SYLLABUS

Saturn DigiSizer Series Operator Training

INSTRUCTIONAL GOALS

This course introduces students to the components, operation, and theory of the Saturn 5205 for particle size analysis.

At the end of this course, you will:

- Understand the basic fundamentals of sample preparation and dispersion, including sampling, choosing an appropriate analysis liquid and surfactant, the stages of dispersion, dispersion techniques, and sample loading.
- Understand the basic fundamentals of scattering theory, including Mie theory, particle size distribution calculations, and Saturn operational theory.
- Be able to utilize all Saturn software menus and screens to efficiently obtain accurate and reproducible data.
- Know how to use the operating software to operate the Saturn and MasterTech.
- Be able to properly configure any report format, a combination of reports, and obtain analysis information according to your laboratory requirements.
- Be able to make all user level repairs, adjustments and checks, and locate equipment problems using the Troubleshooting section of the Operator’s manual.
- Be able to verify dispersion quality, interpret and optimize the Goodness of Fit plot.

NEEDS AND RESOURCES

Required Background
To successfully complete this course, you must:

- Have some minimal exposure to a Saturn in a laboratory environment.
- Have reviewed the Operator’s manual.

Required Materials
The following provided materials will help you successfully complete this course:

- Operator Training Study Guide with Lecture Presentations
- Notepad
- Pen
- Highlighter
- Micromeritics Thumb Drive containing presentations, relevant application notes and Study Guide

Additional Print Resources
The following publications will also be provided:

- Related Application Notes and Technical Tips

Online Resources
Additional information can be found at:

- www.micromeritics.com
# Day 1

<table>
<thead>
<tr>
<th>Session</th>
<th>Activity</th>
<th>Description</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>----</td>
<td>Introduction</td>
<td>8:15 AM – 8:30 AM</td>
</tr>
</tbody>
</table>
| 1       | LAB      | Exercise 1: Saturn Components/Software overview  
|         |          | Exercise 2: Background  
|         |          | Exercise 3: Sample Preparation  
|         |          | Exercise 4: Garnet Sample File  
|         |          | Exercise 5: Garnet Analysis (External Dispersion)                                              | 8:30 AM – 9:45 AM |
| 2       | LECTURE  | Light Scattering Theory and the Operation of the Saturn DigiSizer                               | 9:45 AM – 11:30 AM |
|         | ----     | LUNCH                                                                                        | 11:30 AM – 1:00 PM |
| 3       | LAB      | Exercise 6: Adding Specifications  
|         |          | Exercise 7: Garnet Analysis (Internal Dispersion)                                              1:00 PM – 3:00 PM |
|         |          | Exercise 8: Calcium Carbonate Analysis                                                        |                  |

# Day 2

<table>
<thead>
<tr>
<th>Session</th>
<th>Activity</th>
<th>Description</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>----</td>
<td>Introduction</td>
<td>8:15 AM – 8:30 AM</td>
</tr>
</tbody>
</table>
| 1       | LAB      | Exercise 9: MasterTech  
|         |          | Exercise 10: Incorrect Dispersion                                                            | 8:30 AM – 9:30 AM |
| 2       | LECTURE  | Advanced Topics                                                                              | 9:30 AM – 10:30 AM |
| 3       | LECTURE  | Review of Report Options, Data Reduction, and Class-Generated Results                        | 10:30 AM – 11:30 AM |
|         | ----     | LUNCH                                                                                        | 11:30 AM – 1:00 PM |
|         | ----     | FACILITY TOUR                                                                                 | 1:00 PM – 2:00 PM |
| 4       | SERVICE  | A discussion of installation, calibration, and maintenance                                     | 2:00 PM – 3:00 PM |
| 5       | ASSESSMENT | Class Survey and Assessment                                                                     | 3:00 PM- 4:00 PM |
Policies and Procedures

General Rules:
Attendance to all scheduled lectures and labs is very important due to the length of the course. Please make every attempt possible to avoid tardiness. If you do come in late, please enter through the rear door of the classroom so as to not disrupt or distract your fellow students. If you are unable to attend a day or part of a day due to emergency, please notify the Training Coordinator immediately.

Remember, you and/or your company have a business need for you to attend and complete this course to insure that you are getting the most out of your company’s investment in your Micromeritics instrument.

Grading Policies:
You will be periodically evaluated throughout the course during oral discussions and demonstrations. Please be prepared to answer questions about the previous lessons content. A brief assessment exam will be given at the end of the course to verify that learning objectives are met by each student.

Grading Scale:
There is no grading scale for this course and you will not fail. Again, you and/or your company have a business need for you to attend and complete this course to insure that you are getting the most out of your company’s investment in your Micromeritics instrument.

Additional Information
Lunch will be provided by Micromeritics. Please inform the Training Coordinator of any special dietary needs.

Contact Information
Kara Bailey
MLC Senior Training Coordinator
(770) 662-3607
kara.bailey@micromeritics.com
www.micro.edu