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## **Increase amperage in Alminium Smelter (Case Study:South Hormoz Aluminium)**

Babak Bahamanejad, Ali Mozafar, Pejman Saraf moghadam, Tayeb Kamali, Borzou Baharvand, Mohsen Ameri Siahooei\*  
Almahdi-South Hormoz Aluminium Smelter- Bandarabbas- Iran- P.O. Box: 79171-7-6385

**Abstract:** Higher cell amperage now seems to have become a trend in the operation of Hall-Héroult potlines. The increasing global competition gives a steady demand to reduce production costs in all parts of aluminium smelters. This means increased cost pressure on all producers of primary aluminium, and not only on high-cost smelters. In this context, increasing the amperage in existing cells represents the cheapest way of producing more aluminium. The major cost of the extra metal produced will then be the costs of alumina, anode carbon, and electricity. Raising the amperage in an aluminium smelter potline is always a great challenge, because the adjustments required to face the new thermal, electromagnetic and hydrodynamic behavior resulting from the new values of current do not have the same response for every pot. Even though line current increases have become commonplace throughout the world, modifications in process parameters, sometimes, do not have the expected response. In this study, increased the amperage of the aluminum reduction cell from 215 kA to 235 kA during 8 months; this increase in amperage was carried out over eight steps. To keep the current density constant, we increased the size of the anodes. During performing the project, we studied carefully the various variables associated with the increase of amperage, such as  $\text{CaF}_2$ , EX,  $\text{AlF}_3$ , Metal purity, Noise, Bath Height, Metal Height, Bath temperature, Cathode voltage drop, Anode effect frequency, Net Specific energy and etc. The result of this project was an increase of thousand tons of aluminum into the country's aluminum production capacity (During the project).

**Keywords:** “Aluminium industry; Increase amperage”