

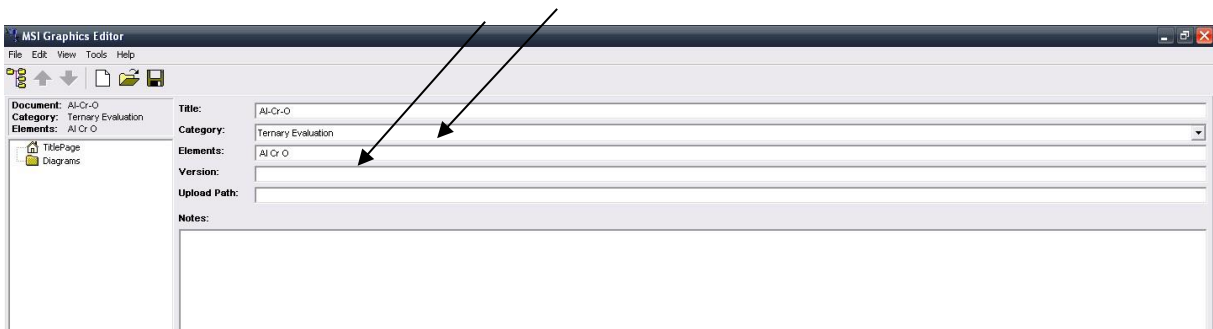
MSI Graphics Editor

Short Manual,
for full instruction see “Help” in MSI Graphics Editor

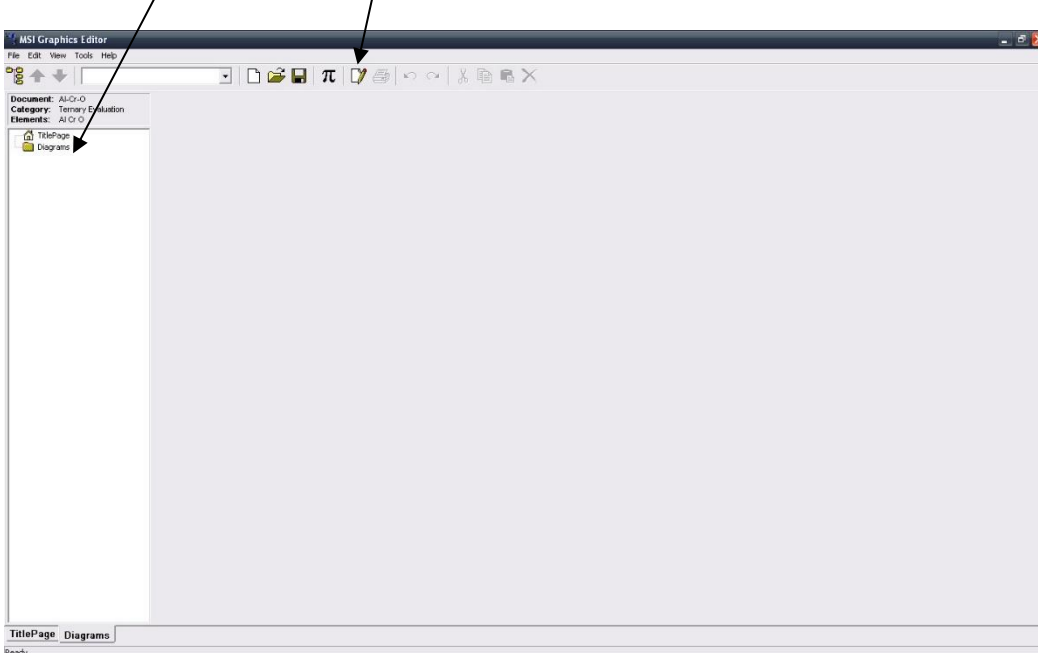
1: Start program:
Push “New Document”



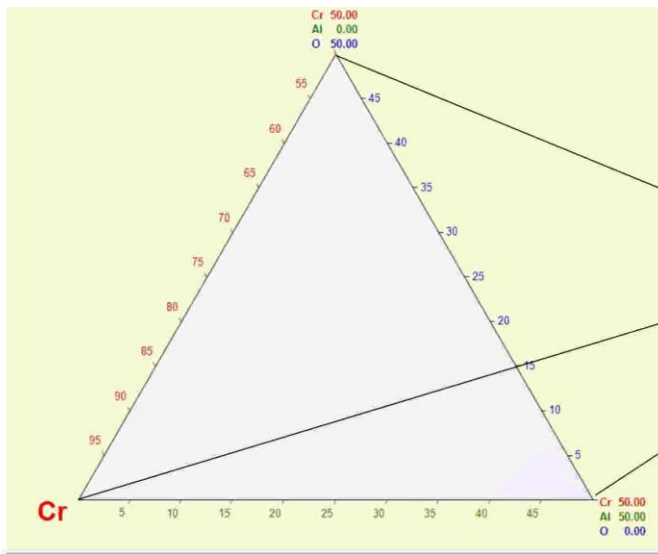
2: Please input correct information about project. Without “Title and Elements” impossible to save file!
Fields “Version and Upload Path” should stay empty.



3: Go to “Diagrams” and create diagram



Triangle:



Create Diagram

Triangular | Rectangular

Diagram Type: Old MSI Triangular

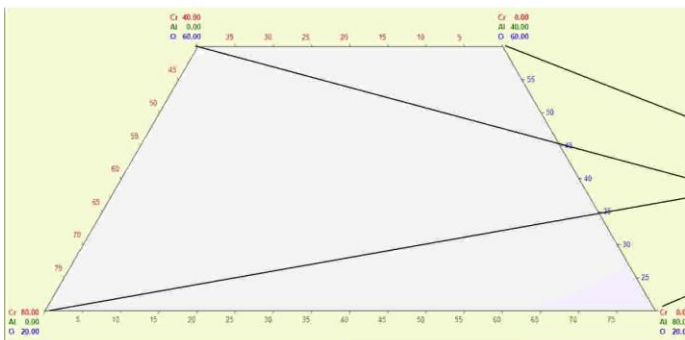
Diagram Section: Custom 3 Points

Scale: Atom%

Section Data:

Pt1:	100.0000	0.0000	0.0000
Pt2:	50.0000	50.0000	0.0000
Pt3:	50.0000	0.0000	50.0000
Pt4:	0.0000	0.0000	100.0000

Units: Unit1: Change..., Unit2: Change...



Create Diagram

Triangular | Rectangular

Diagram Type: Old MSI Triangular

Diagram Section: Custom 3 Points

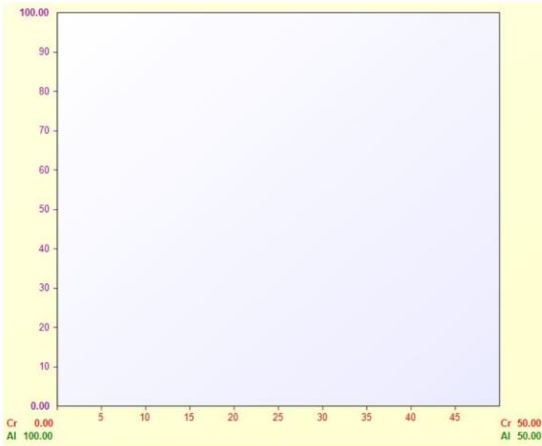
Scale: Atom%

Section Data:

Pt1:	80.0000	0.0000	20.0000
Pt2:	0.0000	50.0000	20.0000
Pt3:	0.0000	40.0000	60.0000
Pt4:	40.0000	0.0000	60.0000

Units: Unit1: Change..., Unit2: Change...

Rectangular diagram:



Create Diagram

Triangular Rectangular

Diagram Type: Old MSI Rectangular

Custom Axes: Both, X - Axis, Y - Axis

Scale: Atom%, Mass%

Concentration: 100.0000, 0.0000, 0.0000

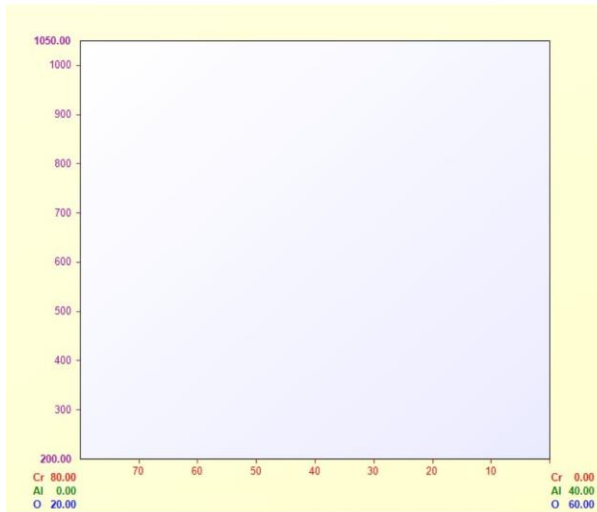
Custom X-Axis: 0.000, 100.000

Custom Y-Axis: 0.000, 100.000

Units: Unit1: Change..., Unit2: Change...

OK Abbrechen

Temperature range



Create Diagram

Triangular Rectangular

Diagram Type: Old MSI Rectangular

Custom Axes: Both, X - Axis, Y - Axis

Scale: Atom%, Mass%

Concentration: 100.0000, 0.0000, 0.0000

Custom X-Axis: 0.000, 100.000

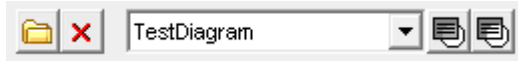
Custom Y-Axis: 200.000, 1050.000

Units: Unit1: Change..., Unit2: Change...

OK Abbrechen

Using Template Images

You can setup template images by switching to the template image mode with the second button in the diagram toolbar with the image symbol. In template mode, the diagram will disappear and a new interface section will be shown in the diagram toolbar:



Opens a file dialog where you can load an image file as template image. Valid formats are BMP, JPG, PNG, TIF and TGA.



Closes the active template image.



A pull down menu where you can select the active template.

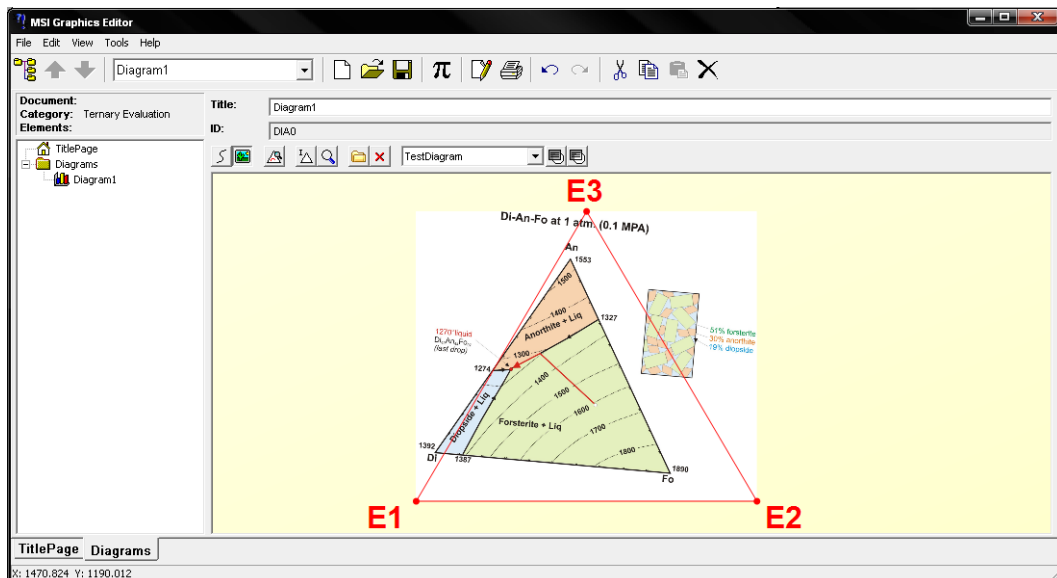


Increases the opaqueness of the template image. (Decrease transparency)



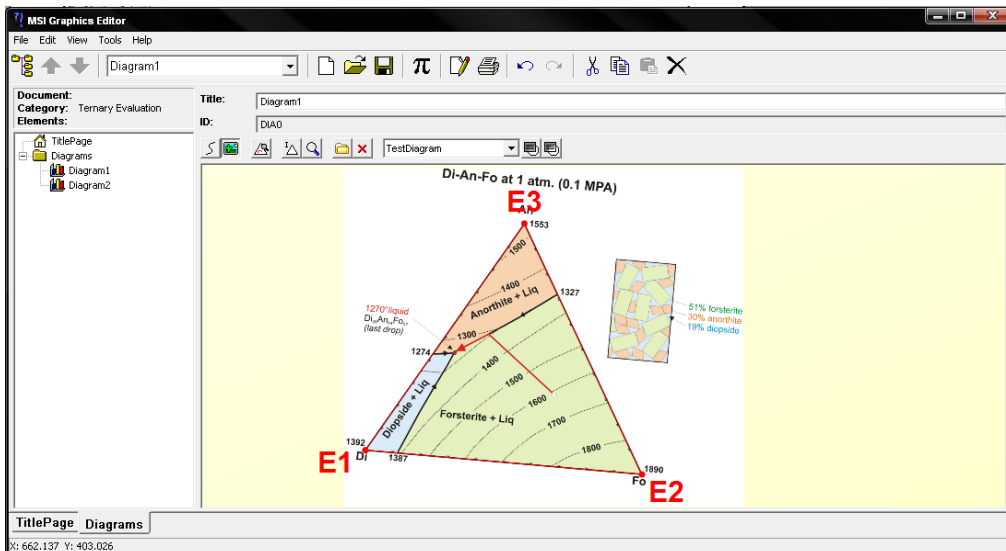
Decreases the opaqueness of the template image. (Increase transparency)

If you've loaded a template image, it will be shown as a transparent rectangle in the diagram. In a triangular diagram, you will also see a red triangle with a point and a sign E1, E2 or E3 in each corner. It represents the triangular diagram.



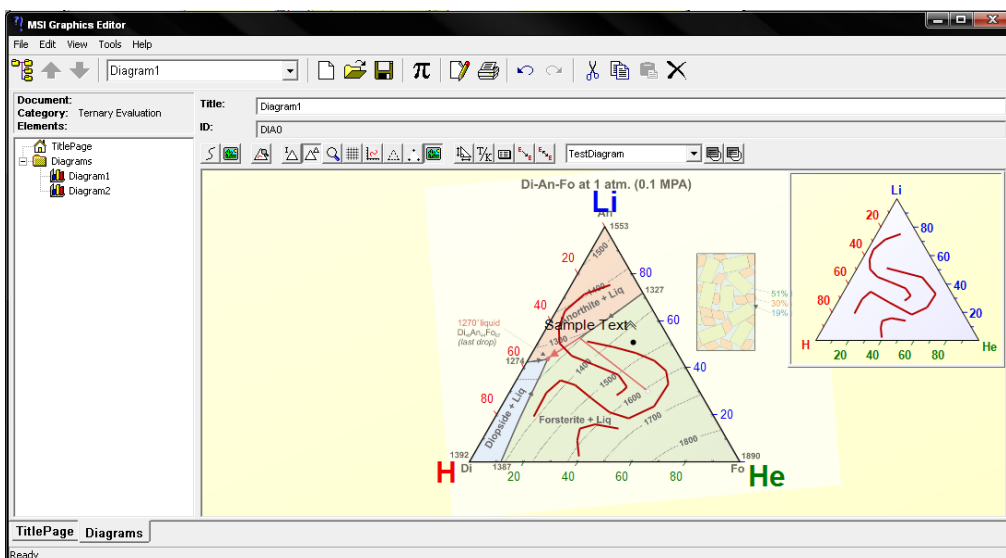
In a rectangular diagram, you will see two lines that form a 2D coordinate system instead. The task is now to place the red triangle on the triangular diagram shown in the template image. Make sure that the element symbols of the red triangle fit to the element symbols of the triangular diagram in the template image.

You can pick the corner points with a left mouse click and move them around. You can also zoom in and out with the mouse wheel or the '+' and '-' buttons, or move the whole template image by picking it with the left mouse button and move it around while keeping the button pressed.



If you're finished adjusting the position and size of the template image, then you load another template image or leave the template mode and switch to diagram mode again.

Back in diagram mode, you can then show the template image adjusted to the triangular diagram:



You can use this option to compare diagrams with your own or use the template image as a template to redraw the diagram in the data format of the MSI Graphics Editor.

Toolbar:



Toggle line drawing mode



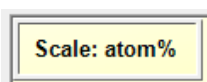
Toggle template image mode



Reset central view which centers and resizes the current main section to the window size. You can also do that by simply pressing the space button on the keyboard. (*Hotkey: Space*)



Toggles the info box which is shown on the upper left side of the diagram. The info box contains general information like current scale and constant diagram values. The info box is always available in triangular diagrams. In rectangular diagrams you have to select constant values and/or concentration axes, or the info box won't be shown. (*Hotkey: I*)





Toggles the mini map which will show a miniature view of the diagram at the upper right side. (*Hotkey: M*)



Toggles the grid lines in the diagram. (*Hotkey: G*)



Toggles the scale between atom percent and mass percent. In rectangular diagrams this will only show a visible effect, if there's a concentration axis available. (*Hotkey: S*)



Toggles the layout triangle in triangular diagrams. The layout triangle shows a half transparent triangle with the three points of pure element concentration (100%) in each corner. Keep in mind that you will only see the layout triangle if the main section doesn't already cover the whole area.

Note: Only available in triangular diagrams!!!



Toggles the visibility of the main section corner points, which allows you to change the size and shape of the diagram section. This functionality is only available in triangular diagrams and you have to be in edit mode (not in line or template mode) to use it. You can pick the big black corner points with the left mouse button and move them to another position. Make sure that you don't release the left mouse button until the corner point has reached the target position. You can also enter the concentration for the main section corner points manually if you make a right click with the mouse on one of the corner points and choose 'Set data...' in the appearing popup menu.

Note: Only available in triangular diagrams!!!



Shows the active template image. (*Hotkey: T*)



Changes the layout of the diagram. This is similar to the 'Custom Layout' dialog options at the creation of a new diagram. But here you can change those settings at any time. This tool button is not available in rectangular diagrams.

Note: Only available in triangular diagrams!!!



Changes the unit types of the diagram. This is similar to the 'Units' dialog options at the creation of a new diagram. But here you can change those settings at any time.



Sets a central value for the diagram which is shown in the info box of the diagram window. You can choose two values. The unit of the values is defined by the current unit types for the diagram.



Shows a dialog which allows you to change the element types like Helium, Lithium, etc. This is always available in triangular diagrams, but only available in rectangular diagrams with concentration axis.



Shows a dialog which allows you to swap element types. This will also swap the concentration data of points, lines, etc. You've also the choice to just swap the data and leave the element types as they are. This is always available in triangular diagrams, but only available in rectangular diagrams with concentration axis.



Change the concentration scale of an axis.

Note: Only available in rectangular diagrams!!!



Changes scale range of an axis.

Note: Only available in rectangular diagrams!!!



A selection box which allows you to change the active template. The active template will be shown if you press the related button in the toolbar.



Increases the opacity of the template image. (=> Decreases the template transparency)



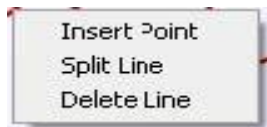
Decreases the opacity of the template image. (=> Increases the template transparency)

The Edit Mode

a) Editing lines

You can select lines by just clicking on them with the left mouse button. If you don't release the button, you can move the line around. As long as the line is selected, its points are visible and the two pull down menus for changing line type and style are shown. You can also delete the line by pressing the delete button on the keyboard.

You can also make a right mouse click on the selected line to get a small popup menu:



The popup menu allows you to insert a new point at the position where the context menu was activated, split the line at the same position or just delete the line. If you want to edit a line, make sure you don't select one of the points of the line. You see that if a big circle is drawn around the point. You can deselect the point by clicking with the left mouse button on another position of the line where no other point is located.

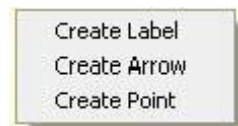
You can also combine the end points of several lines by creating a sink point:



You can create a sink point by pressing the **Ctrl** button first and then the **right mouse button**. Keep the buttons pressed and move the mouse cursor away from the point of creation. You will now see a dashed circle with the creation point as center. If you release the left mouse button, the sink point will be activated, if you release the ctrl button first the sink point will be aborted. If the sink point is activated, all line ending in the area of the circle will be merged into one point. If there's a selected line in the area, the location of the merge point will be the end point of the selected line, otherwise the centre of the sink point will be taken for the location of the merge point.

b) Creating and editing points

If you press the right mouse button on a free position in the diagram, a popup dialog will show up, which will allow you to create an independent point at the position where the popup menu was called:

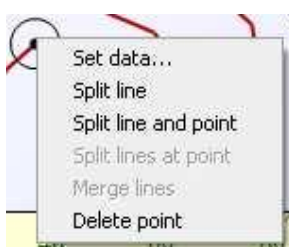


Before you can select a point on a line, you usually have to select the line it belongs to first. If the line is selected, then its points are visible and can be selected. To select a visible point, just press the left mouse on it. You will then see a big circle around the point and the pull down menu for point types in the diagram toolbar.

If you select the point without releasing the left mouse button, then you can delete it by pressing the delete button or just move the point around, if you also press the shift button or the right mouse button. If the point is also part of a line, this will also change the shape of the line the point belongs to.

If you move the point around, you will notice that suddenly all other points in the diagram are shown. The reason for that is to give you the possibility to merge the point with another point. Just move the selected point on another visible point and release the left mouse button. You will then be asked, if you want to merge the two points.

If a point is selected, there's also a new pull down menu available at the right side of the diagram toolbar.



This pull down menu allows you to change the type of the point:

You can also make a right mouse click on the selected point to get a small popup menu:

The menu entry 'Set Data...' allows you to set the concentration and the two custom values in a dialog.

The menu entry 'Split line' is only active if the point is part of a line, but not an end point. If this option was selected, then the selected line is split at the currently selected point.

However, both lines still share the selected point as an end point.

The menu entry 'Split line and point' is only active if the point is part of a line, but not an end point. If this option was selected, then the selected line is split at the currently selected point. However, in this case the selected point will also be splitted into two points and both lines are therefore independent from each other now.

The menu entry 'Split lines at point' is only active if at least two lines end at the selected point. If this option was selected, then the selected point will be split in as many points as lines end at it. All lines which have shared the selected point as end point before, get an independent end point now.

The menu entry 'Merge lines' is only active if the selected point is an end point for two lines. If this option was selected then you can merge the two lines together.

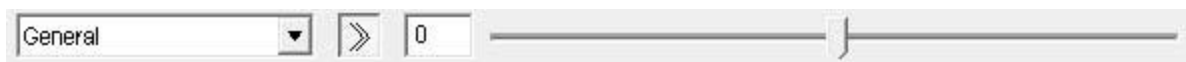
You can also just delete a point with the 'Delete Point' menu entry.

c) Creating and editing arrows

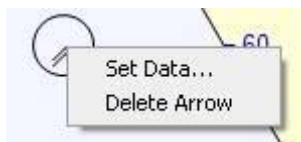
If you press the right mouse button on a free position in the diagram, a popup dialog will show up, which will allow you to create an arrow at the position where the popup menu was called. This is the same popup window which allows the creation of points and labels.

An arrow can be deleted with the delete button and moved around in the same way like a point or a line (left mouse button + shift button or left mouse button + right mouse button).

If an arrow is selected there's also a new interface section available at the right side of the toolbar:



Here, you can change the type of the arrow, the style (single stroke / double stroke) and the angle. You can also open a small context menu with a right mouse click on the arrow:



Here, you can set the position data of the arrow or delete just the arrow.

d) Creating and editing labels

If you press the right mouse button on a free position in the diagram, a popup dialog will show up, which will allow you to create a label at the position where the popup menu was called. This is the same popup window which allows the creation of points and arrows.

If a new label was created or an existing one selected, there will appear an edit field at the bottom of the diagram where the text of the label can be altered. You can also use the Unicode table to add Unicode symbols if you like.



In addition, there will appear a new interface section at the right side of the diagram toolbar:

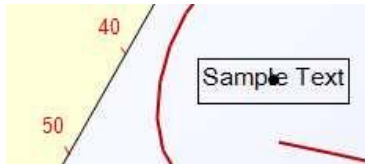


Here, you can change the label type, the label style with the three buttons for bold, italic and underline

and the angle with an input field and a track bar.

You will also see the label in the diagram window. If you press the left mouse button on a free position in the diagram window, the label is finished and the label interface controls will vanish.

You can select a label by just clicking on it with the left mouse button. Then the label interface will appear and allows you to make changes. The text of the last selected label is also used as default text for the next label which is created. If a label is selected, you will also see a fat point. If the label is new, the fat point will be located at the center of the label:



This point is the anchor point and defines the exact position of the label. This is important if you zoom the diagram in or out. You can move the anchor point just by selecting it with the left mouse button and don't release the mouse button until the anchor point is at the correct position. The label text will always move with the anchor point, except you select the label on another point than the anchor point and start to move it around. In this case the anchor point will stay and just the text will move. The text will always keep the same distance to the anchor point, regardless of the current zoom factor. You can also make a right mouse click on a label to get a small popup menu.



The popup menu allows you to set the concentration and the two custom values for the anchor point with the 'Set Anchor Data' menu entry. You can also just delete the label.

There are special label types for axis descriptions. If you choose one of them in the label type pull down menu, not only the font size and colour will change, but also the label position and angle will automatically adjusted to the related axis. You can either leave it like that, or adjust it manually to your liking. This allows you to choose several and/or individual axis descriptions.

5) How to save & upload diagrams.

At the current stage of programming, two different digitizing formats are being used:

- the old format in which many diagrams have been made in the past and
- the new format which has more features than the old one. Document parts which are not exported to the old MSI format are:

Version info, Upload Path and Notes of the Title Page

Unicode symbols in labels which are not supported by the old format.

Rectangular diagrams with two custom axes or a vertical concentration axis are not exported at all

Triangular diagrams with custom layout and/or custom sections Therefore first save your diagrams in the new format by

1) Menu File > "File-Save" or "File Save AS..."

However, for display presently we have only the "old" viewer (cannot display the additional new functions). Therefore, export the diagram to the old format for being displayable.

2) Menu: File > "Export to...."

If you do not save in the new format first, the diagram will lose all data for the additional new features.

If you do not export the diagram to the old format, the viewer cannot display the diagram.