

Journey of Hindalco as an Integrated Aluminium Producer

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Abstract

Hindalco, a flagship company of Aditya Birla Group, began its journey in 1958 from Renukoot, Uttar Pradesh state of India, as a first integrated plant of Independent India. Renukoot plant received bauxites from Lohardaga mines and hydropower from G B Pant Sagar Dam project to produce 40 ktpa alumina refinery and 20 ktpa aluminium smelter. Over the years through successive organic expansions company reached to 242 ktpa by 1999. This was followed by expansion through acquisition of INDAL and Novelis, a biggest expansion by an Indian company to become the largest Flat Rolled Products (FRP) producer in the world. In the last two decades, Hindalco continued its expansion by adding Utkal alumina refinery and new state of the art AP36 smelters at Mahan and Aditya.

During this journey, range of technologies were adopted to achieve the best technical and financial performance. For alumina extraction from Boehmitic bauxite of Lohardaga, the company mastered double digestion technology. We were first in world to test the Gas Suspension Calciner technology of FLSmidth and commissioned a plant in 1986 replacing the rotary kiln technology for production of smelter grade alumina. Many technical initiatives and strategic collaborations helped Utkal alumina refinery to become one of the lowest cost producer of alumina.

The best plant practices and technical inquisitiveness helped us to develop and implement inhouse technologies like copper insert collector bars, magnetic compensation loop, energy efficient cell lining designs, etc for both old and new smelters. These technology developments helped to not only reduce specific energy consumption but also achieve high quality metal with special LME grading, including best quality P0202 grade metal from Mahan smelter.

Technology partnership of our downstream plants with Novelis and Aleris has realised a range of new products and applications. We are leading the lightweighting of mobility sector in India by introducing aluminium bulkers, trailers, railway wagons and range of products for Electric Vehicles (EV) like battery foils, separators and enclosures.

As a responsible producer, we have special focus on sustainability with target of net zero in emission, discharge and land fill by 2050. Various technology initiatives from generation and storages of renewable energy, 100 % utilisation of bauxite residue, decarbonisation technologies areas assisted company to rank number 1 in Dow Jones Sustainability World Index, consecutively for the last 3 years. Adoption of Industry 4.0 driven digital technology transformations in various areas of aluminium value chain and customer centricity, is also facilitating to achieve these challenging targets.

Keywords: Hindalco, Aditya Birla, Indian Aluminium Industry, Sustainability, Industry 4.0.