LS-909 激光粒度仪操作规程

一、检查进样窗口

检查窗口玻璃的洁净度，冲洗，用扳手对准凹陷处拧开，洗耳球吹去灰尘，用纯水冲洗干净。再将测试窗口插入主机装好。

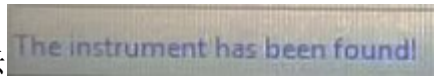
用扳手拧下窗口玻璃片

进水管需保持干净，永远置于净水桶中，确保污桶不会满溢

二、手动测量流程

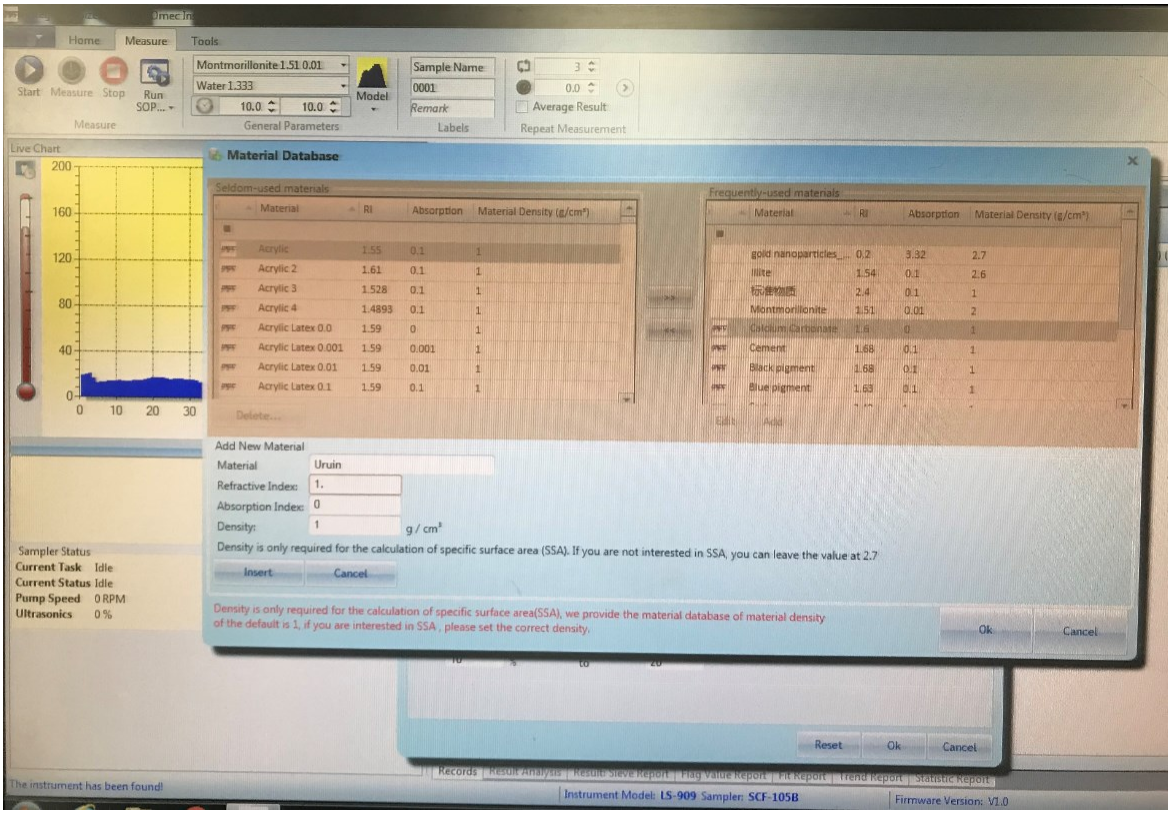
1. 打开主机和进样器，主机需要预热 5-15 分钟
2. 双击桌面 OMEC 图标打开软件。

湿法循环进样器

3. 如左下角显示 

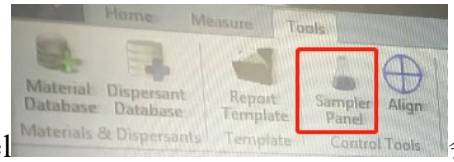
，则表示仪器主机与电脑已联好。
4. 新建测量文件
   1) 单击测试软件 Home 下面“新建”，建立一个测量文件，用来存放测量记录。
   2) New SOP
      - 设置测量参数

        选择材料，或选近似的吸光度（需要提前查询相关资料）



3) Material 选待检测材料，Dispersant 为分散剂（一般为水或乙醇）
4) Label、超声等可以沿用默认设置
5) Cycle：勾选 Create AV Results。循环次数如设置为 3，会出现 4 个结果，最后一个为平均值。

5. 排气泡（依次按一遍）

Tools→ Sample Panel 

会出现以下窗口：

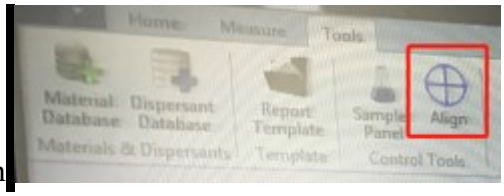
最下面的图标依次为：

1. 进水：往样品池加适量的水
2. 排气：排气泡看左侧的图，呈梯度下降，凭经验判断是否完成
3. 清洗
4. 排干样品池溶液

每次检测前必需进行排气泡，依次进行下列操作：加水→排气泡→设置泵速（左侧滑块调至中间）

排气泡看左侧的图，呈梯度下降且保持动态平衡，凭经验判断是否完成，当气泡排除完成后才可以进行下一步操作。

6. 系统对中（校准）：



排气后的下一步骤，在 Tool 选项下 Align

校准界面，左侧为背景图

- 每次检测前只需要做一次校准，然后开始检测

7. 检测

1) Measure

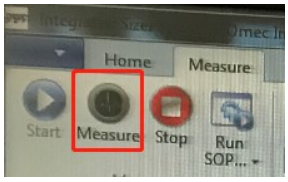
■ Measure→ Run SOP→ 选中自己的 SOP→ Run→根据左边文字提示进行操作（比如编辑 sample name 和开始进样）

■ 如点击 Edit SOP，则可修改检测时所需要的参数。

➢ 添加样品

■ 对样品量没有需求，但颗粒不要太大，防止堵仪器。用纯水将样品（悬浊液或者粉末颗粒）混匀，缓缓倒入样品池。同时注意图示左侧遮光比的变化，使之处于预设的范围内。

2) 测量样品



➢ 当遮光比处于正常区间时，单击 Measure

➢ 右侧测量记录列表中可见数据；

➢ Records 一栏显示都是结果，只是排版不同，可以多选做对比；

➢ 结果用虚拟打印机保存为 PDF 形式；

➢ 测量完需要点 Stop。

8. 清洗并关机

➢ 测量完成后，将样品池中的废水排掉，换上洁净的水进行循环清洗，最后排干样品池中的水并关机。

LS-909 Laser Particle Size Analyzer SOP

1. Check the injection window

■ Check the cleanliness of the window glass, rinse it, use a wrench to align the recess to unscrew it, wash the ear ball to blow off the dust, and rinse it with pure water. Then insert the test window into the host and install it.

Unscrew the window glass with a wrench

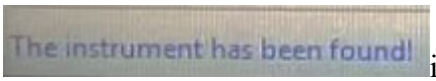
The water inlet pipe needs to be kept clean and always placed in the clean water bucket to ensure that the dirty bucket does not overflow

2. Manual measurement process

2.1 Turn on the main unit and the injector, the main unit needs to warm up for 5-15 minutes

2.2 Double-click the *OMEC* icon on the desktop to open the software.

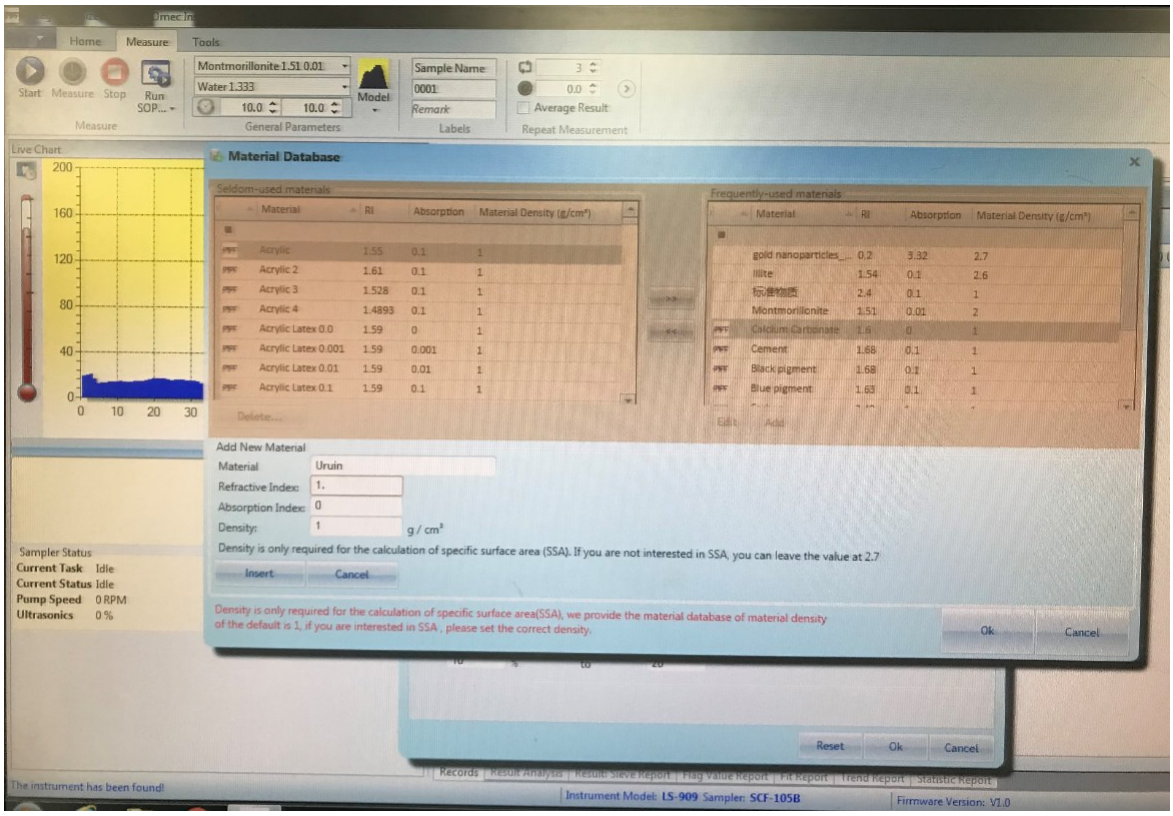
Wet cycle injector

2.3 If 

is displayed in the lower left corner, it means that the instrument host and the computer have been connected.

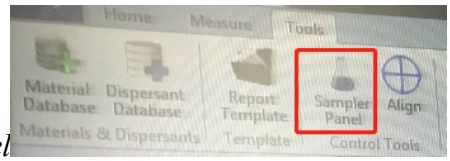
2.4 Create a new measurement file

1) Click “New” under Test Software Home to create a measurement file to store measurement records.
2) New SOP
   ■ Setting measurement parameters
   Select the material, or select the approximate absorbance (need to check the relevant information in advance)



3) Material is selected as the material to be tested, and Dispersant is a dispersant (usually water or ethanol)
4) Label, ultrasound, etc. can follow the default settings
5) Cycle: Click *Create AV Results*. If the number of cycles is set to 3, there will be 4 results, and the last one is the average.

2.5 Exhaust air bubbles (click one by one)

Tools→ Sample Panel 

：The following window will appear:

The bottom icons are:

1. Water inlet: add an appropriate amount of water to the sample cell

2. Exhaust: see the figure on the left for the bubble exhaust, and it descends in a gradient. Judge whether it is completed based on experience.

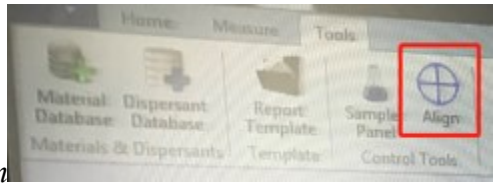
3. Cleaning

4. Drain the sample cell solution

Before each test, it is necessary to discharge air bubbles, and perform the following operations in sequence: add water → discharge air bubbles → set pump speed (the slider on the left is adjusted to the middle)

See the figure on the left for the bubble removal, it shows a gradient descent and maintains a dynamic balance. It is judged by experience whether it is completed or not, and the next step can be performed only after the bubble removal is completed.

2.6 System calibration

Tools → Align 

Calibration interface, background image is on the left

- Only need to do one calibration before each test, and then start the test.

2.7 Detection

1) Measure

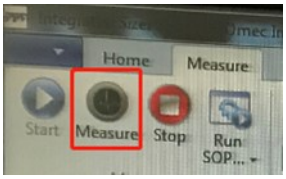
■ Measure→ Run SOP→ Select your own SOP→ Run→ operate according to the text prompts on the left (such as editing sample name and starting injection)

■ If you click Edit SOP, you can modify the parameters required for detection.

➢ Add sample

■ There is no requirement for the sample volume, but the particles should not be too large to prevent the instrument from clogging. Mix the sample (suspension or powder particles) with pure water and pour it into the sample cell slowly. At the same time, pay attention to the change of the shading ratio on the left side of the figure, so that it is within the preset range.

2) Measure the sample



➢ When the shading ratio is in the normal range, click *Measure*

➢ Data is visible in the measurement record list on the right;

➢ The results in the Records column are all results, but the layout is different, you can select multiple for comparison;

➢ The results are saved in PDF form with a virtual printer;

➢ After measuring, click Stop.

8. Cleaning and Shutdown

- After the measurement is completed, drain the waste water in the sample cell, replace it with clean water for circulating cleaning, and finally drain the water in the sample cell and shut down.