

Grim-2 Instrumental Procedure

I. Instrument Name: Grim-2 Computerized Automatic System for Glass Refractive Index Measurement and Data Storage (using Phase Contrast Microscopy and a Mettler Hot Stage)

II. Suggested Uses: Refractive Indices of Glass Particles and Other Similar Materials

III. Operating Procedures

A. Start-up and analysis

1. Turn "ON" the amber switch.
2. Turn "ON" the red switch (this powers up the Grim 2).
3. Turn "ON" the power source to the phase contrast microscope .
4. Turn on the computer.
5. Allow the system to warm up and stabilize for one (1) hour before taking readings.
6. Open the software by double clicking on the Grim-2 icon.
7. Go to the menu bar and select :

File/Open

From the dialog box select:

sbi/gfw, then click on ok

8. Return to the menu bar and select:

Calibration/Select oil/wave

From the dialog box select:

Oil	Wave
B	589

9. Return to the menu bar and select:

Data/Measure

10. The dialog box will appear, click on **Standard**. Enter left hand side of entries. In the box labeled "standard" select glass sample B5. The right hand side is optional. Prepare standard #B5 from the known glass standards provided.
11. Place a prepared slide with glass particles, B oil , and a cover slip in the Mettler Hot Stage.
12. In the dialog box click on **Measure**. The Hotstage screen will appear .
13. Select an appropriate edge with sufficient contrast for analysis.
14. Select **F9 Setup** to place measuring box on edge of glass fragment.
Note: Pressing the space bar will update screen.
15. Select **F1 Search** to determine approximate null temperature.

16. When **Search** is complete select **F4 Auto** to measure null point and refractive index.

Note: Edge count is a measure of contrast.

The edge count during analysis should always exceed 10 and optimally be close to 99.

17. After analysis is complete Select **F10 Exit**.

18. At dialog box, if measurement is satisfactory select **Save Control**. If measurement is unsatisfactory select: **Save Reject**.

19. Repeat this procedure for fragments 2-5

20. Record RI value of #B5 in calibration log

After control analysis is complete return to dialog box and select: **standard** (known glass sample). The left hand side of the dialog box must be filled in, the right hand side is optional.

Repeat steps 10-19 for the standard sample.

After completion of standard analysis, return to dialog box and select **Recovered** (question glass sample). The left hand side of the dialog box must be filled in, the right hand side is optional.

Repeat steps 10-19 for the recovered glass sample.

After completion of analysis return to menu bar and select:

File/Print/Print Case

Enter the case number and select ok.

Add printout to your notes.

B. Shut-down

1. Allow the system to cool.
2. Turn "OFF" all instruments in reverse order of the turn "ON" procedure.

IV. Safety Concerns

- A. Glass slides have sharp edges and can cut.
- B. High Temperature may be produced.

V. Other Information-consult the Manufacturer's manuals.

Approved: _____

Date: _____