

SAMPLE REPORT, SKETCH

Author's Name

ENG-45, Properties of Materials
Department of Chemical Engineering and Materials Science
University of California, Davis
August 19, 2002

Abstract

The subject has been investigated using method over range of principal independent variables. The key results. Analysis of these results yielded key or fundamental parameters. Interpretation of the values of these parameters in terms of fundamental phenomena or established/conventional interpretation. Conclusion and broader significance of these findings.

Introduction *(What this paper is all about and why we did this study.)*

Introduce the general topic that is the subject of this study.

Narrow the subject matter to the specific problem or question addressed in this study. Set things up so that the reader is ready to read about what you did in this particular work.

Clearly state the goal and scope of the work described in this paper/report.

Procedure *(How the experiments were done.)*

Start with the materials studied, including the source of the material, its form (highly purified, powder, rod, etc.). If specimens had to be made using some special process, describe how this was done, including their dimensions and any special precautions or procedures employed.

Next, describe the principal equipment used in this study, including basic specifications, especially those that are critical to this work, and anything special about the equipment that makes this work unique or which ensures high quality results are obtained.

Describe how each test was done, in the order in which they were done. Include enough detail so that it is clear to the reader exactly what kind of data you are obtaining. This would include temperature ranges, specifics about the independent variables, and especially anything that is unique about your tests. More attention should be paid to unique and critical, and especially the difficult, parts of the tests. Your reader needs to know that the tests were done correctly. When standardized procedures are employed specify these clearly, i.e, per ASTM E-399.

Results *(What you observed.)*

Go from figure to figure pointing out what each tells us. The data should be presented in a logical sequence that leads to the required end result. For example, figure 1 might show the original data (i.e., a series of stress-strain curves from tests conducted at different temperatures) while figure 2 might be a plot of key parameters from figure 1 plotted as a function of the independent variable (i.e., maximum stress as a function of temperature) and may produce the value of the parameter we are looking for (i.e., activation energy). Figure 3 could be a plot of the results obtained from figure

2 plotted against published data or it might be a table listing the current finding alongside those from the literature.

This sequence takes the reader from the raw data, through the analysis and finally to the end result. At this point the reader will see clearly what the data shows and will now need to read your expert interpretation of the results.

Discussion (*How you interpret your observations. What it all means.*)

The above results must be interpreted in the context of the current state of knowledge of the field, and in such a way that it addresses the questions or problems noted in the introduction. For example, if the activation energy for a process is similar to that for diffusion, what does this tell us about the fundamental process responsible for the behavior studied here and how does this help us answer the burning question posed in the introduction?

There may be several issues that need to be discussed. Deal with each of these separately and in a logical sequence that ultimately leads to a coherent understanding of what your work teaches us.

Conclusions (*The answer to the question posed, or the problem identified, in the introduction.*)

Here you make good on the promise made in the introduction. The conclusion is a clear and unambiguous answer to the question or solution to the problem described in the introduction. It may be as simple as a series of points, restating major findings, but ending in a definitive statement of fact, or it can be a final statement about the new knowledge gained.

You might include one final statement as to the broader impact of these results. For example, these findings suggest that a solute diffusion-controlled deformation process may also be rate controlling in similar materials and therefore suggests a strategy for improving the high-temperature strength of these materials.

Acknowledgments

Be sure to mention your collaborators, sponsors and anyone else who made a significant contribution to the success of this work.

References

Include only reference material cited in this report.

Appendices

Only supplemental images, data and text should be placed in the appendices. Figures, etc. essential to the report should not be placed in the appendices.