

Sample Submission Requirements

The following information is to be used when submitting samples to Micromeritics Analytical Services. The quantities noted are for typical analysis and includes enough material to repeat an analysis if necessary.

A sample submission form is needed for all projects. Please include either a purchase order or credit card number for billing purposes. If you are a new customer, please also fill out our on-line customer information sheet to get your account set-up. The web site address http://www.micromeritics.com/Contact-Us/domestic_customer_information.aspx (Please note: Services for customers outside the US are pre-pay only).

The more information you can supply about your sample the faster we can get the results back to you. We have to make critical decisions prior to analyzing your sample and the more information we have, the better our ability to choose correctly and obtain quality results on the first try.

Samples submitted for gas adsorption or BET surface area should also include information about a proper degas or preparation procedure, in particular, any temperature sensitivity. Samples submitted for particle size should also include information about how to properly disperse the sample. For chemisorption projects, we need to know the proper preparation procedure and analysis gas prior to analysis. If you have any questions about these requirements, please contact us to discuss the options

General Requirements:

1. It is the customer's responsibility to make sure the sample supplied is **representative of the entire sample**. MAS is responsible for using an appropriate aliquot of material as received.
2. Analysis method development usually requires at least three times the recommended minimum sample quantity and is not included in the list price for analysis.
3. Identify each sample and give chemical name if available. Material Safety Data Sheet (MSDS) are required for our safety!
4. Please provide sample preparation and/or analysis procedures if known. This is especially important if trying to duplicate a previous analyses or customer results.
5. Some tests are destructive, so if you require your sample to be returned for additional testing, please indicate that on the sample submission form.

Particle Size Analysis

Sedimentation - Please supply 10 to 15 grams or powder or 500ml of slurry material. Material density and liquid viscosity values are required for analyses. Include identification of any surfactants present.

Laser Light Scattering - Please supply at least 2 grams of material. It is also important to note what analysis liquid is recommended to disperse your sample and how much energy should be applied to break up any agglomeration. Dry powder dispersion is also available if needed. If previously analyzed please provide dry dispersion information.

Electrical Sensing Zone Technique - Please Supply at least 2 grams of powder or 200 ml of low concentration slurry.

Dynamic Light Scattering - Please supply at least 10ml of colloidal suspension or emulsion.

Sieve Analysis or Dynamic Image Analysis - Please supply at least 100 grams of dry granular material.

Density

Gas density - Requires at least 0.1 cc of true sample volume. The maximum size must fit inside a cylinder 46 mm wide and 61 mm tall. For liquids, the vapor pressure must be no higher than the vapor pressure of water. For foam density, supply enough material to cut two 1 inch cubes, and give the density of the solid unexpanded resin used to make the foam.

Envelope or T.A.P. density - Sample should be at least 3mm in diameter and no larger than 1.5 inches. Sample should also contain at least 0.5 cc of envelope volume for the best results. Supply absolute sample density if specific pore volume and percent porosity is desired. MAS can determine the absolute density if desired.

Hg Density - The sample must fit inside a cylinder 25mm wide and 25 mm deep.

Specific Surface Area, Porosimetry by Gas Adsorption

Please supply 5 grams of material. Depending on the technique requested, between 0.5 and 10 m² of total surface is needed for each analysis. Lower surface area materials can be analyzed but may require Kr gas. Sample should fit inside a 9mm sample tube.

Mercury Porosimetry

Please supply 5 grams or 5 solid pieces of material. The largest solid sample should fit inside a 25mm x 25mm cylinder. Any information regarding approximate porosity or pore volume will be very helpful.

Chemisorption Studies

Typical analysis requires 3 grams of sample; however some experiments require only 100 milligrams. Please identify the type of study desired (pulse/dynamic or volumetric), the chemisorptive gas (H₂, CO, O₂, N₂O, NH₃, etc), and the amount of metal present. Include any additional information about the support, analysis temperature, pretreatment temperatures and pretreatment reactions.