User Reference Materials

User Reference Materials explanation and usage:

Please select the type of instrument by clicking on it:

Dilatometer or Viscometers:

DilaSoft I for Windows supports up to eleven user entered reference materials with the Dilatometer and Viscometer instruments. These are entered as standard fifth order polynomial equations. Up to three different equations can be entered for each material. This allows more complex curves to be follwed with less error. Each material is given an ID number, name, description and the following equations.

If there are any problems, questions or suggestions; please contact Theta Industries with detailed information about the nature of the problem and any error messages displayed by the software.

Note: The User Reference Materials are ONLY available in the full version of the software. It is NOT available in the Lite version!

Note: Theta Industries, Inc can NOT be held responsible for any conseqences as the result of user entered reference material equation data. It is entirely the user's responsibility to ascertain the accuracy and results obtained from user entered equations!

The **Dilatometer User Reference Material Window** is shown above and will be explained in detail:

The Material ID number is automatically set by the software. The range of numbers if from one hundred (100) to one hundred and ten (110), allowing up to eleven different materials. The number is changed by clicking on the up/down "spin button" to the left of the number. Clicking on the up arrow will increse the number. The down arrow decreases it.

The name and description are both user entered. Any standard text that fits into the text box is adequate. The description is optional but the name MUST be filled in for proper identification of the material.

The text box in the middle of the window holds a brief description for using the user reference material window.

The lower section of the window is where the actual equation(s) will be entered. A sample equation is shown here for example only. There are three equation

lines and three associated temperature range lines. Only one full line needs to be filled in for any reference material as shown above. If a single equation can not handle a complex curve, up to two more equation lines may be entered.

For the Dilatometer, the equations are selected by the software from the temperature range. As shown above, this material's range is from zero degrees to 1600 degrees Centigrade. Any temperature outside that range will produce an error during the test and most probably abort the test since the software will conclude that the material has been permanently damaged or melted. Make sure you do not operate outside of the range entered for any particular material! The equation is shown above and works as: If the temperature is greater than or equal to the entered number - AND - the temperature is less than the entered number, this equation will be used. It is very important to remember that if a second (or third) line is used, the first temperature number entered MUST be the same as the second temperature number entered in the previous line. If the same number is not used, an error condition could exist and the test aborted! For example: If the first line's temperature range was entered as from zero (0) to one thousand (1000), and the second temperature range entered as from one thousand (1000) to sixteen hundred (1600). The second temperature range line MUST start with one thousand (1000) as the first temperature range line had ended with one thousand (1000)

The above sample uses all six of the polynomial variables. However, not all six must be used. If your equation has only five numbers, leave the last one set to zero. As can be seen from the equation, a zero entry will add zero to the result, effectively turning off that section of the equation. The equation MUST be filled in from the left side. Zeros are only allowed on the right side of the equation!

After the name and equations are finished, you may either used the ID Spin Button to select another material for entry or click on the "Accept" button to save the changes made. After materials are entered and the "Accept" button has been clicked on, the window will close and the materials will be available for use by the software. Clicking on the "Cancel" button will erase all changes made and close the window.

By using the Load and Save buttons, sets of equations can be loaded or saved to disk files. This allows for not only an unlimted number of equation sets to be saved but also allows using different material equations for different instruments. By default, the software main diectory (usually, c:\tw32) is used for equation sets. The equation sets use a file extension of ".URF" and are text files that can be loaded into any word processor or text editor (such as Notepad) for reference or printing.

User Reference Materials

Material ID   Name   My Graphite II

100   Description   a test ref material - discard!

Enter equation numbers in the spaces below. If you have more than one Log-Viscosity (LV) range, make sure to enter the correct L each line. If you do not have 6 numbers to enter, leave the entries towards the right at zero. The equation MUST be filled in from th side. Any zero numbers MUST be at the end of the equation lines! If you do NOT have more than one line, enter -300 for both LVs those lines not used (any number lower than -273 will work). Lines with an LV range below -273 are ignored in the calculations. Sir any numerical value in the equation is possible, no error checking can be done. The accuracy of the entered equation is entirely u the user!

LV >=   0   AND LV <   1600

Temp=   -36.893905   + (1.7507503   *LV)+(0.004861325   *LV^2)+(-0.000008342   *LV^3)+(6.9887231E-0   *LV^4)+(-1.85062

LV >=   -300   AND LV <   -300

Temp=   0   + (0   *LV)+(0   *LV^2)+(0   *LV^3)+(0   *LV^4)+(0

LV >=   -300   AND LV <   -300

Temp=   0   + (0   *LV)+(0   *LV^2)+(0   *LV^3)+(0   *LV^4)+(0

Load   Save   [?]   Cancel   Accept

The **Viscometer User Reference Material Window** is shown above.

The Viscometer window is almost identical to the Dilatometer window. The only differences are the labeling and meaning of the equation numbers. The Viscometer calculates a temperature for a given Log of Viscosity (LV). Thereofre the numbers entered are a Log of Viscosity range for each line and the six polynomial numbers for the equation. There is no temperature in the Viscometer calculation as the function of the equation is to calculate a temperature. The full description follows:

The Material ID number is automatically set by the software. The range of numbers if from one hundred (100) to one hundred and ten (110), allowing up to eleven different materials. The number is changed by clicking on the up/down "spin button" to the left of the number. Clicking on the up arrow will increse the number. The down arrow decreases it.

The name and description are both user entered. Any standard text that fits into

the text box is adequate. The description is optional but the name MUST be filled in for proper identification of the material.

The text box in the middle of the window holds a brief description for using the user reference material window.

The lower section of the window is where the actual equation(s) will be entered. A sample equation is shown here for example only. There are three equation lines and three associated Log of Viscosity range lines. Only one full line needs to be filled in for any reference material as shown above. If a single equation can not handle a complex curve, up to two more equation lines may be entered.

For the Viscometer, the equations are selected by the software from the Log of Viscosity range. As shown above, this material's range is from one to fourteen. Any LV outside that range will produce an error during the test and most probably abort the test since the software will conclude that the material has been permanently damaged. Make sure you do not operate outside of the range entered for any particular material! The equation is shown above and works as: If the LV is greater than or equal to the entered number - AND - the LV is less than the entered number, this equation will be used. It is very important to remember that if a second (or third) line is used, the first LV number entered MUST be the same as the second LV number entered in the previous line. If the same number is not used, an error condition could exist and the test aborted! For example: If the first line's LV range was entered as from one (1) to ten (10), and the second LV range entered as from ten (10) to fourteen(14). The second LV range line MUST start with ten (10) as the first LV range line had ended with ten (10).

The above sample uses all six of the polynomial variables. However, not all six must be used. If your equation has only five numbers, leave the last one set to zero. As can be seen from the equation, a zero entry will add zero to the result, effectively turning off that section of the equation. The equation MUST be filled in from the left side. Zeros are only allowed on the right side of the equation!

After the name and equations are finished, you may either used the ID Spin Button to select another material for entry or click on the "Accept" button to save the changes made. After materials are entered and the "Accept" button has been clicked on, the window will close and the materials will be available for use by the software. Clicking on the "Cancel" button will erase all changes made and close the window.

By using the Load and Save buttons, sets of equations can be loaded or saved to disk files. This allows for not only an unlimted number of equation sets to be

saved but also allows using different material equations for different instruments. By default, the software main diectory (usually, c:\tw32) is used for equation sets. The equation sets use a file extension of ".URF" and are text files that can be loaded into any word processor or text editor (such as Notepad) for reference or printing.