

Management and Utilization of Aluminium Industry Wastes – NALCO's Experience

B. K. Satpathy

Abstract

During the processing of bauxite to alumina and subsequently from alumina to aluminium and its alloys, several wastes are generated in aluminium industry. The major waste material generated comprises of red mud, dross and spent pot lining (SPL). Presently, these byproducts are disposed off to the environment although in a confined area restricting from free disposal which otherwise may cause damage to our ecosystem. To overcome such problem, efforts should be made to minimize the effect of these wastes on the environment by way of finding their large scale utilization in a viable manner. Accordingly, attempts are being made at JNARDDC with the active participation of Industries such as National Aluminium Company to convert these wastes into usable or value added products such as bricks, tiles, alum etc. In order to have environmental sustainability, these industrial wastes must be utilized for the production of commercial viable products. Once these wastes are converted into marketable products, the environmental degradation can be minimised.

For the sustainability of aluminium industry in long run, research and development activities have been carried out by JNARDDC to prove viable utilization of red mud, dross and SPL material. Process optimization, products characterization and their commercial utilization have been attempted by JNARDDC in collaboration with NALCO. Subsequently, on evaluation of the results obtained from these projects, pilot scale trials will be initiated for some of them to assess techno economic viability. In the present communication, the sustainable growth of aluminium industry with special reference to the utilization of above waste materials is deliberated in details.

Keywords : Red Mud, Dross, Spent Pot Lining (SPL), Artificial Ceramic Stone Chips, Fired Bricks