Kaleidagraph Instructions

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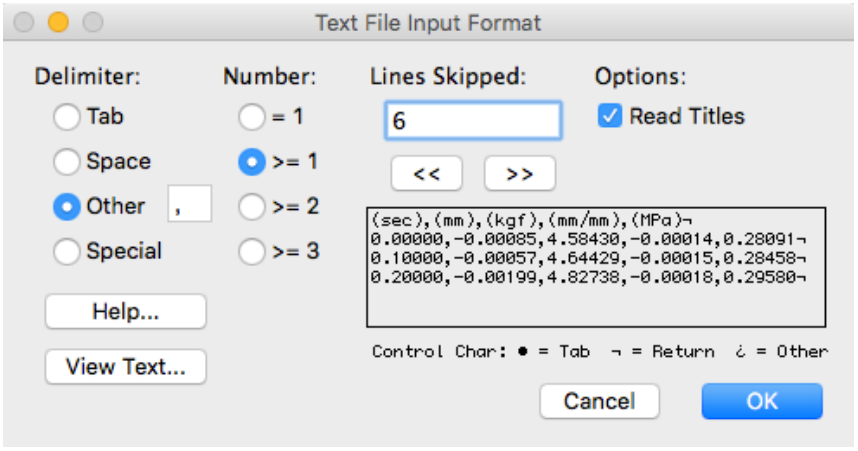
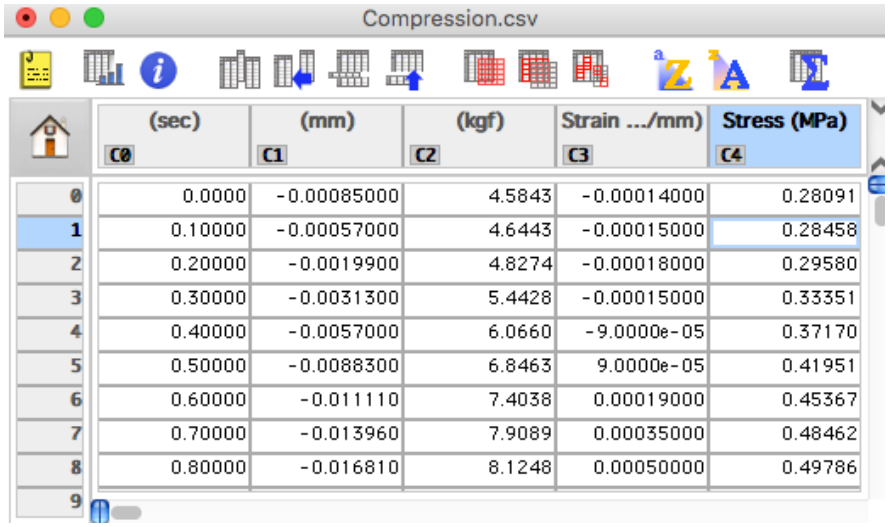
Lesson 6_
Goal: To be able to use autolink, to paste to word, and to integrate

1) In kgraph, open file "Compression.csv" (you will need to select "all documents" in the open window). Set the input window to look like:

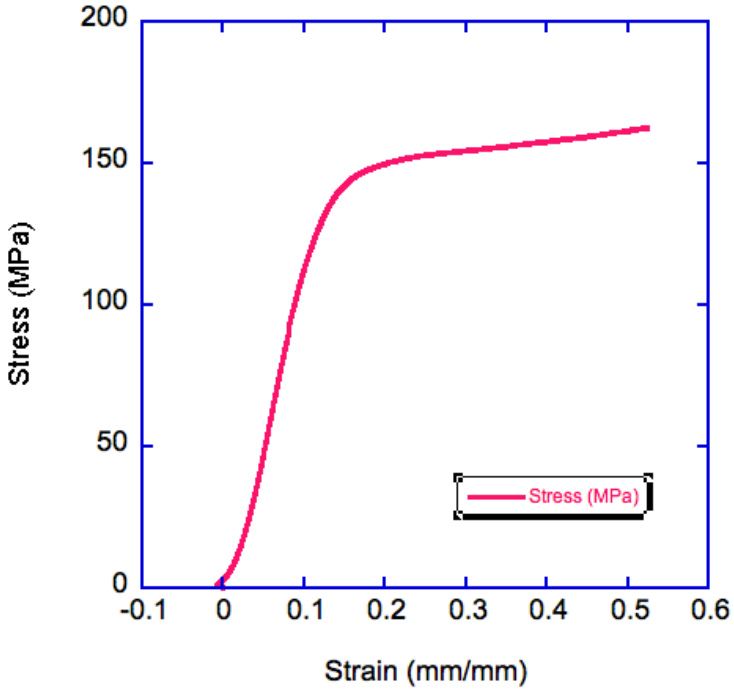


2) Only the units will come through to kgraph and you will need to label the mm/mm column as strain and the MPa as stress

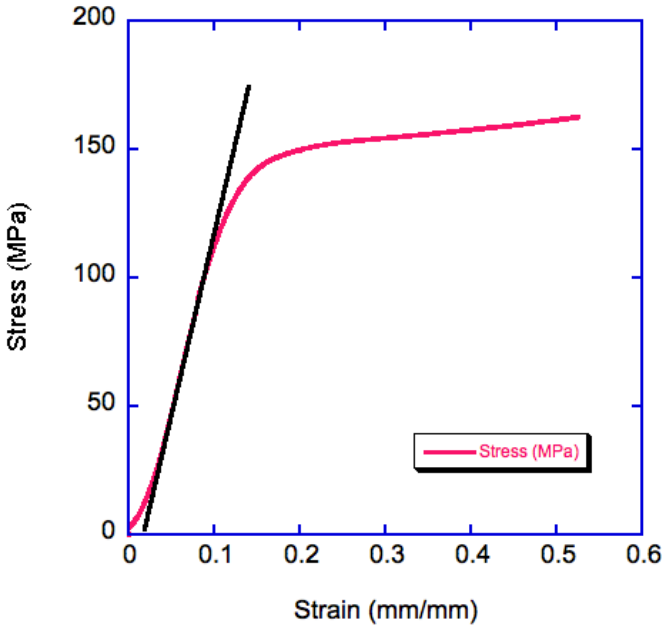


	(sec) C0	(mm) C1	(kgf) C2	Strain .../mm) C3	Stress (MPa) C4
0	0.0000	-0.00085000	4.5843	-0.00014000	0.28091
1	0.10000	-0.00057000	4.6443	-0.00015000	0.28458
2	0.20000	-0.0019900	4.8274	-0.00018000	0.29580
3	0.30000	-0.0031300	5.4428	-0.00015000	0.33351
4	0.40000	-0.0057000	6.0660	-9.0000e-05	0.37170
5	0.50000	-0.0088300	6.8463	9.0000e-05	0.41951
6	0.60000	-0.011110	7.4038	0.00019000	0.45367
7	0.70000	-0.013960	7.9089	0.00035000	0.48462
8	0.80000	-0.016810	8.1248	0.00050000	0.49786
9					

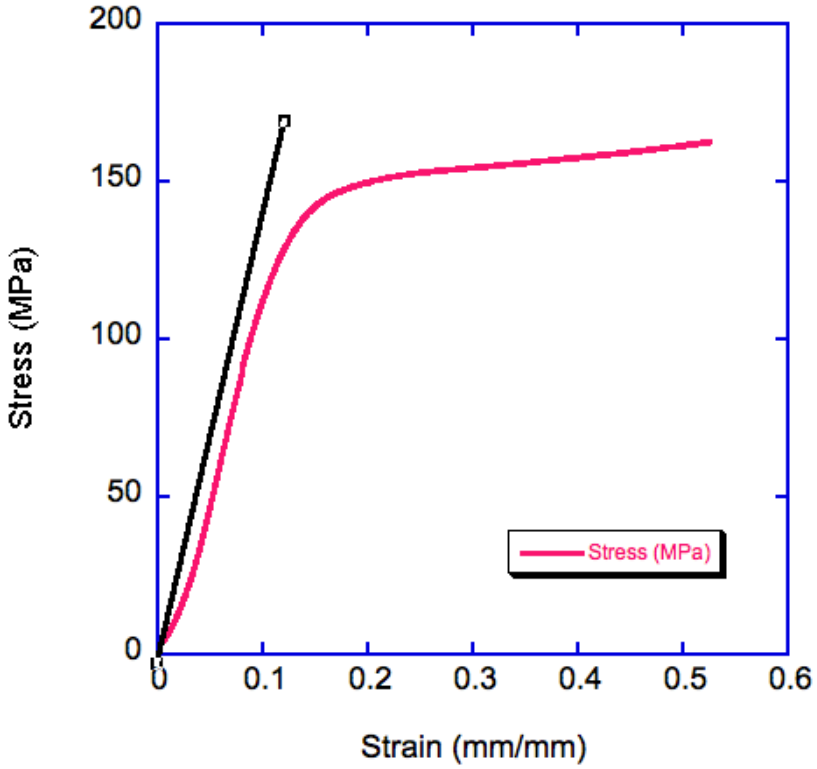
3) Plot Stress vs. Strain. With the data window up execute “c3=-c3” in the formula entry. Clean up the plot and make it look as much like the following as possible



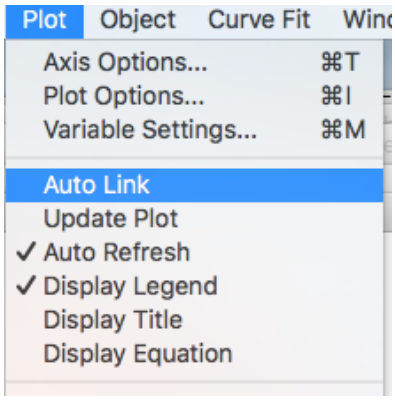
4) The first part of the curve is sample prep/ instrumentation artifact. The initial part of the curve should be linear through (0,0). There is also an arbitrary constant added to the strain axis and this must be addressed. Force the x-axis to start at 0 and draw a line through the linear part of the curve using the line tool from the tool palette.



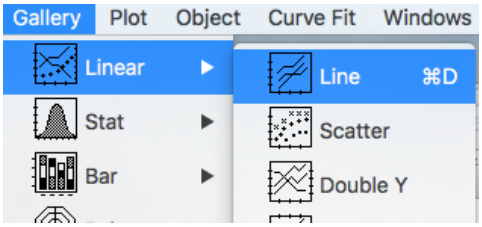
5) Select the line and move it so that it goes through (0,0) being careful not to change the slope

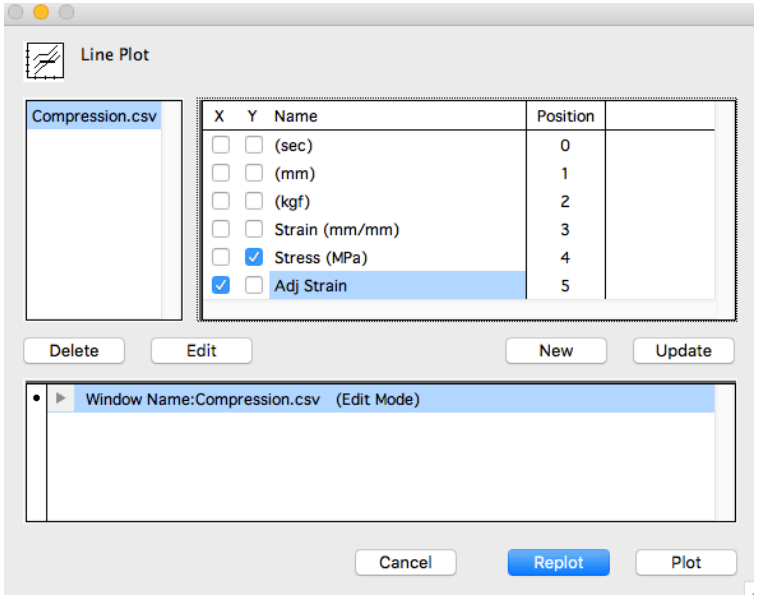


6) Select "Plot->Auto Link". This will automatically update the plot when the data window is changed.

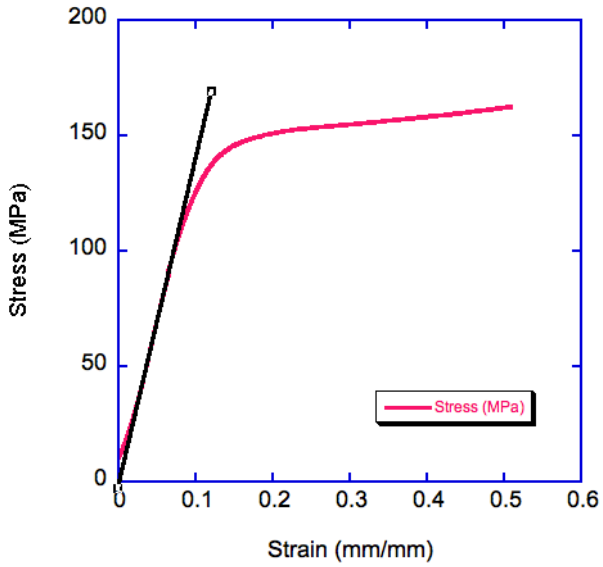


7) Make a new column in the data window and label it Adj Strain. In the formula entry copy the strain into this column (c5=c3)
Re-plot with adj strain as the X-axis. (select update and then replot). The plot looks like the previous plot

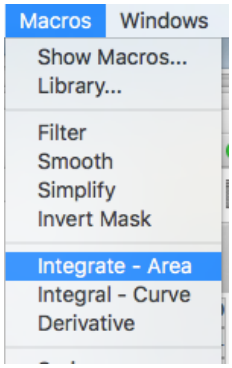


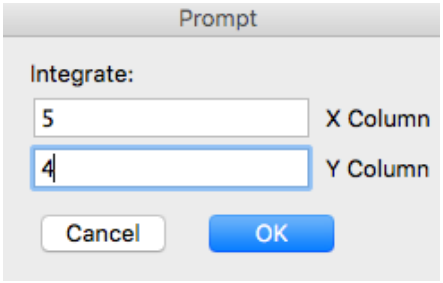


8) Execute c5=c3- 0.016 in the Formula Entry. Notice that the curve moves immediately to the new position (the value subtracted is chosen through trial and error using Auto Link)

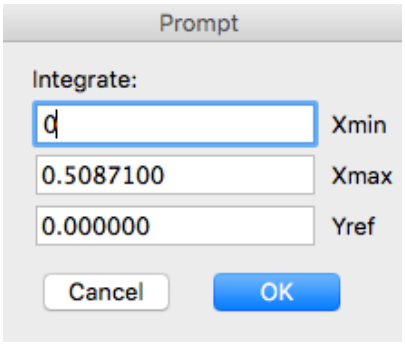


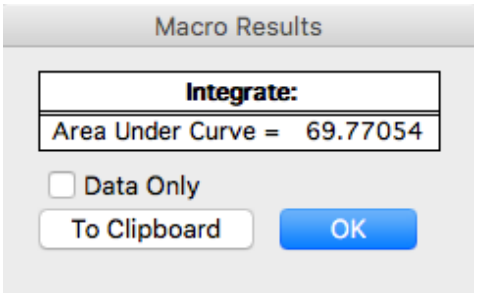
9) Find the total work done during this test (really work/volume). With the data window up, select Macros-> Integral – Area. Choose columns for the X and Y columns:





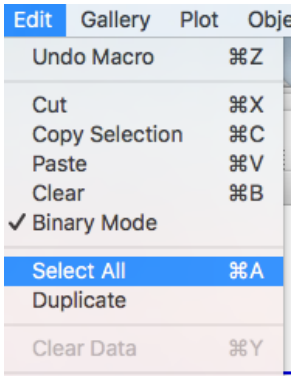
Put Xmin=0 and Yref=0. Select OK. The answer is in MJ/m^3



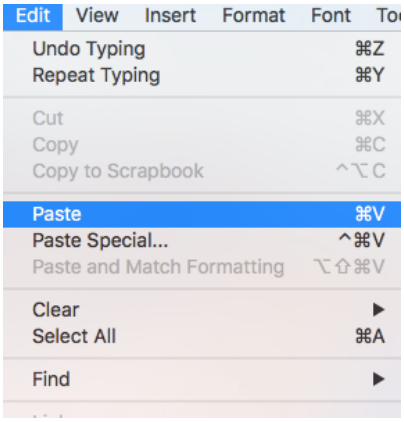


10) Paste plot into Word. With plot window selected, choose Edit->select all and then Copy Selection. Bring a word document to the front and select paste.

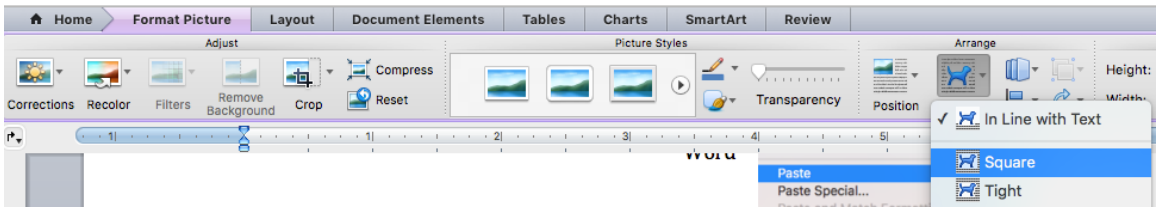
Kgraph



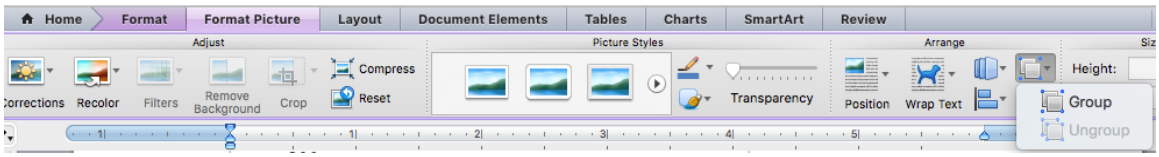
Word



11) Click on plot in word (to select it) and then select Format Picture-> Wrap Text-> Square. Then drag the plot to where you want it. By dragging the corners of the plot shrink the plot to the size you want,



12) Click on an empty place on the .doc to unselect the plot. Then select Home-Text box. Click on the document near the plot and write "Figure caption. Stress Strain of a common Epoxy" Drag the caption under the plot. Shift-click on the plot and on the caption (so both are selected) and then select Format Picture->Group. Now the figure caption and plot are locked together



You should get something that looks like:

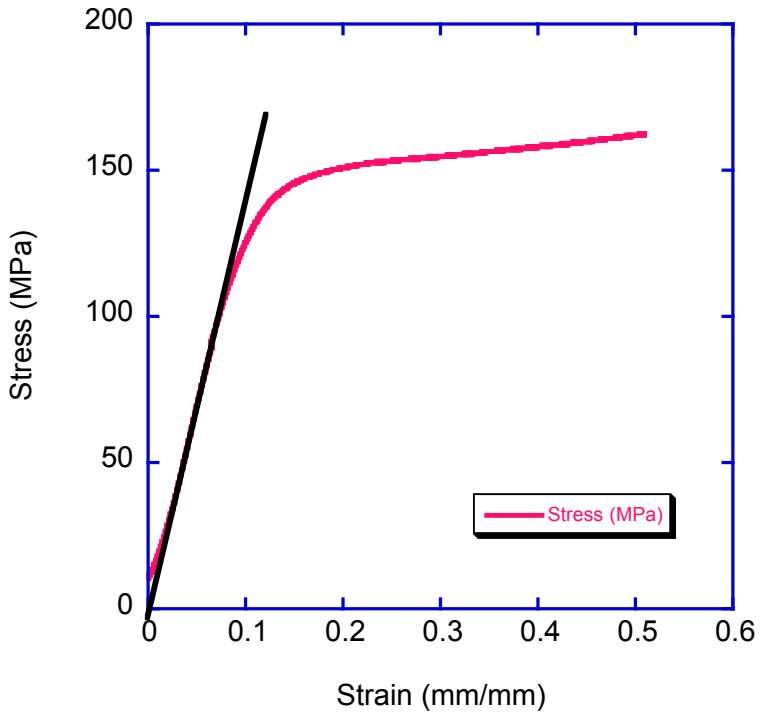


Figure caption. Stress Strain of a common Epoxy