Title

Summary

A one-page Summary is required at the beginning of each report. It is an important part of the report. It should be thought of as a report to your boss informing he/she about the results and conclusions. It should concisely describe what the problem was, the method(s) used, the main results (including important actual numerical results), and the conclusions and recommendations. (!!! All the reports must be completely typed, including the sample calculations, updated in 2009).

(Summary must be single-spaced, one page, updated in 2009)
Questions

Answer the questions with concise complete sentences.

Tables

Results and data are often presented in tables. Every table should be self-explanatory; it should have a title, and columns and rows labeled with units as appropriate. Take care to format tables so that they are readable; do not submit tables that spill over to extra pages, etc. Voluminous tabular data can be put in an Appendix.

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<th>Volume (mL)</th>
<th>Q (mL/s)</th>
<th>Time (s)</th>
<th>Volume (mL)</th>
<th>Q (mL/s)</th>
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</table>

Table 1. Experimental data as sorted into bins

Graphs

Graphs can compactly convey a lot of information if properly done. Often the default graphs from programs like Excel are poor. Graphs must meet the following minimum criteria:

- Type: Choose the type of plot that best fits the experiment: linear-linear, semi-log for experiments that obey exponential decay, log-log for power-law formulas, etc. Also use specialized pre-printed charts when available, i.e., thermodynamic P-h charts for specific refrigerants, Mollier charts for steam, etc.

- Axes: Usually the independent variable goes on the X-axis, and the dependent variable on the Y-axis. In either portrait or landscape mode, the X-axis is the horizontal axis, the Y-axis vertical.
Note: When landscape plots are included in the report, they are oriented so that the staple is in the upper-right-hand corner, i.e., the top of the plot is along the ‘binding’ if the report was a book. Up-side down plots will not be accepted.

- Scales: The numeric scales and divisions chosen for the axes should span the range of the data and have logical, easy-to-read major and minor numbers. Note that most spread-sheet default initial plots (i.e., Excel) generate their own divisions that are usually poor. You will have to select options to force your own choices. Clear the default grey background — save printer toner or inkjet cartridges.

- Labels and Title: Every plot must have a title and the axes have to be labeled with units. If plot symbols or different line types are used, they must be identified in a legend or caption.

- Data and Equations: Measured data are to be shown as individual points; results from least-squares fits or theoretical equations are to be shown as continuous lines.

Figure 2: Sphere Temperature vs. Time for Natural Convection
Sample Calculations

Sample calculations are required, with all units carefully indicated, so that we can trace any errors in analysis. Neat, hand-written sample calculations are actually preferable to computer-generated ones. Show that units cancel and clearly indicate where you obtained physical properties, formulas, etc. (!!! All the reports must be completely typed, also the sample calculations, updated in 2009).

\[
\sqrt{\text{Std. Dev.}} = \sqrt{\frac{(\text{Std. Dev.})^2}{n}}
\]

where $\text{Std. Dev.}$ and $n = \frac{\text{Total}}{\text{New}}$

\[
\sqrt{\text{Std. Dev.}} = \sqrt{\frac{(87)^2}{10}} \approx 8.3
\]

\[
\sqrt{\text{Std. Dev.}} = \sqrt{\frac{87^2}{10}} \approx 8.3
\]

Your name