ASAP® 2460

ACCELERATED SURFACE AREA AND POROSIMETRY SYSTEM

QUICK START GUIDE

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ABOUT THIS GUIDE

This quick start guide will help you start an analysis with supplied reference material and a pre-defined method. See the Operator's Manual for general instructions for operating the instrument.

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 analyzer or components.

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

GENERAL SAFETY

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

Any piece of laboratory equipment can become dangerous to personnel when improperly operated or poorly maintained. All employees 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 proper lifting and transporting devices for heavy instruments. Ensure that sufficient personnel are available to assist in moving the instrument.
  The ASAP 2460 master module weighs approximately 54 kg (119 lbs). Each auxiliary module weighs approximately 29 kg (64 lbs).
- 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.
- The ASAP 2460 sound level is below 80 dBA. Hearing protection is optional.
- The ASAP 2460 has a safety shield. Ensure it is in place when operating the instrument.
- 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 to prevent costly down time. Failure to practice proper maintenance procedures can lead to unsafe conditions and shorten the life of the instrument.
- Improper handling, disposing of, or transporting potentially hazardous materials can cause serious bodily harm or damage to the instrument. Always refer to the SDS when handling hazardous materials. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

Intended Use

The instrument is intended to be operated by trained personnel familiar with the proper operation of the equipment recommended by the manufacturer and as well as relevant hazards involved and prevention methods. 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.

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:

Use extreme caution when working on the instrument where one of these symbols may be displayed. These symbols indicate the part may be hot and cause serious burns.

Use the cotton gloves provided in the accessory kit when handling heated surfaces. These cotton gloves are not intended to protect hands when heated surfaces are above 60 °C.

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

When this symbol is displayed, toxic or flammable gases require proper venting of exhaust.

This symbol can also indicate the instrument uses mercury which is an extremely toxic substance. Read the Safety Data Sheet (SDS) and be aware of the hazards of mercury and know what to do in the event of a spill or an exposure incident.

DEWAR PRECAUTIONS

Always handle glass Dewars with care. Any product incorporating a vacuum is a potential safety hazard and should be treated with caution. If in doubt, contact your safety officer.

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Do not pour liquid nitrogen directly into a sink. Doing so may cause drain pipes to burst.

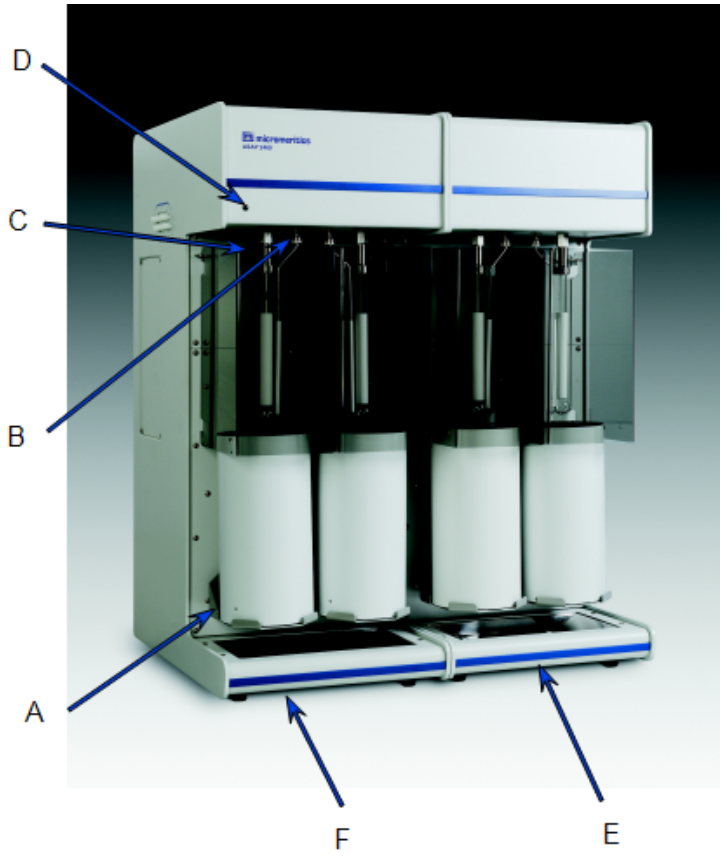
When handling Dewars containing liquefied gases or cryogenic liquids:

- Wear protective equipment:
  - goggles or face shield
  - an insulated or rubber apron
  - insulated gloves
- When pouring liquefied gases from one container to another:
  - cool the receiving container gradually to minimize thermal shock
  - pour the liquified gas slowly to prevent splashing
  - vent the receiving container to the atmosphere

FOR GLASS DEWARS

- Use a plastic stirring rod when stirring substances in a Dewar containing liquefied gases (or other materials of extremely low temperature). Do not use a glass or metal stirring rod unless it has a protective coating.
- Do not handle heavy objects above the Dewar. If unavoidable, place a protective cover over the Dewar opening. If an object of sufficient weight is accidentally dropped into the Dewar, shattering may occur.
- If the Dewar has a protective mesh covering, do not remove it. This cover minimizes the risk of flying particles should the Dewar be knocked over, dropped, or broken.

1 Analyzer Components



A. Elevator
B. P_0 port connector
C. Sample port connector
D. Power indicator (LED)
E. Auxiliary module
F. Master module

Front Components

Component	Description
Elevator	The elevator raises and lowers automatically when the analysis is started and completed. During analysis, the elevator *optionally* lowers after the free space measurement to allow evacuation, then raises and continues the analysis. The maximum weight the elevator can handle is 3.85 lbs.
P_0 port connector	For P_0 (saturation pressure) tube installation.
Power indicator *	Blinks when power is applied to the analyzer; illuminates when the analysis program is initiated and ready for operation.
Sample port connector	For sample tube installation.

* Master module only

Gas Requirements and Purity

Improper handling, disposing of, or transporting potentially hazardous materials can cause serious bodily harm or damage to the instrument. Always refer to the SDS when handling hazardous materials. Safe operation and handling of the instrument, supplies, and accessories are the responsibility of the operator.

Compressed gases are required for analyses. Gas cylinders or an outlet from a central source should be located near the analyzer. Up to five different non-reactive adsorptives — for example, N_2, Ar, CO_2, and Kr, plus helium for free space — can be attached to the analyzer simultaneously.

Appropriate two-stage regulators which have been leak-checked and specially cleaned are required. Pressure relief valves should be set to no more than 30 psig (200 kPag). All gases should be of a purity listed below. Gas regulators can be ordered from Micromeritics. Parts and accessories are located on the Micromeritics web page.

Gas	Purity
(CGA 580) N_2	99.999%
(CGA 580) He	99.999%
(CGA 580) Kr	99.995% (Required for krypton units only)

Cryogen Requirements

Liquid nitrogen is commonly used as the cryogen to cool the sample during analysis. A liquid nitrogen transfer system eliminates the need to pressurize storage Dewars. The Model 021 liquid nitrogen transfer system is available from Micromeritics (www.micromeritics.com).

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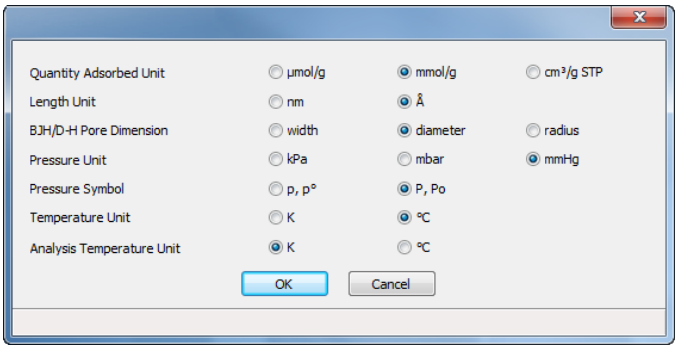
2 SELECT THE PREFERRED UNITS OF MEASURE

Start the analyzer.

Options > Units

Use to specify how data should appear on the application windows and reports. This menu option is not available if using *Restricted* option presentation in a standard installation environment.



3 Prepare and Run an Analysis

Prepare for Analysis

Weigh and degas the sample using the reference material and reference material booklet included in the accessories kit.

It is recommended to perform the tasks in the provided order.

1. Select a sample tube and a stopper.
2. Clean and label the sample tube and stopper.
3. Tare the balance.
4. Weigh the sample tube and stopper.
5. Record as *empty sample tube mass*.
6. Weigh out an amount of Silica-alumina reference material.
7. Load the reference material into the sample tube.
8. Weigh the tube with sample and stopper and record as *before degas mass*.
9. Degas the sample.
10. Reweigh the sample tube and stopper after degas.
11. Determine the clean sample mass by subtracting the *empty sample tube mass* from the *after degas mass*.
12. Insert a filler rod and isothermal jacket on the sample tube.
13. Install sample tube on the analysis port.
14. Fill and install the Dewar.
15. Install the safety shield.

RUN AN ANALYSIS

1. Go to ***Unit 1 > Start Analysis***.
2. Click **New**.
3. Click **Replace All**....
4. Go to *[drive letter]:\ASAP 2460\data* then select the *Silica Alumina Reference Material* example file.
5. Enter the clean sample mass determined above.
6. Click **Save As**.
7. Edit the file name as needed and click **Save**.
8. Click **Close**.
9. Click **Start**.

Repeat each step if more than one sample is being analyzed. The High Throughput Analysis option can also be used to start multiple samples at the same time