Rio Tinto, The Organization Facing Aluminium's Technological and Environmental Challenges

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Abstract

In aluminium, R&D and technology activities were focused until the last decades, on the productivity, economics and HSE. Today, these topics are always very important and even more complex to improve (as we have already done the easiest steps!). But new objectives have been added to find better ways to provide aluminium the world needs while reducing our carbon footprint and to make net zero a reality. To meet these new objectives as soon as possible, we have to work in a different way. Among other things, it means to adapt our R&D and technology portfolio, to go faster, to work with external technologies and to be ambitious and bold.
Continuous improvement and innovation are part of our DNA, in Rio Tinto. To face this new context, Rio Tinto put in place a global organization based on one hand on the strong existing know-how and high skills of the R&D teams and on the other hand, a more centralised organization giving support to its various products groups. This organization aims to be more efficient and will allow to find and adopt technologies which are no longer in-house technologies, to find the right partnerships (from labs to industrial companies), and to go quicker from the idea to the implementation in operational sites.
More specifically, in Rio Tinto Aluminium, we have a rich experience on both R&D development and industrialization process, thanks to our technology sales history and our strong connection with our smelters. We also benefit from a large and rich eco-system. This paper shows how we are leveraging this already strong base to go further and faster while improving our organization.

Keywords: Innovation organization, Academic and industrial partnership, Technology development.

1. Section Title

Text here…….

1.1 Sub-Section Title

Text here…….

1.2 Sub-Section Title

Text here…….

1.2.1 Sub-Section Level 2 Title

Text here…….

2. Section Title

Text here…….

3. Table Example

Table 1. 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/m·K)	11.9	13.1	13.9	16.2	13.9
Electrical resistivity at 1 000 °C (μΩ·m)	67	52	48	36	37

4. Figure Examples

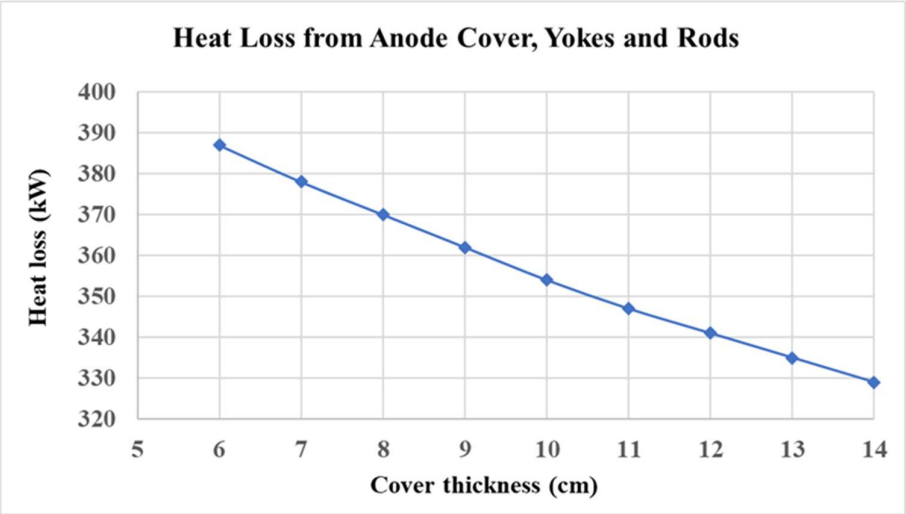

Figure 1. Heat loss from anode cover, yokes and rods [2].

Figure 6. New hydraulic wedge puller. Left: back view, Right: front view.

5. Equation Example

Text here… Example – The Newton's second law is governed by the following formula:

$$F = ma \tag{1}$$

Where

F Force, N
m Mass, kg
a Acceleration, m/s²

6. Conclusions

7. References

1. 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.
2. 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.