Figures, Graphs, and Tables

ChEn 475

General Tips

- Tables have HEADINGS (above Table)
- Figures have CAPTIONS!! (below Figure)
  - NO title on Figure
- Footnotes under tables are okay.
- Headings and captions should be concise and precise, not long narratives.
- Don't extend beyond the boundaries of the table or figure itself.
- Make sure that units are included in columns or rows of tables and axes of figures.
  - Label each axis!!
- Units in tables, figures and text should be the same.
- Describe your tables and figures in the text of the report

Apparatus Figure

- Clear and easy to read (clean it up if it is blurry)
- Include easy to read labels
- Keep all of figure and accompanying labels within the margins of the rest of the report
- Make figures attractive, visually appealing
- Use same font as in text. You can italicize or SLIGHTLY change font size if necessary.
- Describe your figure in the text of the report

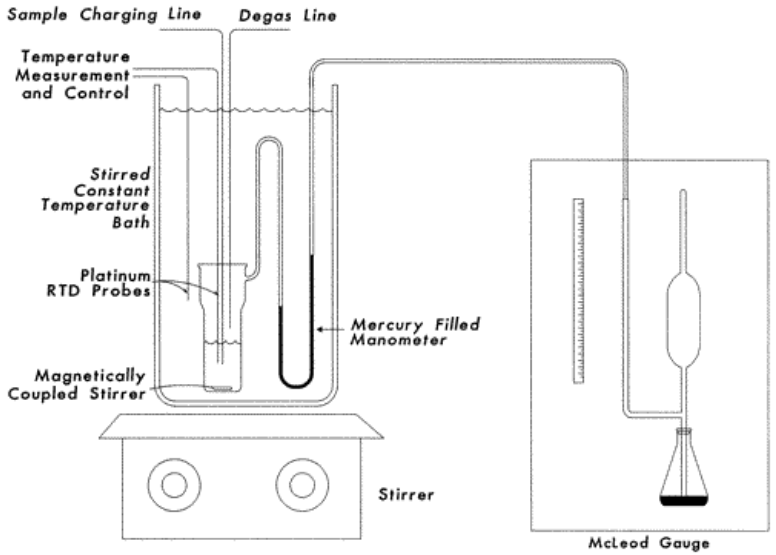

Figure 1: Glass PTx Apparatus

Giles, Wilson, and Wilding, *J. Chem. Eng. Data*, 41:1223-1238 (1996)

Data Figures

- Use symbols for data, lines for correlations/fits
- Don't connect data points with lines (usually)
- Be sure to include a legend
- Label axes and include units
- Place tic marks on both sides to improve readability
- Use symbols and curves that are easy to distinguish for multiple data sets on one graph
- Different colors often don't show up well in B&W
- Beware of the multiple axis labels in Mathcad
  - In general, Mathcad plots are <u>not</u> acceptable
- Watch the scale of the plots.
  - Make certain than scale is mentioned in the text if it is possible that the reader can be confused or deceived.
- Limits on axes (possible to see trend that doesn't exist or vice-versa depending on scale)
- There may be good reason to present data using a particular scale
  - To compare magnitudes to other data
  - To show trends in the data, etc.

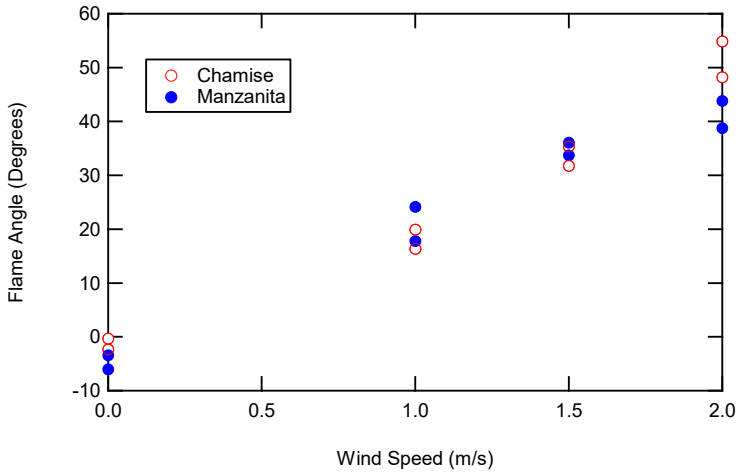

Figure 2. Flame angle in degrees varying with wind speed in both species

TABLES

- Use gridlines judiciously
- Heading goes *above* the table
- Include the units

Table 10. Results of Vapor Pressure Measurements for 3-Chloro-1,2-propanediol

	P/kPa		
t/°C	meas	corr	% dev
70.58[a]	0.116	0.115	0.46
75.70[a]	0.161	0.163	−1.07
79.99[a]	0.217	0.215	0.84
84.46[a]	0.285	0.286	−0.28
101.37[b]	0.793	0.785	1.01
112.06[b]	1.416	1.418	−0.15
119.97[b]	2.098	2.150	−2.50
127.64[b]	3.166	3.168	−0.07
135.67[b]	4.764	4.678	1.81
213.00[c]	101.325	101.444	−0.12

$$\ln(P/\text{kPa}) = 20.4077 - 7485.96/(T/\text{K} - 12.0)$$

[a] Data measured in this work. [b] Data measured by Wilding and Wilson (1994). [c] Normal boiling point reported by Aldrich Chemical Co.

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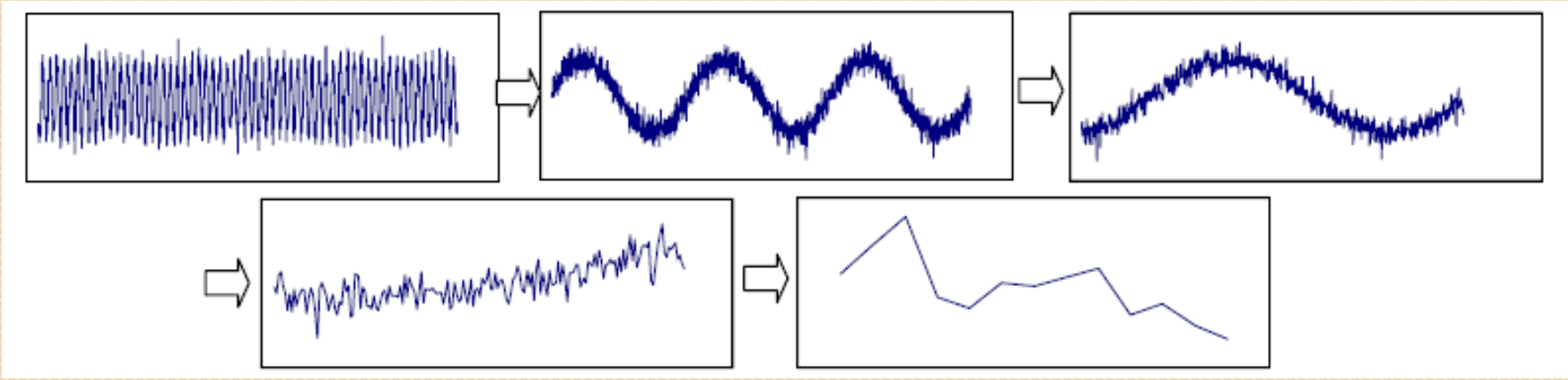
FILTERING

Almost every time you present data in graphical form, you have to *filter* the data.



Integrity in graphing means the conclusions drawn from the graph are consistent with the true cause and effect relationship in the physical system.