
Preface

It is a pleasure for me to welcome you to the TMS 2017 Annual Meeting & Exhibition in San Diego and to present to you the proceedings of *Light Metals 2017*. First of all, I would like to honor all of you who have contributed to make this an excellent reference for the developments within aluminium. All the efforts by you are extremely important for bringing better processes and better products to our society, making aluminium the preferred metal for growth and prosperity in a global perspective.

In 2016, the Hall-Héroult process celebrated its 130-year anniversary, in a period with aluminum experiencing an exceptional growth, surpassing all other metals over a long period. Moreover, there is no reason to believe this will not continue in the years to come.

The growth is adding extra pressure on the bauxite and alumina industry, especially on environmental issues related to mining and the red mud residue. In addition, more alumina refineries are located apart from the mines, making bauxite emerging as a bulk commodity in the trading market.

The growth in aluminum production in the East, especially China, has been tremendous, and more plants are on the drawing board. Unfortunately, this has caused an oversupply with low market prices for aluminum, which may continue for several years to come unless environmental restrictions on CO₂ emissions in China slow down the expansive policy. The recent growth, mostly based on coal-fired power plants, with an environmental footprint ten times that of aluminum produced from hydro- or nuclear power is challenging aluminum as a green metal.

As more aluminum is being recycled, in some areas reaching close to 50 %, both casting and alloying operations are prone to become more demanding due to the variety in composition of recycled aluminum. Fortunately, we also see a healthy growth in aluminum replacing more heavy metals in transportation, leading to better energy efficiency. The growth in both electric and plug-in hybrid cars and trucks are promising for our industry and makes us eager to reply to new demands for products and leaner production strategies.

In spite of the pressure on the aluminum price, which we have to cope with through process and technology improvements, the overall picture of the industry is good. In times with low market prices, it may be comfortable to cut back on R&D as a means to improve economical results. However, lack of continuity in long-term R&D may eventually slow down the drive for making the industry, even more cost-effective and environmentally sustainable. In this perspective, industrial contributions and participation at The Minerals, Metals & Materials Society's (TMS) meetings are not reflecting an aggressive attitude. For highly educated people recruited to the industry, not being able to participate with scientific contributions is a loss of opportunity to meet experienced people in the industry and from academia, reducing the opportunity to create networks and to get new inspiration useful in their daily work. We should all work together, share ideas, and contribute to develop new opportunities for our industry and our society.

In the organizing of the proceedings and the sessions, I would like to express my appreciation to the efforts of the subject chairs: Yanjun Li, David Gildemeister, Houshang Alamdari, Mark Dorreen, and Ting-an Zhang, as well as their session chairs that have reviewed the

manuscripts. I also have to mention Anne Kvithyld and John Grandfield for organizing the LMD Symposium in Honor of Christian Simensen and Thorvald Abel Engh together with David Gildemeister.

This year, the procedure for submitting manuscripts changed. This may have caused some confusion; however, as it is with our industry, improvements are not possible unless we are willing to change. And, the lessons learned this year will be used to improve next year's procedure. Finally, I would like to express my great appreciation to the TMS staff for their devoted support in the preparation of this volume.

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