Note: Yellow highlights and red text are for bringing special attention to these elements.

Start using this template for writing the abstract, continue using this template for writing the paper.

This guidelines document is made according to the formatting requirements for ICSOBA papers. Hence, **type your text in this document and you are using the correct format.**

# Author Guidelines and Template for ICSOBA Abstracts and Papers

(Title of the paper uses title rule capitals -not all capitals, Times New Roman 14, the **Heading level 1. The title should be short, try and keep it within 2 lines**)

**Xxxx (Full first name and family name only)1, Yyyy (Full first name and family name only)2 and Zzzz (Full first name and family name only)3 (Times New Roman 11 Bold)**

1. Position of Xxxx (Times New Roman 11)

2. Position Yyyyy

Afilliation of Xxxx and Yyyy (if from the same company), City, Country

3. Position and affiliation of Zzzz, City, Country

Corresponding author: abc@xyz.com (Remove Hyperlink)

**Section titles are Times New Roman 11 Bold**

The text is Times New Roman 11.

Abstract

The abstract is one single paragraph and shall have a minimum of 100 words and shall not exceed a **maximum of 300 words**, summarizing the main points of the paper. Type your abstract in this place and you are using the correct format. Put only **one** corresponding author, who will be the contact person for the paper.

**Keywords:** Keyword 1, Keyword 2, Keyword 3, Keyword 4, Keyword 5.

In composite keywords, only the first word is in capital letter (unless other words are names usually written with capitals), e.g., Aluminium reduction technology, Alumina feeding control.

A maximum of 5 keywords should be given at this place, separated by comma and finishing by full stop at the end. Each keyword can be one word or several words. The principle is: If you type a keyword in Google, it should come out with sites restricted in a fairly narrow range to what you describe. Example: Aluminium electrolysis cells, cell design and performance, cell modelling, cell measurements.

**Your abstract shall be prepared in Microsoft Word (abstracts in pdf will not be accepted) and loaded as doc or docx file in the conference organization tool ConfTool before 15 May 2023. The abstract shall be prepared using ICSOBA 2023 Author Guidelines and Paper Template, which you will then also use for writing the full paper. You may upload the abstract with these Guidelines included, which will later on facilitate writing the paper in the Guidelines. ConfTool is customized to ICSOBA 2023 and can be reached through ICSOBA website, where you will also find instructions on how to upload the abstract, the paper and the presentation in ConfTool. In ConfTool you will also be able to update your abstract/paper/presentation until the deadline (see the instructions for downloading your abstract/paper/presentation from ConfTool and uploading the updated version back to ConfTool). On the other hand, the paper reviewers will also access the abstracts and papers and will upload the reviewed ones on ConfTool. Be sure to always download the latest version from ConfTool before you start making any changes and to upload the new version on ConfTool the same day (whether completed or not). This will make sure that changes are made sequentially, between the authors and the reviewers.**

Make sure that the uploaded abstract/paper/presentation filename is ZZxx – Paper title (or shortened title if the title is very long) and that this filename is maintained for all reviewed and uploaded versions, where ZZ is

* 1. KN for Keynote subject
1. ST for Sustainability subject
2. BX for Bauxite subject
3. AA for Alumina subject
4. BR for Bauxite residue subject
5. CB for Electrodes subject
6. AL for Aluminium Electrolysis subject
7. CH for Smelter Cast House operations subject
8. RC for Recycling subject
9. DS for Downstream subject

For example: AAxx - Energy Efficiency in Alumina Refineries - Combining Hydrate Filtration with Alumina Calciner.docx, ALxx - Oxidation Resistance and Corrosion Resistance of Silicon Carbide Side Lining.doc, ELxx - Strategy for Sustaining Anode Quality Amidst Deteriorating Coke Quality.docx. The xx is the presentation number, which will be determined by the Subject Organizers when the presentation schedule is being set-up.

## General Remarks

**Sections are numbered. The title is separated from number by one tab. Section titles follow the English title rule (all major words in capital first letter). Times New Roman 11 Bold. All sections and subsections are aligned to the left margin, according to Heading level 2.**

One space separates the title and the text, the space size is Times New Roman 11

One space only shall be used between paragraphs and is obtained correctly by keyboard return on this template. **Automatic spacing of any other size but Times New Roman 11 is not allowed. In order to reset any other spacing to this ICSOBA format, do the following: Select the text with incorrect spacing or the whole document (Ctrl A), then go to Home à Line and Paragraph Spacing à Line Spacing Options à Indents and Spacing à Spacing Before: 0, After: 0, Line spacing: Single.**

### Language and the Length of the Paper

**(Sub-sections are numbered and aligned left. Subsection titles follow the English title rule (all major words in capital first letter). Times New Roman 11 Bold, according to Heading level 3.**

The papers shall be in English. Use the Spelling and Grammar button to check for language errors. If you have the possibility, ask a colleague, who is fluent in English, to review your text for you.

Paragraphs are separated by one blank line, of height Times New Roman 11. One blank line of the same height is also before and after a table and figure (including caption). To make sure that this is the case, select the section and go to: Home à Line and paragraph Spacing à Line Spacing Options à Spacing Before: 0 points, After: 0 points, Line Spacing: Single.

Papers shall **aim to have a maximum of 10 pages** including title, author(s) and their affiliations, abstract, keywords, sections headings (such as introduction, experimental, results, discussion, conclusions, etc.), text, tables, figures and references. However, papers with more than 10 pages (a maximum of 20) will not be refused.

### Paper Format

**Your paper shall be prepared in Microsoft Word and uploaded as doc or docx file on ConfTool before 30 June 2023.**

**The file name of a paper (and of abstract submission) shall be the title of the paper (or first part of the title if it is very long).**

**Subject Organizers will review the paper and create pdf format of the paper, once they have accepted the paper as final. The pdf version will be used for publication in the printed proceedings and available in pdf for download from ICSOBA website and on the on-line conference network Whova during the conference.**

Page layout:

Size: **A4; Margins: left, right, top and bottom: 3 cm**

Font:

* Times New Roman;
* Size normal text: 11 points.

Paragraph:

* Alignment normal text: Justified;
* Indentation: 0 (paragraphs should start from the left margin without leaving a space.);
* Spacing: before and after: 0;
* Line spacing: Single.
* Paragraph spacing: One blank line, size: Times New Roman 11

## Paper Title, Section Titles and Sub-section Titles

### Paper Title and Authors

Paper title should be brief and simple, and should contain the essence of the paper. Capital letters should be used as per title rule, punctuations and abbreviations should be avoided. Font: Times New Roman 14 pt, bold, centered.

Author and company: font 11 and centered (authors in bold). In case of more than one author superscript numbers are used to refer to the position and company of each author (see example in this document) in case their companies are different. If the company of several authors is the same, each position is given and then the company for all (see the example at the beginning of this document).

There is one blank line between paper title and the list of authors but no blank line between the authors and their positions.

### Abstract and Keywords

The title Abstract is in 11 pt bold font, adjusted to left with 1 blank line above and below, separating it from the abstract text.

After one blank line, the word **Keywords:** (in bold) is followed by up to 5 keywords which are separated from each other by a comma (,). Only the first word in Keywords is in capital.

### Sections and Subsections

Titles of sections and subsections (introduction, experimental, results, discussion, conclusions, etc.) should all be in **bold** and aligned to the left margin with one blank line above, separating the title of each section from the preceding text and one blank line below separating it from the following text.

Numbering of titles of sections and subsections (if any) should be according to the number format used in this document (1.1, 1.2, 1.3, etc.).

### Equations

All equations shall be at the center of the page. A sequential number in parenthesis will be at the right-hand side of each equation. An easy way to do this is to align right the equation with its number and then separate them with Tab to center the equation. A preceding and succeeding blank line should separate the equation from the text as shown in Equation (1) and Equation (2) (Equation is with initial capital, not abbreviated as Eq.).

Equations should be written in standard way, using MathType (much preferred since it makes writing equations easy and more standard than Microsoft Equation Editor) or Microsoft Equation Editor (if you cannot afford to buy MathType).

MathType:

 (1)

where:

*F* Force, N

*m* Mass, kg

*a* Acceleration, m/s2

Equivalent voltage to make aluminium is given in Equation (2) [2]:

MathType:

 (2)

Microsoft Equation Editor:

$V\_{Al}=0.450+3.110×10^{-5}T\_{b}+\left[1.4316-0.03252\left(1-ϵ\right)+2.255×10^{-4}T\_{b}\right]η$

where:

*VAl*Voltage equivalent of enthalpy to make aluminium, V

*Tb* Bath temperature, °C

*h* Current efficiency, fraction

ε Fraction of alpha-alumina in alumina.

Electromagnetic force in liquid metal of an electrolysis cell, Equation (3) (vector equation, using MathType à Style à Vector-Matrix):

 (3)

where:

**F**Electromagnetic force, N/m3

**j** Electric current density, A/m2

**B** Magnetic induction, T

x Vector cross product.

The general equation style should be: variables in italic, numbers upright (Style à Math in MathType), upright bold for vectors and matrices (Style à Vector-Matrix in MathType).

Equations of chemical reactions should be written in a standard way and centered as shown in Equation (4):

2Al2O3 + 3C = 4Al + 3CO2 (4)

In these equations, there should be a space on each side of + and = sign. In equations as well as in the text, formulas of chemical compounds should be written with subscripts (e.g., Al2O3 and not Al2O3). Note that in English, elements are written in lower case (not in capitals) (aluminium and not Aluminium), but the symbol is in capital first letter (Ca, Mg). Chemical compounds and material names are also written in lower case (not in capitals) (e.g., alumina, carbon monoxide).

### Units of Measurement

Units of measurement should be SI in the whole paper. One blank space should be between the number and the unit of measurement; this rule includes % and °C (which are very often erroneously used stuck to the figure). One non-breaking space should also separate < , > , + , – , etc. from the number. A non-breaking space is obtained by Ctrl+Shift+Space bar pressed the same time.

To type the degree sign, °, press Num Lock once, then hold down the right Alt key while typing 0176 on the numerical keyboard (or Alt and 248). Do not use superscript of o, O or 0 instead of °.

If / is part of the unit of measurement, there is no blank on either side of the slash, km/h. If the unit has the material specified, there is a blank between the unit and the material, kg C/t Al, CO2 equiv. kg/t Al. Units with two slashes are not allowed; use kg/pot-day and not kg/pot/day.

Note that one of SI units for mass is tonne (not ton or metric ton), symbol t (not mt or Mt), gram is g (not gr). A unit of time is second, symbol s (not sec) or hour, symbol h (not hr), etc. The preferred symbol for liter is L (capital).

Decimal point must be used (not decimal comma). As per SI rules, in numbers greater than 10 000, thousands should be separated with a non-breaking space and not with a comma (e.g., 1 505 360 and not 1,505,360). A non-breaking space is obtained by Ctrl+Shift+Space bar pressed at the same time.

### Hyphen and Dash

A **hyphen** joins two or more words together (example: up-to-date, fifty-two) while a **dash** separates words into parenthetical statements. The two are sometimes confused because they look so similar, but their usage is different. Hyphens are not separated by spaces, while a dash has a space on either side.

Dash is also used for separating the range of numbers. ICSOBA papers follow the most common rule in English style: the range of numbers has no space on either side of the dash, e.g., 3–5, 10.3–12.6, 2–5 October, Figures 3–5, Tables 2–4, References [3–8]. However, when individual references are quoted, they have to be separated with a comma and a space inside the rectangular brackets, References [1, 2], etc. This style should also be used for ranges of numbers in tables. Also, in the list of references, the page numbers are separated with a dash without spaces, e.g., *Light Metals* 2000, 379-384.

### Tables, Figures and Illustrations

Tables, figures and illustrations should normally be inserted at the appropriate position in the paper as soon as possible after the mention, but without leaving too much empty space on a page. Arabic numerals are to be used for numbering tables and figures. In the text Figure 1, Figure 2, Figures 3–5, Table 1, Tables 2–4, should be in capital first letter. Table headings shall be bold and centered and placed above the related table. Figure captions shall be bold and centered and placed below the related figure. There is one blank line between the text and the table caption and one blank line below the table and the continuing text, but there is no blank line between the table caption and the table. There is a blank between the text at the top of the figure and the figure and between the figure caption and the text below. There is no blank between the figure and the figure caption. All figures (photographs, drawings, diagrams) should be numbered with consecutive Arabic numbers in the same order as they are referred to in the text (Figure 1, Table 3, etc.).

* + 1. **Tables**

Tables should preferably be inserted as part of the text, not as images, Times New Roman 11, or if they do not fit between left and right margin, the font size could be smaller, but not less than 9. An example is given in Table 2.

Table 2. Thermal conductivity and electrical resistivity of different ramming pastes [3].

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of paste** | **A** | **B** | **C** | **D** | **E** |
| Thermal conductivity at 1 000 °C (W/mK) | 11.9 | 13.1 | 13.9 | 16.2 | 13.9 |
| Electrical resistivity at 1 000 °C(µWm) | 67 | 52 | 48 | 36 | 37 |

Only exceptionally, a table can be pasted as image when it is too large to fit within the page margins. Tables copied from some reference should be re-written as a normal table, specified above.

In table captions, there is a full stop (not semicolon: or hyphen -) after Table yy. There is always a full stop at the end of the caption.

**2.7.2** **Figures**

Figures should have readable numbers on the axes, Times New Roman bold 11 and black (not grey). The axes should have a title each, with SI units in round brackets, and only the first word in capital, Times New Roman bold 11 and in black (not grey). Decimals in the scales should be separated by a point and not comma. Absolute numbers on the axes are preferable, relative numbers or no units on the axes should be avoided since they decrease the quality and usefulness of the paper, and the Subject Organizers may refuse the paper presenting figures without scale on the axes. Figures should have a title, Times New Roman 11, capitals as per English title rule. Figure 1 is an example.

The figures and graphs should be inserted as vector images, using Copy (in Excel or other software) à Paste special à Image in png format as much as possible. Example from Excel to Word: Copy (Excel) àHome (in Word) à Paste Special (in Word), seen below the Paste icon by selecting the arrow down below Paste à Choose from the list “Picture (png)” or “Picture Enhanced Metafile” depending on your Word version.

An example is given in Figure 1. In Figure captions, there is a full stop (not semicolon: or hyphen -) after Figure xx. . There is always a full stop at the end of the caption.



Figure 1. Heat loss from anode cover, yokes and rods [2].

If more figures are put next to each other, a table should be inserted and the pictures can be put in the table as shown below. To control relative position of unequal pictures in the table, you should insert three blank lines in each table box and paste the figure in the middle line. Finally omit the blank lines in the table. Finally, the borders of the table should be deleted: Click right button on the mouse Table Properties à Borders and Shading à Borders à Setting à None. An example is in Figure 2

Example of inserted table before pictures are pasted in.

|  |  |
| --- | --- |
|  |  |

Final result with pictures in the table.

|  |  |
| --- | --- |
|  |  |

**Figure 2. Construction of table with two side by side figures. from [4], Figure 6. New hydraulic wedge puller. Left: back view, Right: front view.]**

Note for picture and illustration: In order to keep the paper files within a reasonable size (below 10 Mb), use compressed pictures wherever possible with tools available (For example in Word: Compress Picture in Picture Format in top ribbon, HD 300 ppi or HD 200 ppi). On the same time avoid low resolution pictures below 200-300 dpi.

### Quotations

Direct quotations should be in quotation marks, *Italic* 11 pt., with one blank line above and below the quotation. The reference should be numbered and quoted in References. Example:

Jensen [1] gave a review of the effect of slotted anodes on cell performance. He concluded that:

“The use of slots in anodes drains CO2 away from the horizontal anode reaction face more frequently than from the same size anodes without slots. Slots reduce average bubble coverage and, thus, reduce bubble electrical resistance. The use of slotted anodes in prebaked anode reduction cells is an inexpensive and simple way to improve current efficiency, reduce pot voltage, reduce DC kWh/kg Al or allow an increase in cell amperage.”

### Internal Links for Figures, Tables and References

In the text, you may use the links to figures, tables and references, but these must be disactivated when the paper is submitted. This is to facilitate editing the papers into the book in Word format. If the links exist, putting one paper after the other into the Proceedings book mixes up all reference numbering of figures, tables and references. Word actually tries to continue the numbering from the last known linked reference. Papers with internal links will not be accepted.

## References

Bibliographical references should be marked in the text by a number in brackets [1] and included in numerical order at the end of the text, as shown in the examples below. There is in general no need to quote the authors in the text, e.g., Asbjørn Solheim et al [4], but, depending on the context and author’s style, the mention of the author in front of the reference number will be tolerated in certain cases.

All references should be quoted in the text at appropriate place related to the subject of discussion.

The authors should be quoted as follows: **Full first name** (or initials only if full first name is not in the original publication), second name, full or initial (if it exists), followed by family name (Eric Jensen, not Jensen, Erik; J.Y. Hwang not Hwang, J.Y.). If there are more than three authors, only the first one should be quoted, followed by et al. Example: Reference [4] below.

Full title of paper should be quoted with only the first word in capital and no quotation marks. A comma separates each element of the reference. The book, journal, conference or symposium should be in Italic.

**Book:**

1. Morten Sørlie, Harald A. Øye, *Cathodes in aluminium electrolysis*, 3rd Edition, Dusseldorf, Aluminium-Verlag, 2010, 662 pages.

**Thesis:**

1. Jayson Tessier, *Multivariate statistical analysis of Hall–Héroult reduction cells: investigation and monitoring of factors affecting performance*, PhD Thesis, Laval University, Québec, Canada, 2010.

**Papers:**

1. **Quoted in these Guidelines**
2. Abdalla Al Zarouni et al., Energy and mass balance in DX+ cells during amperage increase, *Proceedings of 31st International Conference of ICSOBA and 19th International Conference “Aluminium Siberia”*, 4-6 September 2013, Krasnoyarsk, Russia, *TRAVAUX* 42, 494-499.
3. Benedicte Allard, Arvind Kumar and Mohamed Tawfik, Performances of green and eco-friendly ramming pastes in EGA pots, *Proceedings of 33rd International ICSOBA Conference*, Dubai, UAE, 29 November – 1 December 2015, Paper AL18, *TRAVAUX* 44, 667-680.
4. Leyson Ecuacion et al., Hydraulic Wedge puller device “Quick Start” for removing wedges when energizing an electrolysis cell in aluminium smelter, *Proceedings of the 36th International ICSOBA Conference*, Belem, Brazil, 29 October - 1 November, 2018, Paper AL26, *Travaux* 47, 893-900.
5. **Further examples of paper references**
6. Erik Jensen, The effects slotted anodes on aluminium reduction cell performance, *Proceedings of* *18th International Symposium ICSOBA*, Zhengzhou, China, 25 - 27 November 2010, Paper AS 8, *TRAVAUX* 39, 531-538.
7. J.Y. Hwang, X. Huang, and Z. Xu, Recovery of metals from aluminium dross and salt cake, *Journal of Minerals & Materials Characterization & Engineering,* Vol. 5, No. 1, (2006), 47-62. (Initials for the first and second name are acceptable if the full name in the original paper is not given).
8. Warren Haupin and Halvor Kvande, Thermodynamics of electrochemical reduction of alumina, *Light Metals* 2000, 379-384.
9. Asbjørn Solheim et al., Current efficiency in laboratory aluminium cells, *Proceedings of 33rd International ICSOBA Conference*, Dubai, UAE, 29 November – 1 December 2015, Paper AL14, *TRAVAUX* 44*,* 625-634.

**Website:**

1. Bjarte Øye, Could the chloride process replace the Hall-Héroult process in aluminium production?, *SINTEF Blog*, <https://blog.sintef.com/sintefenergy/energy-efficiency/could-the-chloride-process-replace-the-hall-heroult-process-in-aluminium-production/> (Accessed on 4 October 2019).

**Patents:**

1. Warren E. Haupin, Light Metal Production, *US Patent* 3,755,099, filed Sept. 8, 1971, granted August 28, 1973.

## Other Remarks

* No headers and footers are to be used.
* Abbreviations should be defined before the first use. Note there is no need to define common abbreviations referring to chemical formulae and units of measurement.
* Papers with emphasis on selling a product or service will be rejected. That does not exclude the papers on commercial equipment or services if the scientific, technical and technological characteristics of equipment and services are the focus of the paper.
* Papers already published by the same authors in any place before will not be accepted, unless at least 33-50 % of the content is new. The acceptance of repeat papers is left to the Subject Organizers.

## Manuscript Submission Checklist

* Final title checked
* All author names and affiliations included and checked for accuracy
* E-mail address of corresponding author included
* Abstract included
* Keywords included
* Text heading levels and special text elements consistently styled
* No heading levels skipped
* References list included and all references are quoted in the text in square brackets [xx]
* Citations in text agree with reference list
* Figures consecutively numbered
* Figures consecutively cited in text
* Tables consecutively numbered
* Tables consecutively cited in text
* All links to figures, tables and references **deactivated** before submitting the paper in doc format.