

Report instructions

The Final Report

The preparation of the report is an important exercise from which you will develop your **analytical and communication skills** by working as **part of a team** and **presenting** the results obtained over the whole semester in a logic manner. Indeed, the report must be clear and self-explanatory allowing someone who is not familiar with the work to understand what was intended and the main results obtained. This writing exercise will be critical in your future career as engineers since you will have to learn to communicate the results obtained to your colleagues on a regular basis and written reports are the most common and well established form. The different assignments proposed will allow you to become familiar with the **process involved in the preparation of a report** as well as with the **scientific language/terminology** required. Below you will find a proposed outline for the preparation of the written report:

Section	Length	Page numbering
First page	1 page	
Summary	ca. 150-200 words	(i)
Goals	ca. 200 words	1
Introduction	1-4 pages	2-5
Experimental	2-3 pages	6-9
Results	3-6 pages	10-15
Discussion	3-6 pages	16-20
Conclusions	½ to 1 page	21
Recommendations	½ to 1 page	22
References		
Annexes		

Note: The number of pages is merely an indication and, as such, a report must be as short, concise and informative as possible.

Detailed description of the different sections

First Page

Including Title, date, name of the group components and name of the Assistant(s).

Summary

In this section you must summarize the information contained in the report, *i.e.* main objectives, findings and conclusions. This section must be very short.

Introduction

General presentation of the topic covered in the TP with a link to relevant literature in the field.

Experimental

This section can be divided in two main parts dealing with measurements conducted and the methodology employed for the treatment of the results, respectively.

a) Measurements

a.1 Methods

General and clear description of the measurements conducted.

a.2 Materials

Enumerate and briefly describe the chemicals used in the experiment(s) including purity and supplier; *e.g.* N₂ (99% v/v, Carbagas).

a.3 Apparatus

Enumerate and briefly describe the apparatus used for the experiments including name, supplier and model. Include a detailed scheme of the installation you used.

b) Analytical Method

By using example(s), include a detailed explanation of the calculations conducted. Refer to any suppositions and/or simplifications made during the calculation procedure. This section is intended to clearly show how the group has obtained the final results from the raw measurements collected from the apparatus in the laboratory. The raw data obtained in the laboratory, *i.e.* untreated, can be included in tables in the Annexes.

Results

The presentation of the results must be clear, the group members are encouraged to make use of different presentation formats, *e.g.* graphs or tables, that can facilitate the interpretation of the results obtained.

Note: All the tables and figures must have a legend explaining the contents or what is presented. Any special symbols used will be properly defined in one of the Annexes.

Discussion

This is **the most important section of the entire report**, therefore, it will required a special combined effort from all the team members. In this part the group has to analyze and interpret the results obtained and explain their significance. This section is often combined with the Results.

Conclusions

In this section you must summarize the main findings of the results obtained. It is important to emphasize that you do not have to repeat everything already explained in detail in the Discussion section, but rather extract the most important findings. This can be done in the form of a continuous text or as a series of bullet points.

Recommendations

At the end of the practice you will have a good understanding of the practical that you have looked after. Therefore, at this point, and after working in the previous sections you may have come up with new ideas in terms of, for example, (i) additional experiments that could be conducted or (ii) modifications that could be made, something that can be indicative of the level of understanding of the work conducted and that, of course, it will be taken into account in the final mark.

References

References are the tool to support the ideas developed or specific aspects of the theory. Moreover, they can be used to show that someone else has proposed the same explanation serving to reinforce the validity of the arguments.

Example: During the hydrogenation of acetylene over carbon supported Pd a distinct catalytic activity response was observed for a series of samples with different metal dispersion. Our result is in line with the work of (Name of the main author of the study) and co-workers (Ref. number) who reported a similar tendency for the hydrogen treatment of hexyne over oxide supported palladium.

Mini-Reports

The format of this small report(s) is similar to that elaborated in industry under real working conditions. As such, it is a **memo of 2-7 pages** containing specific information intended to be read quickly. The **general format** is as follows:

Summary (containing essential information on what was pursued and what has been found)

Introduction (very concise containing the goals)

Results and Discussion (the most important part)

Conclusions

Recommendations

Annexes (1-3 pages, Figures, Tables, diagrammes).

For each set of experiments (or TP) the groups have to generate **two hard copies** (written) reports; one for the group that is “Project Leader” of the particular experimental set-up and a second one for the Assistant. In addition, each group will send a copy of the **Excel files** to the Assistant (**electronic version**). It is the responsibility of the group to make sure that they **are understandable** (use adequate filenames, brief description of the content, etc.). The report submitted to the Assistant will be **graded** and taken into account for the **final mark** (see more details in Section 4). Once the Assistant has marked the report, he/she will contact the “Project Leader” in the event that major mistakes have been made to ensure that this is taken into account for the final report.

Every group **must** submit, **before moving to the next TP, the small report** that covers the experiments carried out during the practice. **If the report has not been handed out by the time the group has to start a new TP, they will not be allowed to work in the laboratory.** Once the Assistant has graded each report he/she will meet with the group to give them feedback on the quality of the submitted work so they can take this into consideration for the next TP.

Oral Presentation

At the end of the assignments each group must prepare a presentation containing **all the results obtained during the semester**. The presentation must last for *ca. 15 minutes* and it will be followed by *ca. 5 minutes for questions* by the Professor, Assistants and classmates.