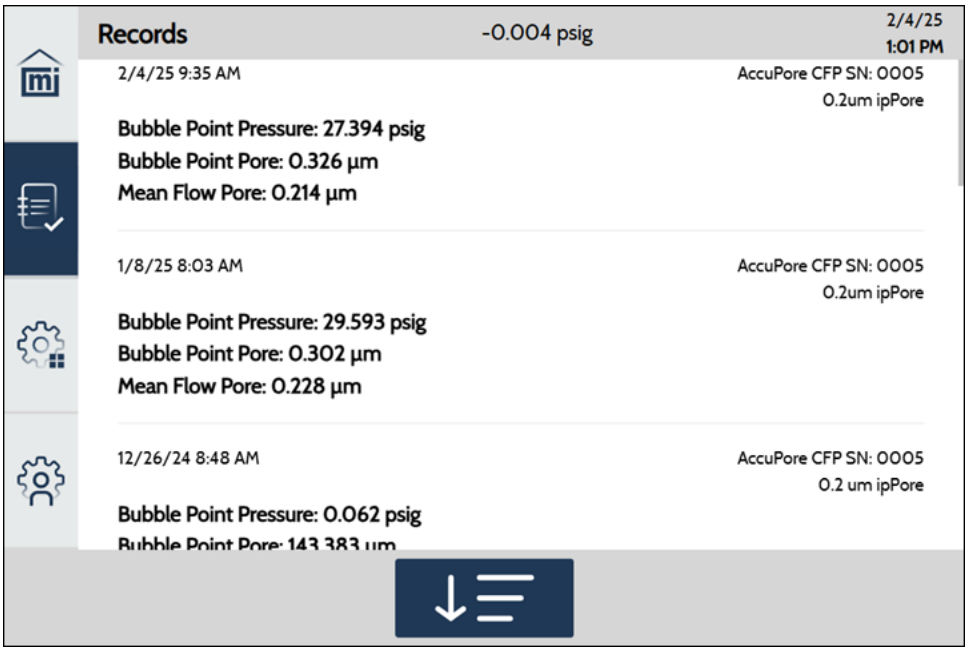


7. When all the applicable actions are complete on the main Records screen, tap **Save**.

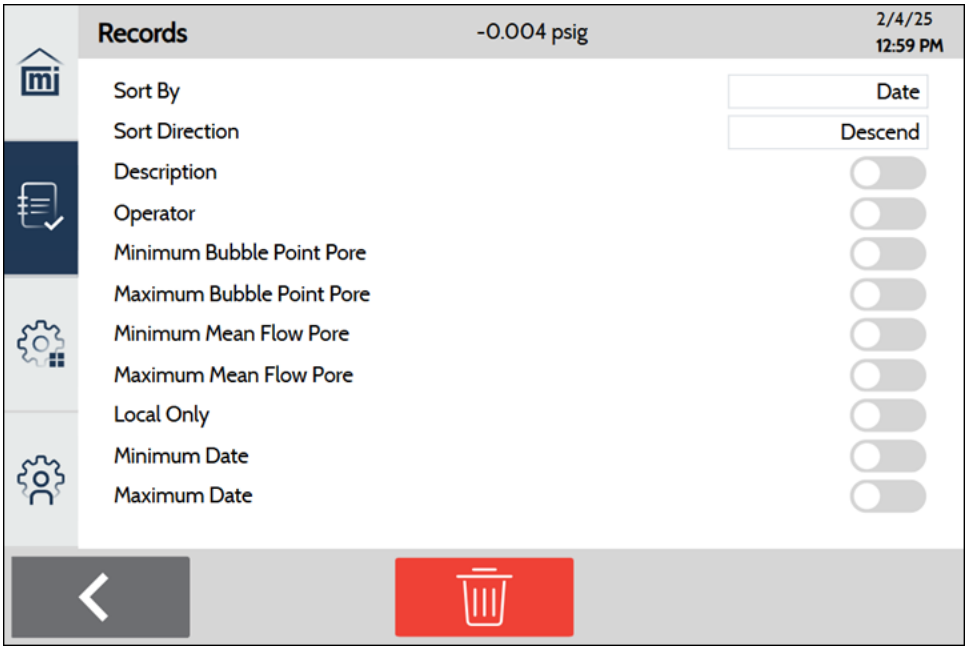
RECORDS FILTERING OPTIONS

Use to specify the filtering options for analysis results.

1. On the main screen, tap **Records**.
2. Tap the down arrow.



The filtering options display.



Filtering Options

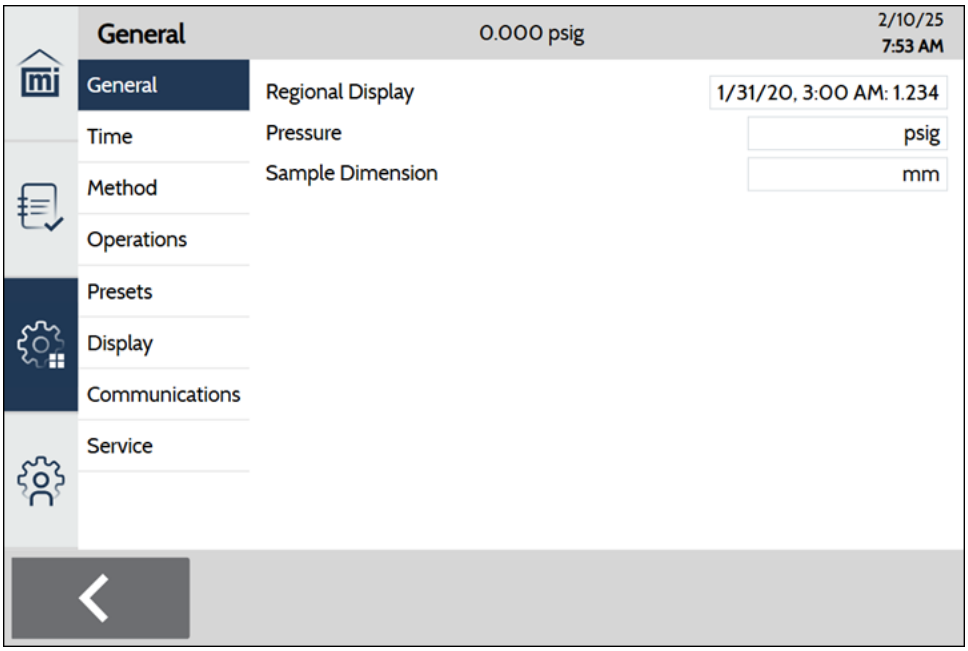
Field	Description
Sort By	Select the sort criterion.
Sort Direction	Select the sort direction.
Description	When selected, displays only records that match the entered text. This field is only displayed when enabled in ***Settings > Display***.
Operator	When selected, displays only records that match the entered text. This field is only displayed when enabled in ***Settings > Display***.
Minimum/Maximum Bubble Point	When selected, enter the bubble point range to include in the records list.
Minimum/Maximum Mean Flow Point	When selected, enter the mean flow point range to include in the records list.
Local Only	When selected, displays records for the local instrument only, not other instruments that may be attached.
Minimum/ Maximum Date	When selected, enter the date and time range to include in the records list.

SETTINGS

GENERAL

Settings > General

Use to set general instrument parameters.



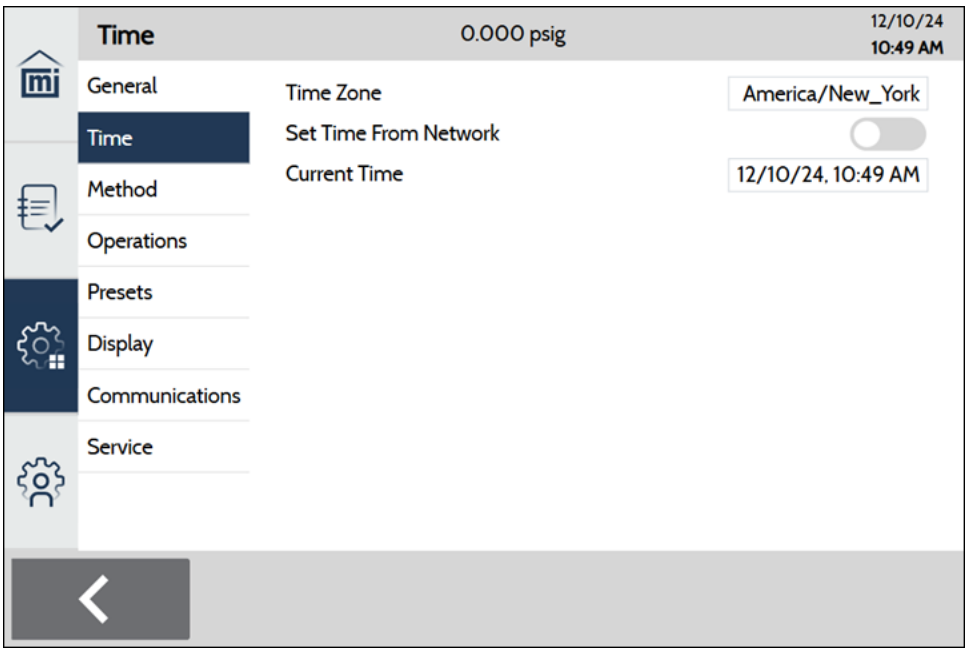
General Settings

Selections	Description
Regional Display	Specifies the date and time format, and the decimal separator for numbers.
Pressure	Specifies the units (psig, kPag or bar).
Sample Dimension	Specifies the dimension (mm or in).

TIME

Settings > Time

Use to select a time zone or if the system network time should be used.



Time Settings

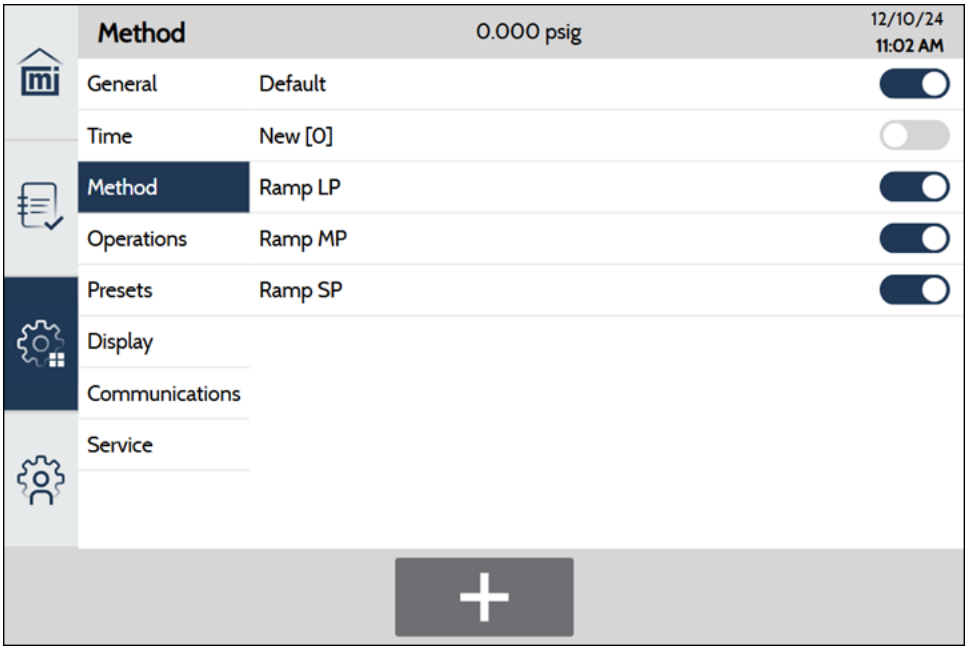
Field	Description
Time Zone	Displays the selected time zone. Tap to select a new time zone.
Set Time From Network	When selected, uses the time on the system network as the default time. When unselected, displays the *Current Time* field.
Current Time	Displays only when *Set Time From Network* is disabled. Tap the field and enter the current date and time. Tap **Save**.

METHOD

Settings > Method

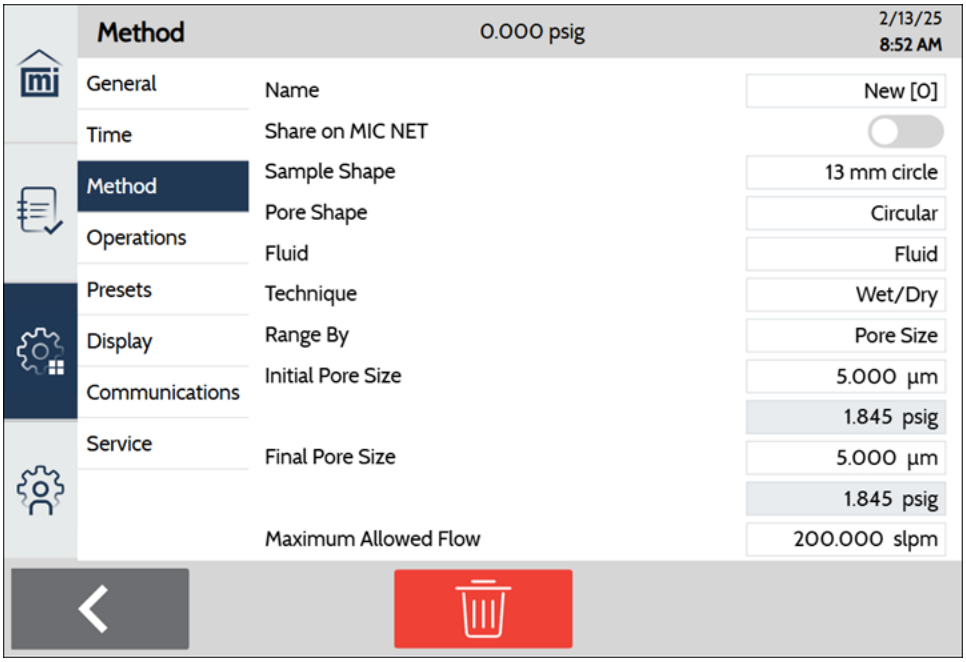
Methods define the parameters for each type of sample commonly analyzed, so that only a single selection is required for each new analysis record created.

1. Tap **Settings > Method**.



2. To set an existing method as the default, tap the slider next to that method. Multiple default methods can be selected. Those selected are displayed on the Home screen.

3. To add a new method, tap **Add**.



4. Enter the applicable details, referring to the table below.
5. When all selections and entries are made, tap **Save** or **Save as Copy**.
6. To delete a method:
   a. On the Method main screen, select a method.
   b. From the resulting list, select a method.
   c. Tap **Delete**.

Method Options

Selections	Description
Name	Enter a name for the method.
Share on MIC NET	Enable to share methods between instruments connected together through the MIC NET. The instrument with the method having the latest modification will be shared.
Sample Shape	Select the sample shape.
Pore Shape	Select the pore shape.
Fluid	Select the analysis fluid.

Method Options (continued)

Selections	Description
Technique	Specify how data is to be collected. *Wet/Dry:* Measurement where the wet curve is collected first, followed by the dry curve. The user should wet the sample with wetting solution prior to the measurement. *Dry/Wet:* Measurement where the dry curve is collected first, followed by the wet curve. The user will wet the sample after the dry curve is collected. *Wet/Dry Calc:* Measurement where the wet curve is collected first, and the dry curve is calculated from the small pore (higher pressure) region of the wet curve. The user should wet the sample with wetting solution prior to the measurement. *Bubble Point Only:* Measurement where only the bubble point or largest pore is determined. Full porometry data will not be collected. The user should wet the sample with wetting solution prior to the measurement.
Range By	Select Pore Size or Pressure to enter either pore size range or pressure range. The corresponding pressure or pore size, respectively, is displayed below the entered setting.
Initial Pore Size	Enter the initial pore size for the analysis (largest pore).
Final Pore Size	Enter the final pore size for the analysis (smallest pore).
Initial Pressure	Enter the initial pressure for the analysis (lowest pressure).
Final Pressure	Enter the final pressure for the analysis (highest pressure).
Maximum Allowed Flow	Maximum allowed gas flow rate before the analysis stops collecting data for the current wet or dry curve. This can be useful to automatically stop the run if the sample ruptures at high pressure.
Curve Type	Select either a Ramp or Step for data collection.

Method Options (continued)

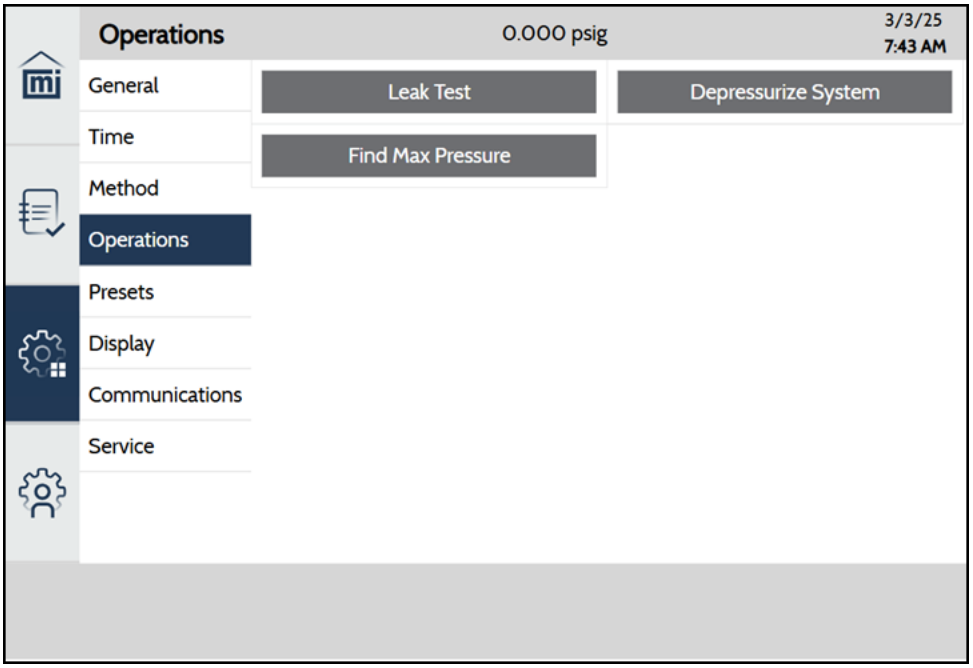
Selections	Description
Ramp Rate	Enter the pressure ramp rate when Curve Type is Ramp. The estimated analysis time (hh:mm:ss) is shown below this setting. Actual results will vary depending on the material.  Pseudo ramping mode is automatically performed when pressure ramp mode is selected and the measured bubble point is below 5 psig (35 kPag). This mode operates like step mode and allows for more accurate measurements of pressure and flow when the pressure is very low. The Ramp Rate set in ramp mode will not be used during pseudo ramp mode. This may add a small amount of time onto the measurement.
Resolution	Select the pressure step resolution when Curve Type is Step. Higher resolutions (up to a maximum of 8) specify smaller step sizes and longer analysis times. The estimated analysis time (hh:mm:ss) and estimated number of wet curve datapoints are shown below this setting. Actual results will vary depending on the material.  The dry curve will have about 1/2 the number of points as the wet curve. This shortens analysis time and reduces gas consumption while providing equivalent accuracy. The dry curve has fewer features, so fewer points are required to thoroughly characterize its behavior.
Pore Size	Select whether the sample has mostly <= 0.1 µm, <= 10 µm or > 10 µm pores to optimize the analysis.
Use Calculated Dry Curve	Enable to apply a calculated dry curve instead of the measured dry curve in the analysis results. If something prevents running a Dry curve (e.g., gas tank runs out), or if the run is cancelled while running the Dry curve, the Calculated Dry curve will be shown automatically.This option can be edited in Records to view either curve.

OPERATIONS

Settings > Operations

Runs other instrument operations that are not an analysis or calibration.

1. Tap an operation. The operation begins.
2. Follow the directions of any onscreen prompts and enter any requested values. After the operation finishes, operation results are shown onscreen.



Operation Options

Selections	Description
Depressurize System	Zero the pressure regulators and set valve states so the instrument will be depressurized.
Find Max Pressure	Finds the maximum pressure that can be achieved with the low and high regulators. When the process starts, you will be prompted to insert the 25 mm blanking plate from the accessory kit (MIC Part #712-255714-25). Install the blanking plate in the bottom 25 mm sample plate as you would a normal sample, including an O-ring seal, but without any wetting fluid. As the process runs it will first scan the low- pressure regulator, and then the high-pressure regulator. It is recommended to run this process when one of the inlet pressures change, or if directed to by Micromeritics support.

Operation Options (continued)

Selections	Description
Leak Test	Checks the instrument for leaks. When the test starts, you will be prompted to insert the 25 mm blanking plate from the accessory kit (MIC Part #712-255714-25). Install the blanking plate in the bottom 25 mm sample plate as you would a normal sample, including an O-ring seal, but without any wetting fluid. Then, you will be prompted to run the general leak test, bubble point path leak test, or both (recommended). If you select the general leak test, you will be prompted to set the target pressure. Use the pressure that is up to the maximum required for the experiment. It is recommended that the leak test be run monthly.

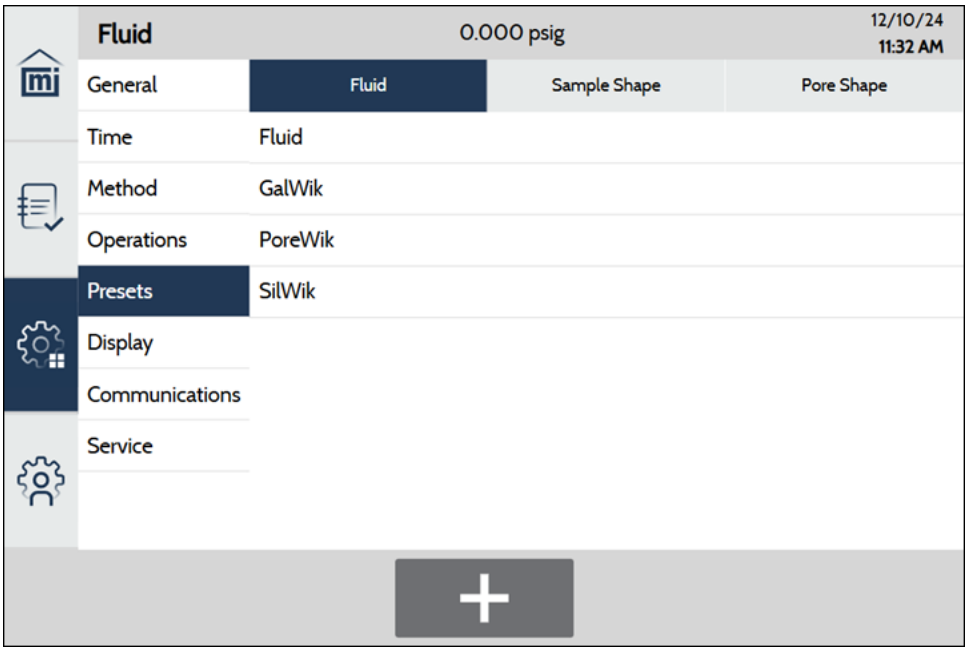
PRESETS

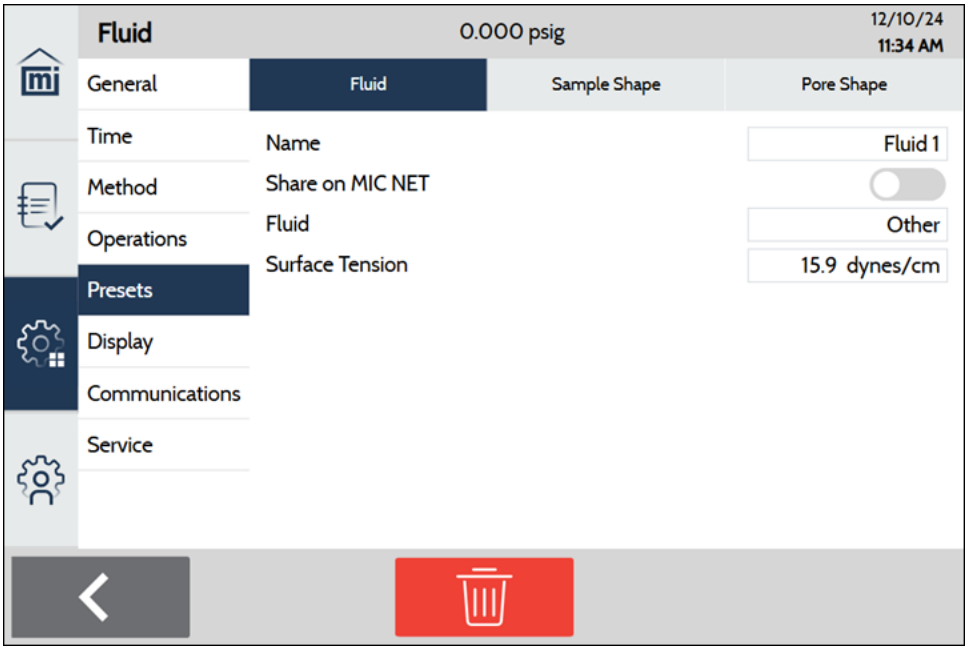
Settings > Presets

Use to specify the analysis fluids, sample shapes and pore shapes and enable sharing these presets across the MIC NET.

FLUID

Tap the applicable Fluid to view an existing Fluid or tap **Add** to create a new one.



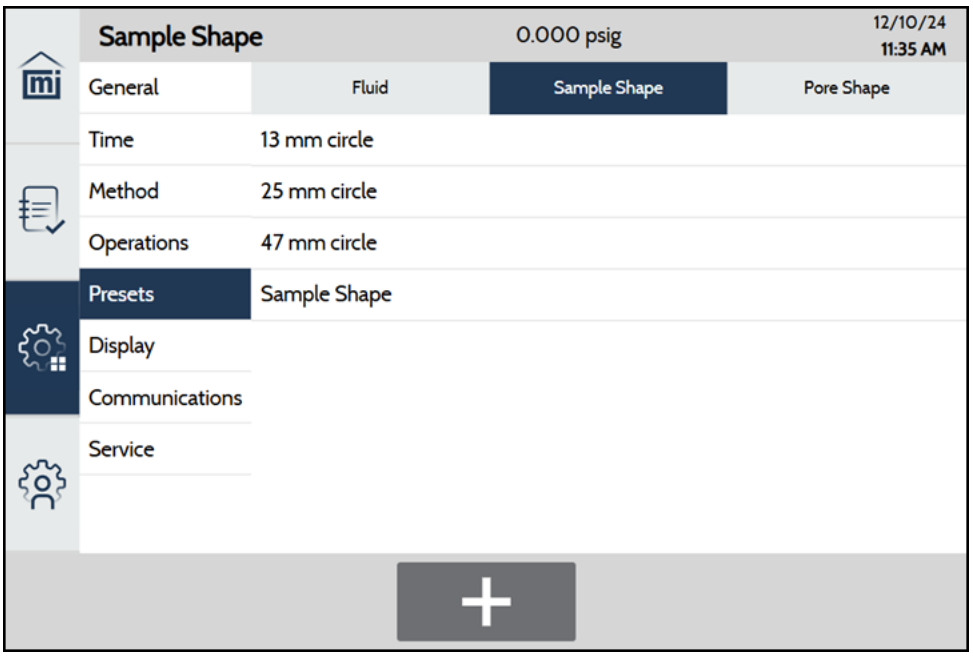


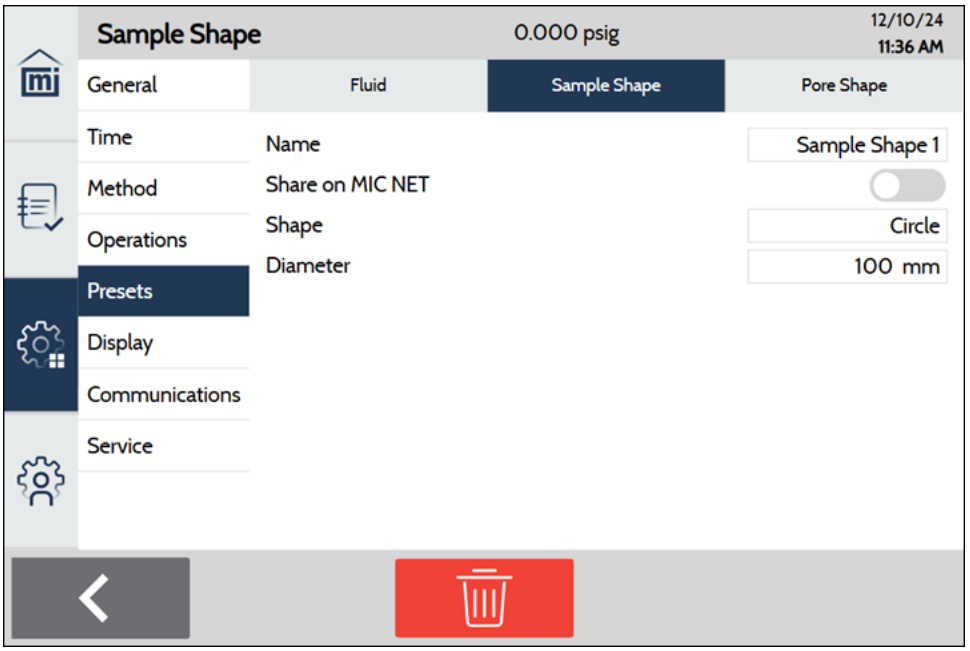
Fluid Options

Selections	Description
Name	Enter a name for the Fluid.
Share on MIC NET	Enable to share Fluids between instruments connected together through MIC NET. The instrument with the Fluid having the latest modification will be shared.
Fluid	Select a preset Fluid (PoreWik, SilWik, GalWik) or Other to specify a custom Fluid.
Surface Tension	Enter the surface tension for the Fluid.

Sample Shape

Tap the applicable Sample Shape to view an existing Sample Shape or tap **Add** to create a new one.



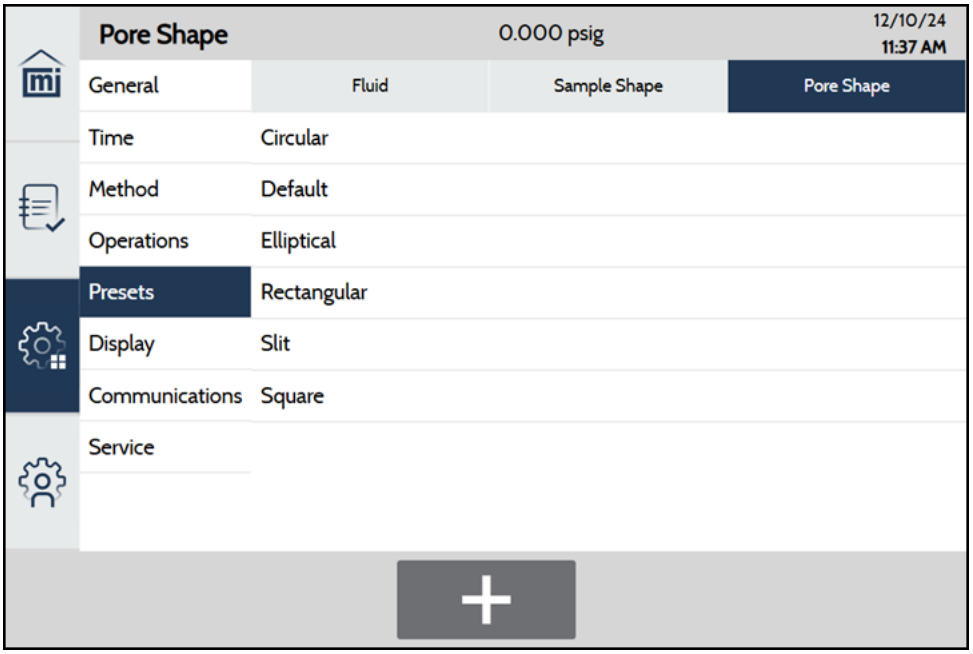


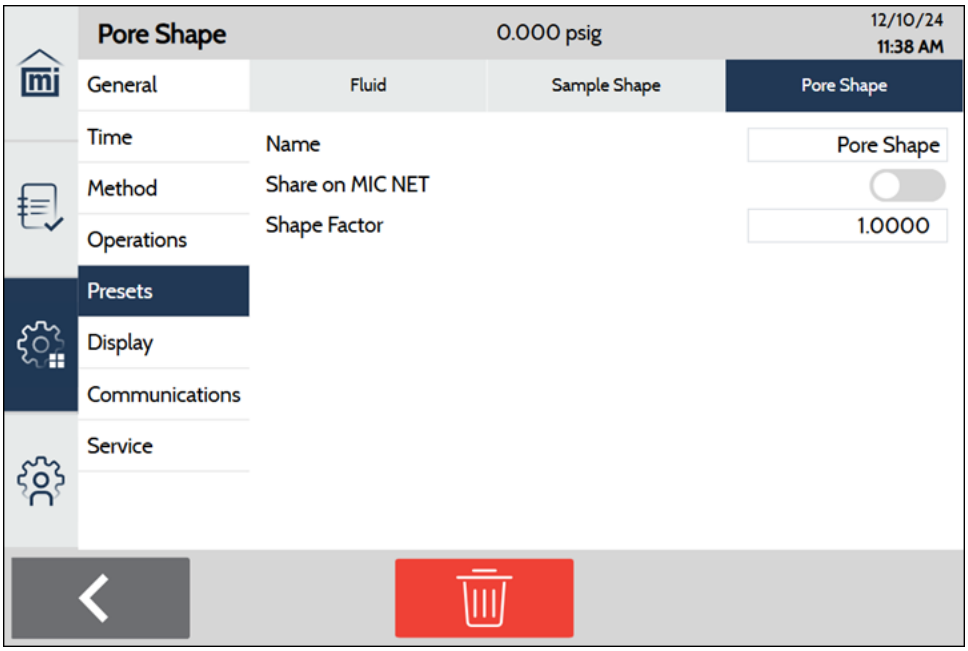
Sample Shape Options

Selections	Description
Name	Enter a name for the Sample Shape.
Share on MIC NET	Enable to share Sample Shapes between instruments connected together through the MIC NET. The instrument with the Sample Shape having the latest modification will be shared.
Shape	Select a preset Sample Shape (Circle, Square), or Other to specify a custom shape. Custom shapes other than 13 mm, 25 mm or 47 mm circles require custom sample plates. Please contact your Micromeritics Service Representative if assistance is required.
Diameter, Length, Area	Tap in the *Shape* field, and select one of the choices shown in the list. Then tap **Save**. ■ If *Circle* was selected, enter the circle diameter. ■ If *Square* was selected, enter the square side length. ■ If *Other* was selected, enter the shape's area.

PORE SHAPE

Tap the applicable Pore Shape to view an existing Pore Shape or tap **Add** to create a new one.

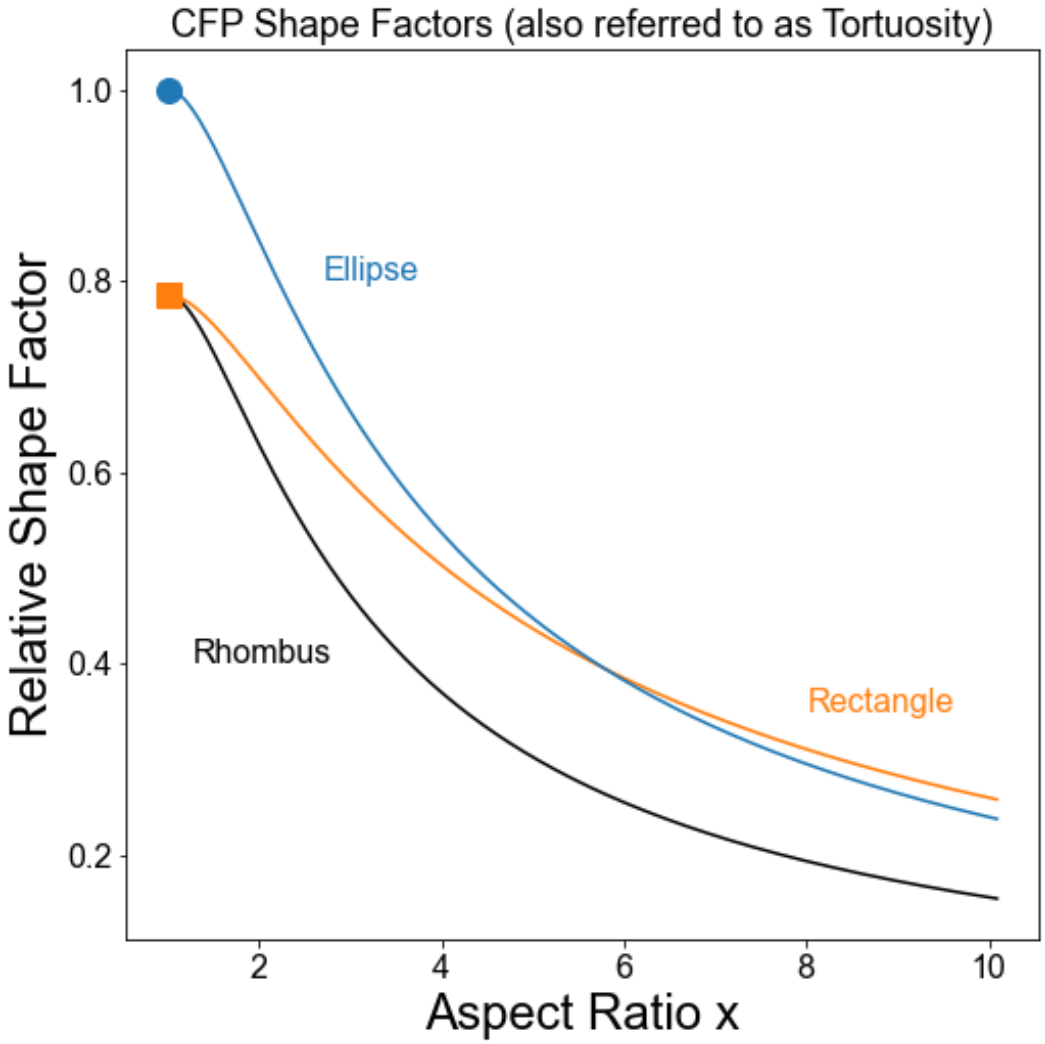


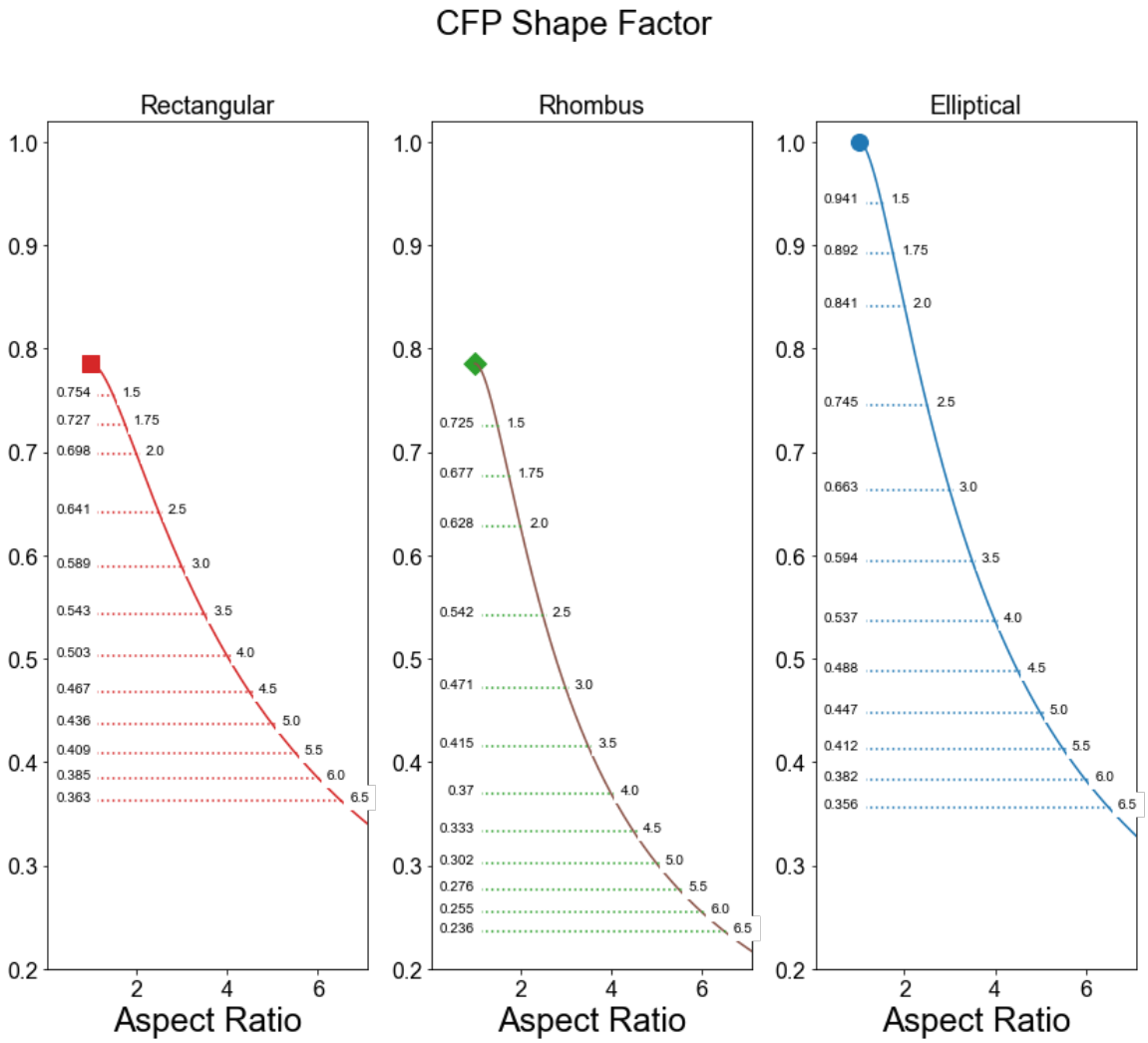


Pore Shape Options

Selections	Description
Name	Enter a name for the Pore Shape.
Share on MIC NET	Enable to share Pore Shapes between instruments connected together through MIC NET. The instrument with the Pore Shape having the latest modification will be shared.
Shape Factor	Enter the Shape Factor, for example, 1.0 for circular, 0.7854 for square, 0.71 for slit, 0.75 for rectangular and 0.715 in the absence of any specific information about pore geometry. See charts below to help set Shape Factors for pores with known aspect ratios.

Pore Shape Factors vs. Aspect Ratios

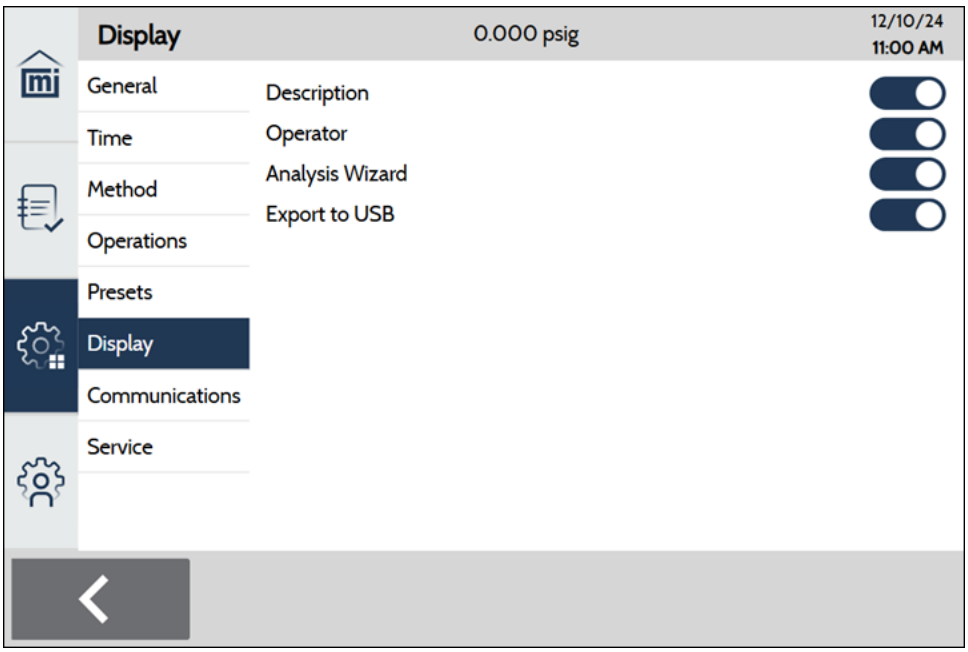



CFP Shape Factor
Rectangular
Rhombus
Elliptical
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2
4
6
Aspect Ratio
0.754 1.5
0.727 1.75
0.698 2.0
0.641 2.5
0.589 3.0
0.543 3.5
0.503 4.0
0.467 4.5
0.436 5.0
0.409 5.5
0.385 6.0
0.363 6.5
0.725 1.5
0.677 1.75
0.628 2.0
0.542 2.5
0.471 3.0
0.415 3.5
0.37 4.0
0.333 4.5
0.302 5.0
0.276 5.5
0.255 6.0
0.236 6.5
0.941 1.5
0.892 1.75
0.841 2.0
0.745 2.5
0.663 3.0
0.594 3.5
0.537 4.0
0.488 4.5
0.447 5.0
0.412 5.5
0.382 6.0
0.356 6.5

DISPLAY

Settings > Display

Use to configure the instrument display defaults.



Display Options

Selections	Description
Description	Enables the *Description* field on Analysis and Records screens.
Operator	Enables the *Operator* field on Analysis and Records screens.
Analysis Wizard	Enables the *Analysis Wizard*. When selected, a guide for loading a sample is displayed before an analysis starts.
Export to USB	Enables exporting data to a USB drive.

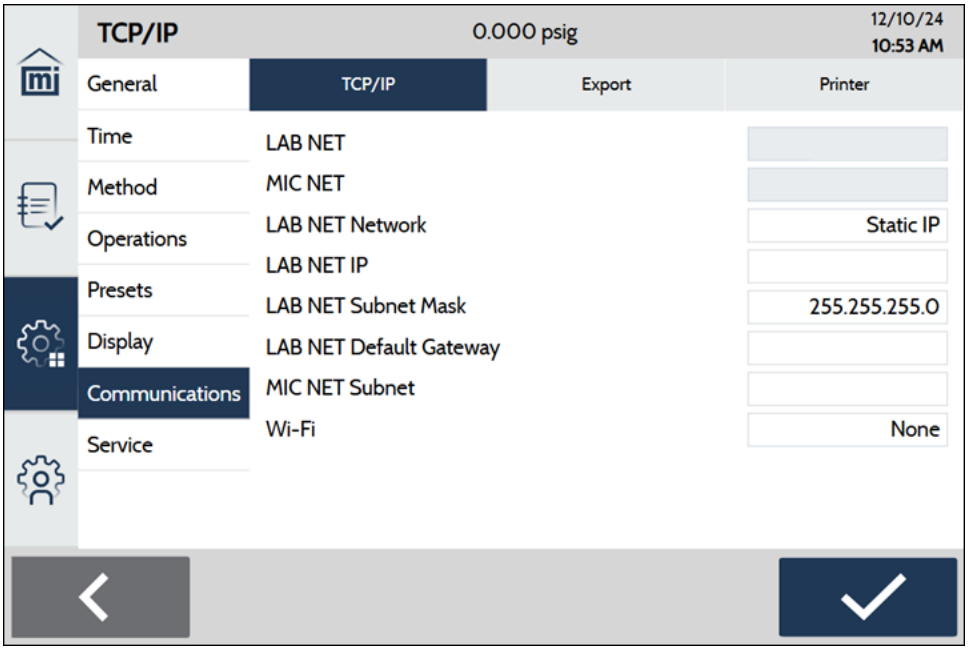
COMMUNICATIONS

Settings > Communications

Use to configure network communication.

TCP/IP

Settings > Communications > TCP/IP



TCP/IP Settings

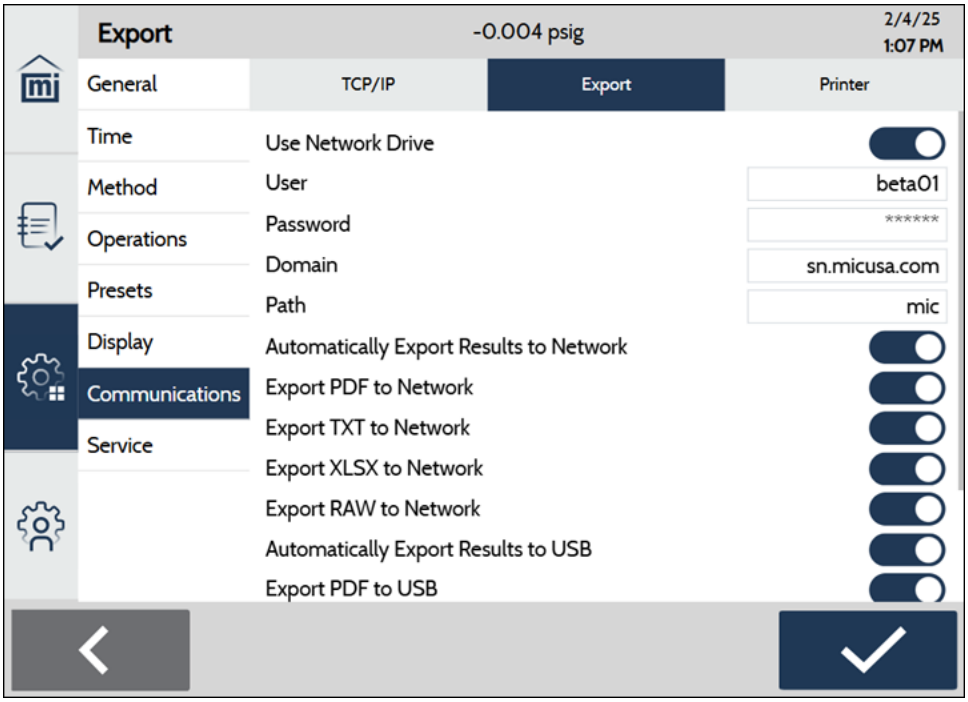
Fields	Description
LAB NET	Displays the static or dynamic IP address (depending on the LAB NET Network setting, below) when the instrument is connected with an Ethernet cable. When LAB NET Network is set to DHCP, the lab network's DHCP server assigns an IP address automatically, which is only shown if the instrument is connected over DHCP. To operate the instrument remotely, enter this address in a web browser on another computer connected to the same network.
MIC NET	Displays the IP address on the Micromeritics network. This is a local network that allows AccuPores to share data when they are directly connected to each other with Ethernet cables. The instruments automatically coordinate their IP addresses on that network.

TCP/IP Settings (continued)

Fields	Description
LAB NET Network	Select DHCP to let the lab network's DHCP server assign an IP address automatically. Select Static IP to assign an IP address manually, such as when directly connecting an Ethernet cable to a PC.
LAB NET IP	Enter the desired static IP address when LAB NET Network is set to Static IP.
LAB NET Subnet Mask	Enter the subnet mask when LAB NET Network is set to Static IP. When directly connecting an Ethernet cable to a PC, the instrument's subnet mask and subnet must match the ones set for the PC's Ethernet connection in the Windows Control Panel.
LAB NET Default Gateway	Enter the IP address of the default gateway device, such as a router, when LAB NET Network is set to Static IP. This can be left blank when directly connecting an Ethernet cable to a PC, or when other subnets should not be allowed to operate the instrument remotely.
MIC NET Subnet	Displays the subnet IP address the MIC NET Subnet uses when it sets IP addresses. The subnet choice must not conflict with the LAB NET Network or Wi-Fi subnets. For example, if the LAB NET IP address starts with 192.168, MIC NET Subnet must not be 192.168.
Wi-Fi	Displays available Wi-Fi networks. Select the applicable network. The Wi-Fi network's DHCP server assigns an IP address automatically. The Wi-Fi IP address is only shown if the instrument is connected over DHCP. Once a Wi-Fi network is selected, a password entry screen is also shown. To operate the instrument remotely, enter this address in a web browser on another computer connected to the same network.

EXPORT

Settings > Communications > Export

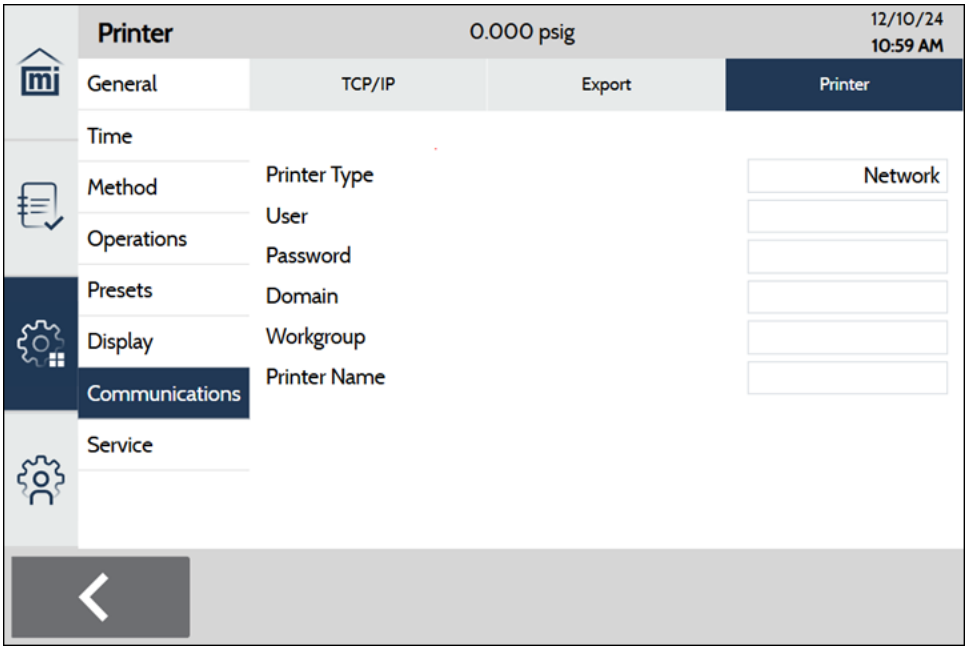


Export Settings

Fields	Description
Use Network Drive	Specifies if analysis data can be exported to a network drive. When selected, additional fields display as described below.
User	Name of the user with permission to access the network drive.
Password	Password that corresponds to the user.
Domain	Domain associated with the network drive.
Path	Path to network drive.
Automatically Export Results to Network	Automatically exports results to the specified network drive when analyses complete. To view this option, tap **Use Network Drive**. **Export PDF/TXT/XLSX/RAW to Network** automatically exports selected file types to the specified network drive when Automatically Export Results to Network is selected.
Automatically Export Results to USB	Automatically exports results to a USB drive when analyses complete. To view this option, tap **Export to USB** under ***Settings > Display***. **Export PDF/TXT/XLSX/RAW to USB** automatically exports selected file types to a USB drive when Automatically Export Results to USB is selected.

PRINTER - NETWORK

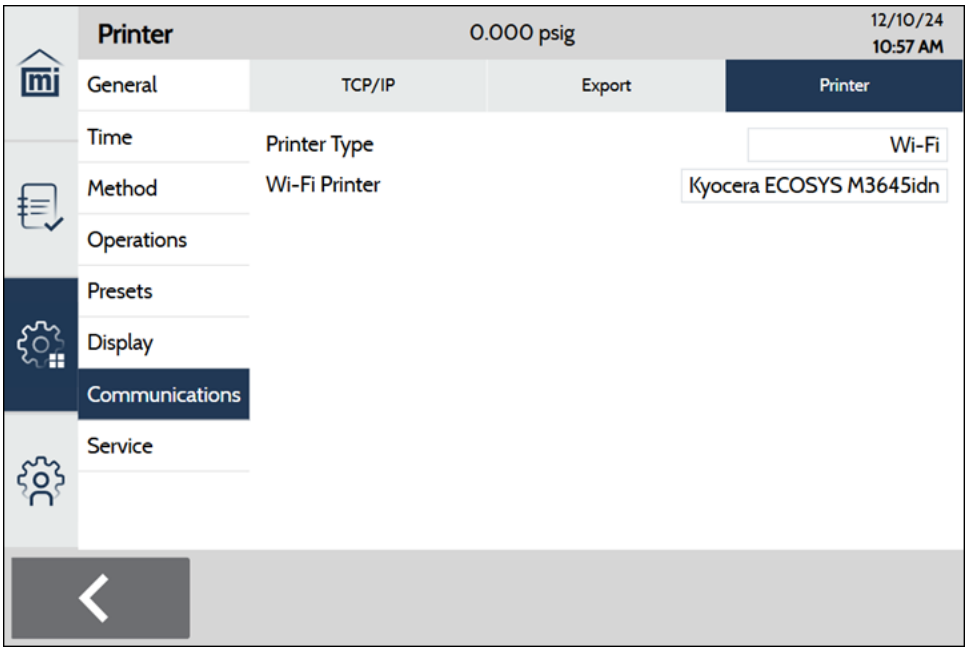
Settings > Communications > Printer



Network Printer Settings

Fields	Description
Printer Type	Type of network to which the printer is connected.
User	Name of the user with permissions to access the printer.
Password	Password that corresponds to the user.
Domain	Name of the domain associated with the printer.
Workgroup	Name of the workgroup associated with the printer.
Printer Name	Name of the printer.

PRINTER - WI-FI



Wi-Fi Printer Settings

Fields	Description
Printer Type	Type of network to which the printer is connected.
Wi-Fi Printer	Select the applicable Wi-Fi printer.

SERVICE

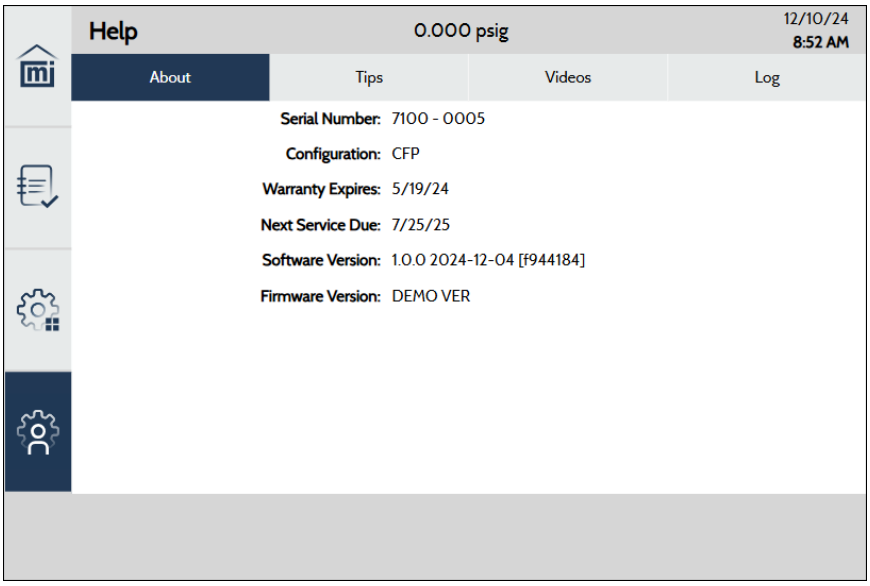
Settings > Service

The Service menu is a password-protected screen that can only be accessed by a qualified Micromeritics Service Representative.

HELP

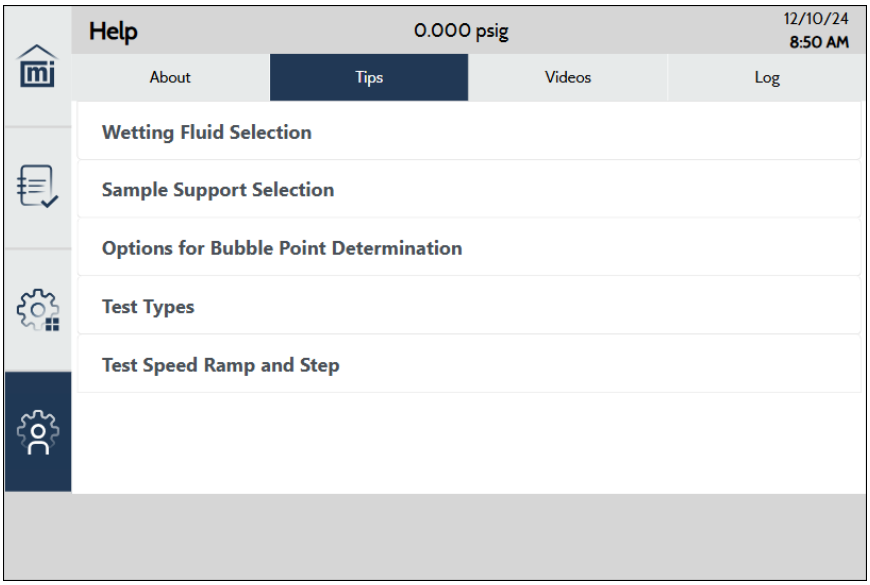
ABOUT

Displays identifying information about the instrument.



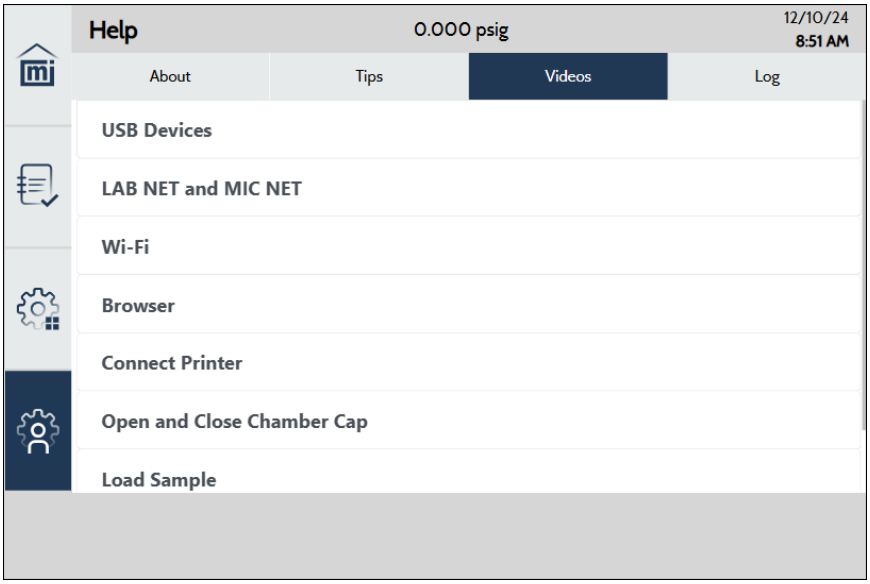
TIPS

Contains links to helpful tips information.



VIDEOS

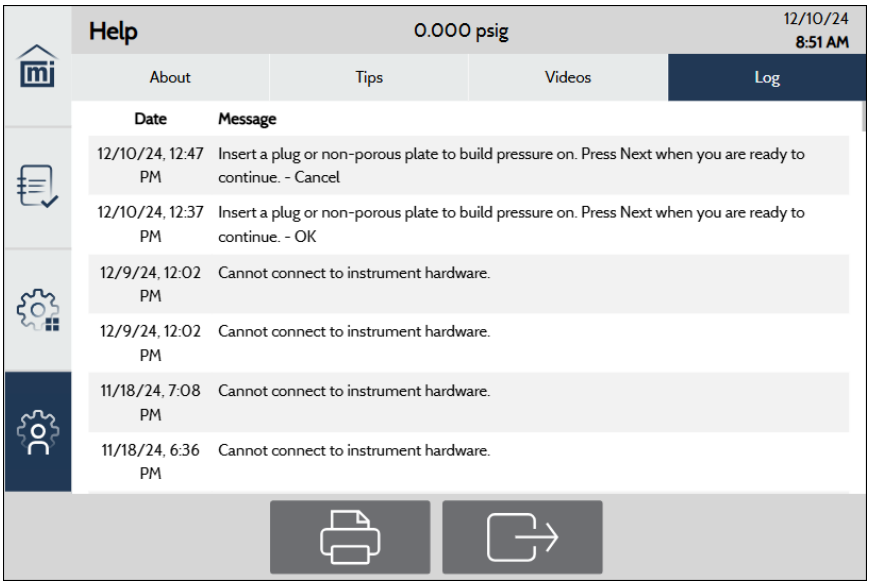
Contains links to instructional videos.



LOG

Contains instrument log messages that can be printed and exported.

- Tap **Print** to send the data to the configured network printer.
- Tap **Export** and select an export method and file type (such as PDF or TXT).



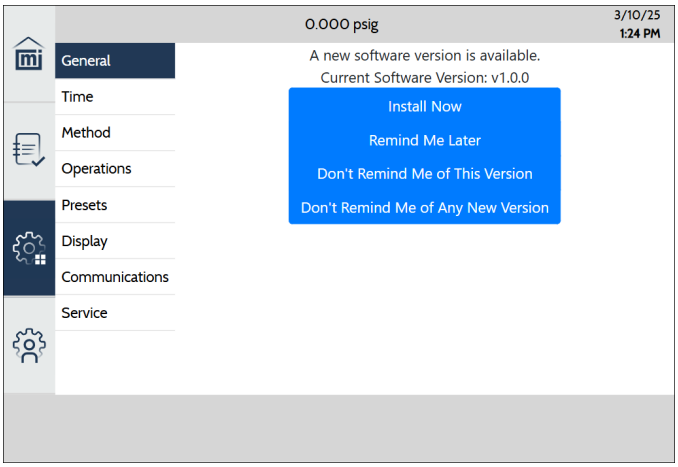
SOFTWARE UPDATES

Use to update the current software version, either through a network connection or an external USB drive.

- If the instrument is connected to a **network**, the instrument is set to automatically download updates from the Micromeritics website.
- To use a **USB drive**, go to the Micromeritics website, download and unzip the files, and copy the files to a USB drive.

INSTALL THE UPDATE

1. Connect to the network (if not connected) or insert the USB drive (if not inserted).
2. Tap **Settings > General**.
3. Tap **Software Update Available.**
4. Tap **Install Now**.
5. When prompted, tap **Yes**.
6. Make a selection.



7. Wait for the screen to reset.
8. Remove the USB drive.

3 MAINTENANCE AND TROUBLESHOOTING

Parts and accessories are located on the Micromeritics web page.

Improper handling, disposal, or transportation of potentially hazardous materials can result in serious injury or damage to the instrument. Always consult the SDS when working with hazardous substances. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

Do not service or modify this instrument without authorization from Micromeritics Service Personnel. It does not include any user-serviceable parts.

When lifting or relocating the instrument, use appropriate lifting and transporting devices designed for heavy equipment. Ensure that enough personnel are available to assist with the movement of the instrument.

The AccuPore CFP weighs approximately 41.5kg (92 lb).

Use of a power cord or power supply not provided with the instrument could cause personal injury or damage to the equipment. If a replacement is needed, contact your Micromeritics Service Representative. Detachable power supply cords with an inadequate rating could cause significant instrument damage or physical harm.

Do not add anything between the power cord and the power source that would compromise the earth ground.

Do not remove or disable the grounding prong on the instrument power cord.

The analyzer and peripheral devices **must** be installed on their own dedicated power line. Other devices — such as motors, generators, or ovens — **should not** be placed on the same power line.

Replacement power supply cords must be rated for the stated specifications.

If the instrument does not have a power switch and must be disconnected from the wall outlet when powering off, position the instrument where the wall outlet is easily accessible.

The analyzer has been designed to provide efficient and continuous service; however, certain maintenance procedures should be followed to obtain the best results over the longest period of time.

SAFE SERVICING

Do not service or modify this instrument without the authorization of Micromeritics Service Personnel.

To ensure safe servicing and continued safety of the instrument after servicing, service personnel should be aware of the following risks:

Product specific risks that may affect service personnel:

- **Electrical.** Servicing or repair could require opening the outer panels and exposing energized electrical components.
- **High pressure**. Servicing or repair could require opening the outer panels and exposing pressurized components.
- **Loud noise**. Sudden release of pressure could create harmful noise levels.

Protective measures for these risks:

- **Electrical**. The electrical components operate at low voltage (24 V or less) and pose low risk when energized. However, maintenance, troubleshooting, and repairs should be performed with the instrument de-energized whenever possible, in accordance with standard electrical safety guidelines.
- **High pressure**. Relieve pressure before removing the cover. Wear eye protection.
- **Loud noise**. Wear hearing protection.

Verification of the safe state of the instrument after repair:

- All instrument panels and covers installed.
- Gas lines connected and pressurized to normal operating pressure with no leaks.

POWER

The AccuPore CFP uses a 24 V, 11.7 amp power supply with an input range of 100-240 VAC (±10%), 345 VA, 50/60 Hz. Noise-free power of the correct voltage and frequency, with a safety earth ground, should be available through a standard wall receptacle. There should also be sufficient outlets for all devices.

The external power adapter required for the AccuPore CFP is Micromeritics' part number 003-40001-02. Use of any other power adapter could damage equipment and/or cause harm to the operator. The AccuPore CFP is intended to be powered from the output of the approved power adapter rated Class I, manufactured by Mean Well, P/N GST280A24-C6P. Micromeritics supplies a suitably rated approved power supply cord appropriate for the applicable country with the power adapter.

The analyzer and peripheral devices **must** be installed on their own dedicated power line. Other devices — such as motors, generators, or ovens — **should not** be placed on the same power line.

Replacement power supply cords must be rated for the specifications stated above.

As the power switch is located on the back of the instrument, it should be placed so that the switch is easily accessible and the instrument does not have to be moved.

The instrument should be placed so that the power switch and jack are easily accessible. It should not be necessary to move the instrument to make a power connection. The wall outlet should not be blocked, and there should be sufficient space around the outlet and in the immediate area so the instrument can establish a safe and secure power connection and is easily accessible to disconnect the equipment from the AC main power supply.

POWER INSTRUMENT ON AND OFF

When the instrument is powered on, after a few seconds, the system vents automatically. Allow approximately 30 minutes for instrument stabilization before performing analyses.

Recover From a Power Failure

Wet and dry curve data is saved periodically (every few seconds) during the collection. For bubble point, the data is only saved at the end.

Even though the porometer saves data as described above, any operation should be restarted after a power failure occurs.

CONNECT AN AIR COMPRESSOR

To connect the air compressor:

1. Connect the hose to the compressor air regulator with a maximum setpoint of 125 psig (860 kPag). The hose comes with a Swagelok tube fitting that must be adapted to the wall regulator.
2. Mount the air filter via the provided bracket to a stable surface (such as a wall or table) or directly to the low-pressure inlet of the AccuPore CFP. The air filter must be mounted in a vertical orientation with the main body of the air filter oriented directly below the Swagelok connection.

The bracket mentioned is not used in the direct mount configuration.

3. Connect the hose to the air filter using the provided Swagelok connection.

If the air filter is connected directly to the AccuPore CFP, one of the provided hoses will not be required.

4. If the filter is not connected directly to the AccuPore CFP, use the Swagelok tube fitting to connect the hose to the bulkhead on the AccuPore CFP labeled "125 PSI max."

GUIDELINES FOR CONNECTING GASES

Regulator Pressure Settings

Analyzer	Gauge should indicate
AccuPore CFP	Low Pressure: 85-125 psig (590-860 kPag) on the 100 psig inlet (690 kPag) High Pressure: 550 psig (3790 kPag) recommended, 650 psig (4480 kPag) maximum on the 500 psig inlet (3450 kPag)

Exceeding the maximum recommended pressure could cause personal injury or damage the instrument.

These instructions refer to the installation of a gas line, regulator, and gas cylinder for each type of gas used. If expansion kits or other accessories are used in the lab, special consideration should be given to these configurations when installing the gas lines.

Improper handling, disposal, or transportation of potentially hazardous materials can result in serious injury or damage to the instrument. Always consult the SDS when working with hazardous substances. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

- Ensure the gas cylinder is closed before connecting to the analyzer.
- Place gas cylinders within 6 feet (2 m) of the gas inlets of the analyzer. Place the cylinders close enough to allow for proper connection at the analyzer inlet.

  Using gas line extenders on gas cylinders located in remote areas may degrade gas quality and reduce pressure. Long gas lines, such as those used with gas cylinders placed in remote areas, should be purged if they are contaminated with water or particulates.

  When possible, avoid placing gas cylinders in remote locations. It is always best to have gas cylinders located near the analyzer.
- Use a retaining strap (or other appropriate tether) to secure the gas cylinder.
- Always use the gas lines provided with the analyzer. It is very important that proper gas lines are used with the analyzer. The necessary lines are provided. They are all 6 feet (2 m). One is used for the high pressure input, and the other two are used for the low pressure input.
- Carefully route the gas lines from the cylinder to the analyzer avoiding overlapping or entangling gas lines. This will help avoid confusion when maintenance is required.
- Label the gas line at the analyzer inlet for proper identification and maintenance.

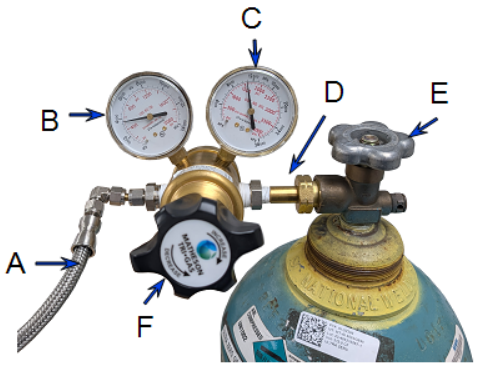
- Replace gas cylinders before gas is depleted. It is best to replace a gas cylinder when the pressure reads approximately 600 psig (4140 kPag) on the high-pressure gauge. Contaminants adsorbed to the walls of the cylinder will desorb as the pressure decreases.
- Input air must be clean, dry and filtered. If using an air compressor, a secondary air filter is required (MIC part #710-25601-004). The air filter should be regularly checked for fluid buildup (and drained as required), and the filter element replaced as necessary. Particulates, water vapor and oil vapor can contaminate the instrument.

REPLACE A GAS CYLINDER

Regulator Pressure Settings

Analyzer	Gauge should indicate
AccuPore CFP	Low Pressure: 85-125 psig (590-860 kPag) on the 100 psig inlet (690 kPag) High Pressure: 550 psig (3790 kPag) recommended, 650 psig (4480 kPag) maximum on the 500 psig inlet (3450 kPag)

Exceeding the maximum recommended pressure could cause personal injury or damage the instrument.



A. Gas tubing to instrument
B. Low pressure gauge
C. High pressure gauge
D. Regulator connecter nut
E. Gas cylinder shut-off valve
F. Regulator control knob

Disconnect a Depleted Gas Cylinder

1. Close the regulator shut-off valve and gas cylinder shut-off valve by turning the knobs clockwise.
2. Disconnect the gas line from the regulator. Gas will be vented from the line. It is not necessary to disconnect the gas line from the analyzer inlet if the cylinder will be replaced immediately with one of the same type.
3. Open the gas regulator shut-off valve by turning the knob counter-clockwise. Gas will be vented from the regulator.
4. Use an appropriate wrench to loosen the nut at the regulator connector nut then remove the regulator from the cylinder.
5. Replace the protective cap on the depleted cylinder. Disconnect the retaining strap and move the cylinder to an appropriate location.

Connect a Gas Cylinder

Move the replacement cylinder close to the analyzer and tether it into place.

1. Use your hands or an appropriate cylinder wrench to remove the protective cap from the replacement gas cylinder.
2. Place the protective cap in a secure location. It will be needed to recap the gas cylinder when it is depleted and replaced.
3. Attach the gas regulator to the gas cylinder connector. Hand tighten the nut, then use an appropriate wrench to tighten an additional 3/4 turn.

Over-tightening the fitting may cause a leak.

4. Check for leaks at the high pressure side of the regulator and in the connector.
   a. Slowly open the gas cylinder shut-off valve, then quickly close it.
   b. Observe the pressure on the high pressure gauge for approximately one minute.
      - If the pressure is stable, proceed with the next step.
      - If the pressure decreases, tighten the regulator connector nut until it becomes stable. If the pressure does not remain stable, remove the regulator and clean all contacts at the regulator connection, then reinstall the regulator.
5. If the gas line to the instrument inlet was previously disconnected, reconnect it now.

O-RING MAINTENANCE

The AccuPore CFP contains several O-rings that require maintenance, which are located:

- Adjacent to the sample
- In the top and bottom of the spacer insert
- In the bottom of the sample chamber

If an O-ring shows signs of wear, it should be replaced with a new, greased O-ring.

CLEAN A GROOVE AND GREASE AN O-RING

1. Use a pointed tool and carefully remove the O-ring from its groove. Be careful not to scratch the metal surface as scratches could result in an imperfect seal.
2. Clean the groove using a small brush or clean, lint-free tissue moistened with isopropyl alcohol.
3. Allow the area to dry thoroughly.
4. Use a small drop of Dow Corning high vacuum grease (or equivalent).
5. Grasp the O-ring with the two greased fingers. Distribute the grease evenly and completely around the O-ring. Apply the grease. However, too little grease results in an imperfect seal and leaks.

6. Place the O-ring back into the groove with the greased index finger, gently pressing it back into position.

GREASE THE O-RING ADJACENT TO THE SAMPLE

The O-ring placed adjacent to the sample must be greased more frequently due to the extensive handling. To grease this O-ring, repeat steps 4 and 5 in the previous section.

CLEAN THE POROMETER

Exterior surfaces should be cleaned with soap or mild detergents. Cleaning agents should be applied with a soft cloth. Do not use solvents or abrasives as they may damage some surfaces.

The air intake filter (low pressure replacement filter part # 710-27001-00) at the rear of the instrument should be inspected periodically and rinsed or replaced if it is clogged.

Do not immerse the porometer or the power cord in any liquids. Doing so could result in electrical shock to personnel or damage to the unit.

Always wear personal protection equipment appropriate for the type and level of contamination.

The sample chamber can be wiped with a lint-free cloth, as necessary.

PARTS AND ACCESSORIES

Parts and accessories are located on the Micromeritics web page.

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UK DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Micromeritics Instrument Corporation
4356 Communications Drive
Norcross, GA 30093, USA

Hereby declares that the product:

AccuPore CFP

is in conformity with the following UK legislation:
Electrical Equipment (Safety) Regulations 2016
Electromagnetic Compatibility Regulations 2016
Restriction of the Use of Certain Hazardous Substances in E&E Equipment Regulations 2012

and that the equipment is in conformity with the following designated and other appropriate standards;

Electrical Equipment (Safety) Regulations 2016
IEC 61010-1:2010/AMD1:2016 - *Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements.*
IEC 61010-2-081:2019 – *Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes.*

Electromagnetic Compatibility Regulations 2016
IEC 61326-1:2020 - *Electrical equipment for measurement, control and laboratory use — EMC requirements — Part 1: General requirements*
IEC 61000-3-2:2019 - *Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*
IEC 61000-3-3:2013 - *Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection*

Restriction of the Use of Certain Hazardous Substances in E&E Equipment Regulations 2012
EN 63000:2018 - *Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*

Name: John McCaffrey, Ph.D.

Title: Vice President, R & D

Signature:

Date of issue: 08/19/2024

Location: Norcross, GA USA

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EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Micromeritics Instrument Corporation
4356 Communications Drive
Norcross, GA 30093, USA

Hereby declares that the product:

AccuPore CFP

is in conformity with the following **EU harmonization legislation**:

2014/35/EU - LVD Directive
2014/30/EU - EMC Directive
2011/65/EU - RoHS Directive

and that the equipment is in conformity with the following harmonized and other appropriate standards;

2014/35/EU (LVD)
IEC 61010-1:2010/AMD:2016 - *Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements.*
IEC 61010-2-081:2019 – *Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes.*

2014/30/EU (EMC)
IEC 61326-1:2020 Ed.3 - *Electrical equipment for measurement, control and laboratory use — EMC requirements — Part 1: General requirements*
IEC 61000-3-2:2018 /AMD1:2020 - *Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*
IEC 61000-3-3:2013 - *Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection*

2011/65/EU (RoHS)
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