

Question 1

Extract (i)

2.3.2 Metal Matrix Composites

Whilst there are numerous studies of Al matrix composites, there are relatively few dealing with Titanium matrices. Of there, a paper by Thomas, Richards and Harrison is particularly interesting. They have shown that the Youngs modulus of the composite is dependant on the processing temperature. This has lead to the development of novel heat treatments (Richards et al, 1998).

- There are several mistakes in the first sentence. First of all, the chemical symbol Al is written correctly, but it is preferable writing it in full because “titanium” is also written in full. It is better to keep the same writing style in a document. Also, the word Titanium should not have a capital letter because it is not at the start of a sentence. Finally, “whilst” is not very appropriate here and “while” should be used instead.
- Second sentence is wrong and should not even exist. First of all, reference is not used to support a line of reasoning but seems to an introduction to a copy/paste. Furthermore the way of referencing is incomplete and should appear at the end of the page. “Of there” is also not correct English.
- Third sentence start with “They” which is again a mistake because scientific reports are written in the passive tense. Spelling of the Young’s modulus is wrong. The author also uses “the composite” and we do not know what he is talking about: is it composites in general or is it for a particular type of matrix? Dependant is not the correct word. Dependent should have been used instead.
- About the last sentence: conjugation of lead is wrong. It should be “It has led”. The word novel is not used correctly here. It should be “new”. The reference is not properly given: as it has been pointed out before, it should be at the end of the page and more detailed.

Finally, the extract should be written like the following one:

2.3.2 Metal Matrix Composites

While there are numerous studies of aluminium matrix composites, there are relatively few dealing with titanium matrices. It has also been shown that Young’s moduli of composites are dependent on the processing temperature. This has led to the development of new heat treatments.¹

¹ Detailed reference of the paper

Extract (ii)

CHANGES IN CHEMICAL POTENTIAL

A change in chemical potential can be because of a pressure difference across a curved surface. For a spherical surface

$$\Delta P = \gamma \frac{2}{r}$$

Where γ is the surface energy in J/m² and r is the radius in microns.

- There is no chapter numbering for this extract. Also, the title should not be written in capital letters.
- Part of the sentence is not correct English. Indeed “can be because of” should be “can occur because of”.
- The second sentence is not finished and/or the referencing to the equation is not properly done.
- Concerning the equation, it must be numbered. Furthermore, all variables should be in italics whereas constants should be in the font used for the rest of the document.
- In the last sentence, negative superscripts are preferable to slashes. Also, a symbol should be used for microns. (Uniformity of style). At last, J/m² is not the surface energy but the surface energy density.

Finally, the extract should be written like the following one:

3. Changes in chemical potential

A change in chemical potential can occur because of a pressure difference across a curved surface. For a spherical surface the pressure difference is given in equation 3.1.

$$\Delta P = \gamma \frac{2}{r} \quad \text{equation 3.1}$$

Where γ is the surface energy in J m⁻² and r is the radius in μm .

Extract (iii)

9 REFERENCES

Hashin Z. and Shtrikman S., 'A variational approach to the theory of the elastic behaviour of multiphase materials', *Journal of the Mech. Phys. Solids.*, 1963, 11, 127-140.

Hashin Z. and Rosen B.W., 'Effective thermal expansion coefficients and specific heats of composites materials', *Int. J. Eng. Sci.*, 1970, 8, 157-173.

Aldrich D.E *et al.*, 'Processing, microstructure and physical properties of interpenetrating Al₂O₃/Ni composites'. *Mater. Sci Tech.*, 2000, **16**, 747-752.

Hsieh and Tuan, *Mat. Sci. Eng. A*, 460, 453-458, 2007

There are many mistakes in this extracts:

- The dates should appear just after the names of the authors.
- The numbers of the chapters should be written in bold and without comma after them.
- Titles should not be between inverted commas
- There are usually not dots after the first letters of the first names.
- Dots are only used after abbreviations like "sci." or "mater." but not after "composites" for instance.
- The title of the book is missing for the 4th reference.
- Names are incomplete for the 4th reference and pages numbers and chapters are also not properly written.
- The abbreviation used for "material" is wrong.
- Also, the references should be sorted alphabetically.
- "Journal" must be written just "J."

Finally, the extract should be written like the following one:

9 REFERENCES

Aldrich, D E, et al, 2000, Processing, microstructure and physical properties of interpenetrating Al₂O₃/Ni composites, *Mater. Sci. Tech.*, **16** 747-752.

Hashin, Z and Rosen, B W, 1970, Effective thermal expansion coefficients and specific heats of composites materials, *Int. J. Eng. Sci.*, **8** 157-173.

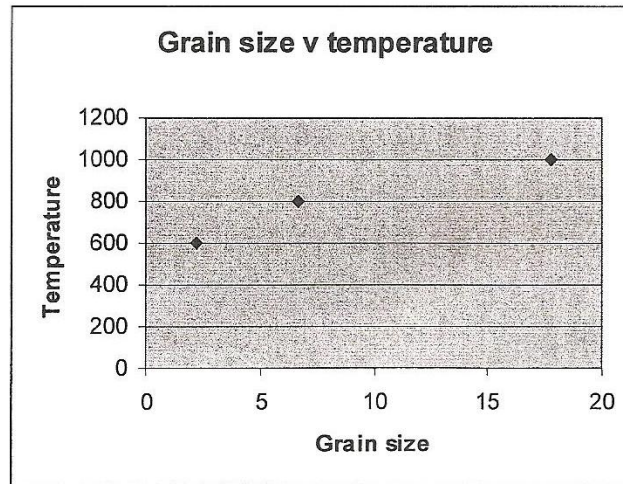
Hashin, Z and Shtrikman, S, 1963, A variational approach to the theory of the elastic behaviour of multiphase materials, *J. Mech. Phys. Solids.*, **11** 127-140.

Hsieh, C L, and Tuan, W H, 2007, Thermal expansion behaviour of a model ceramic-metal composite, *Mater. Sci. Eng. A*, **460** 453-458.

Extract (iv)

7.4.6.1.9.0 Results

The graph below shows the grain size as a function of temperature.



- The chapter numbering is wrong for this extract. The usual rule is to stop numbering after 7.4.6 otherwise the structure of the scientific document gets too complicated.
- The graph shows the temperature as a function of the grain size which is not that can be read in the first sentence.
- The graph is not numbered and its name is not detailed enough.
- Units are not properly written on the graph. Is it °C, K, m, μm ...?
- The data is maybe not sufficient to plot a graph. (only 3 points)

Finally, the extract should be written like the following one:

7.4.6 Results

The graph below shows the temperature as a function of the grain size.

[Note: The graph has not been modified.]

Figure 7.1: detailed name.

Extract (v)

Sample A had a good capacitance of range of between 0.000000000007 and 0.000000000025 farads at a voltage at 100v and a temperature up to 125°K

- English is poor in the sentence especially in “of range of between” in “at a voltage at” and also in “and a temperature up to”.
- Values are impossible to read and should be written in a scientific way or with multiplying prefixes.
- Farad does not take an “s”.
- Symbols for Volts and Kelvin are wrong.

Finally, the extract should be written like the following one:

Sample A had a good range of capacitance: between 7 pF and 25 pF farads at a voltage of 100 V and at temperatures up to 125 K.