

# Writing in Chemistry (Part 1)

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## Post Url

<https://www.enago.com/academy/writing-in-chemistry-part-1/>

In this article, we state the rules about the format and content of an academic paper in the field of chemistry and describe the scientific conventions used in chemistry papers.

## Format and Content of Chemistry Articles

You need to remember that the readers expect two things when reading your paper:

- to understand the information presented
- to know that the findings are legitimate

## How Do You Meet These Goals?

- Introduction
- Methods and Materials
- Results
- Discussion

This format may slightly differ depending on the journal, e.g., some ask you to include an abstract or separate section for the hypothesis. Overall, however, this represents a textual version of the scientific method.

## Title

Choose terms that are as specific as the text permits

### Examples

**Avoid:** *A magnetic alloy*

**Use:** *A vanadium–iron alloy*

- Refrain from using phrases such as “on the,” “a study of,” “research on,” and “regarding.”
- Refrain from using non-quantitative, meaningless words such as “rapid” and “new.”

## Abstract

A [good abstract](#) clearly identifies the purpose of the experiment and the important results.

### Examples

**Avoid** pedagogical comments such as,

*This experiment helped us learn about the nature of chemical reactions.*

or

*The goal of this experiment was to learn about dyes.*

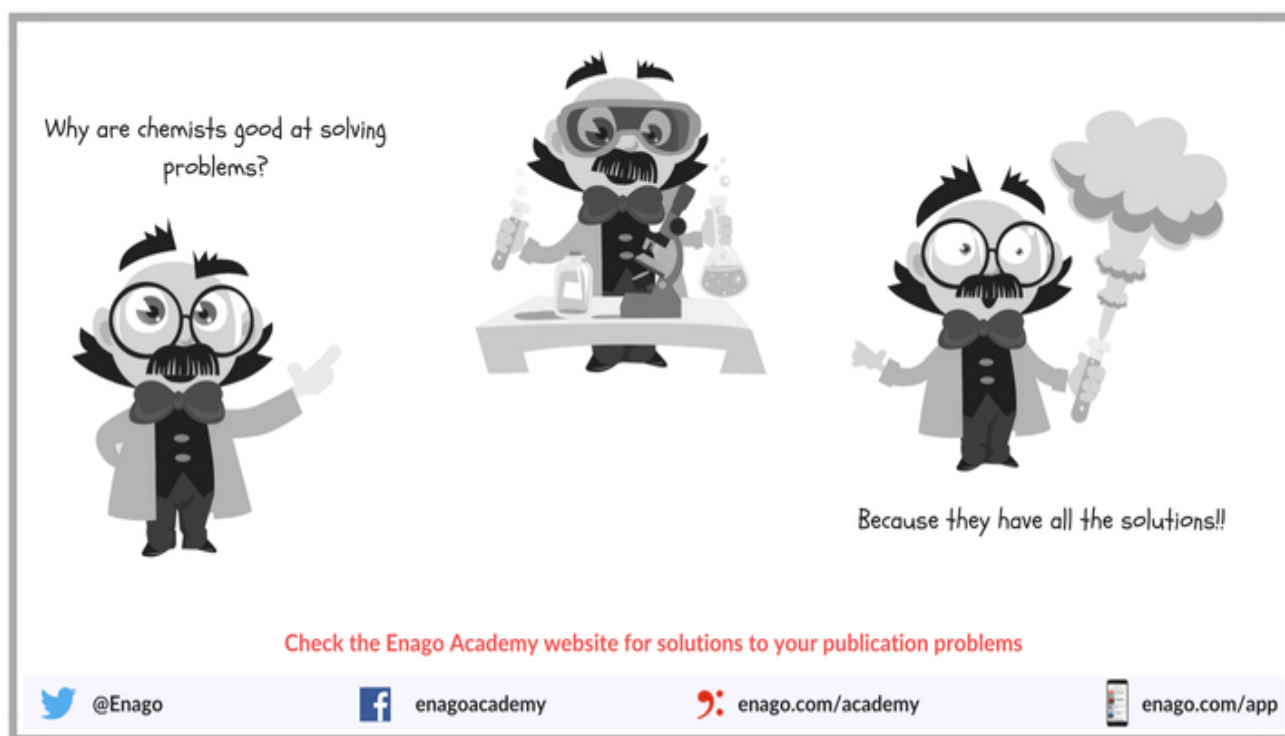
**Avoid** starting with “*The purpose of this experiment was...*” Such background information belongs in the Introduction section.

**Avoid** referencing. Be specific about what was done.

### Examples

**Avoid** vague statements such as “*...a metal complex was prepared and the percent yield was calculated.*”

**Instead use**, “*...hexammine cobalt (III) chloride was prepared from cobalt (II), chloride, and hydrogen peroxide. The yield was 8.45 g.*”



## Tip 1!

When writing a full report, write the Abstract last.

## Introduction

Go step-wise!

- Start by explaining the larger area of the research
- Provide examples of progress in the field
- A clear statement of the research problem
- Approach being addressed in the current report

## Examples

**Avoid:** *This experiment intends to investigate upon any measurable amounts of Nickel in the surrounding mud area and within barnacles living on the pilings.*

**Use:** *The purpose of this study is to determine the nickel content in the surrounding mud area and in the barnacles living on the pilings.*

## Methods and Materials

Include a description of your experimental procedure and names of instruments used. Don't rewrite the lab manual or protocol.

### Examples

**Avoid:** *Next, prepare copper solution. Weigh 0.1821 g of copper nitrate and dilute it in 10 mL of tap water.*

**Use:** *A solution was prepared by dissolving copper nitrate (0.1821 g) in tap water (10 mL).*

Further subdivide into:

- Materials—sources and purity of reagents used
- Preparation of compounds—with procedure and summary of characterization by NMR, IR, etc.
- Instrumentation—manufacturer, description of any adaptation, or sample preparation

### Tip 2!

**A good materials and methods section should allow the reader to completely reproduce what you did in the lab using what you have written.**

### Results

Include a summary of your raw data, preferably supported by tables and figures, and important observations.

### Tip 3!

**Don't include long tables of raw data, instead simply present the results of your calculations.**

**Avoid:** *The following standard concentrations were used to follow X law for the absorbances at the corresponding wavelength (Table).*

**Use:** *The standard concentrations were measured at the corresponding wavelengths and the data provided in Table 1.*

### Figures, Tables, Equations

Explain the purpose of every figure, schemes, equation, and table in the Results section. When referring to a figure, table, or equation, use its number in the text.

### Examples

*A plateau was observed at reduced pressures  $>0.1$ , as indicated in Table 1.*

Indicate every figure, table, and equation with a number. Figures and tables require a number and a descriptive title and equations normally have a number placed in parentheses at the right margin.

### Examples

Figure 1. Mass Uptake vs. Reduced Pressure for A

Table 1. Powder Diffraction Data Obtained for A

$$A = B^2 \quad (1)$$

### Tip 4!

**“Figure” is much preferred presently compared to the labels “chart” and “graph.”**

### Discussion

- Analyze your results
- Comment on the purpose of the experiment
- Explain what the results indicate
- What are sources of error (experimental uncertainty/precision) and limitations?
- What additional experiments could help address any dangling ends?
- Do the results agree with what others have found?
- Do the results support a model or hypothesis?

### Examples

**Avoid:** *If, for example, we could have used a red and green apple to determine the components, we could have averaged the data and obtained more accurate results.*

**Use:** *For example, if data were obtained from both a red and a green apple, the averaged results could provide more representative values.*

### Conclusion

Summarize your [results and discussion](#) with a short [conclusion](#), phrasing it in terms of the broader questions addressed in the [Introduction](#).

### Tip 5!

**When testing a hypothesis, you may want to say that the hypothesis was “*proved*” or “*disproved*” or was “*correct*” or “*incorrect*.”**

**Remember, you’re testing a theory with a procedure that lasts only a few hours and relies on only a few trials, which severely compromises your ability to be sure about the “truth” you see.**

**Therefore, words like “supported,” “indicated,” and “suggested” are more acceptable ways to evaluate your hypothesis.**

In the [next article](#), we will discuss the scientific conventions and styles used in Chemistry articles.

### **Cite this article**

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