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LITHIUM ADDITIVES IN ALUMINIUM PRODUCTION

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Abstract

Lithium addition to the molten bath during production of Aluminium metal has its benefits in terms of the quality of metal produced. The quantity of lithium salt to be added to the bath is determined by utilising proper material, machine and method. The present study describes the method by two proper routes. One of the methods is by X-ray-Diffraction and other by flame photometric method. The metal standards are used in varied proportion from a considerable range from lower level to an optimum level. Samples of different concentrations are taken by the flake methods of sampling from electrolytic pots. The samples have been divided to two parts as per the standard method of coning and quartering. Samples are ground to -150 Tyler mesh and made in to pellets. Samples are analysed by X-ray diffractometer and flame photometer.

Addition of lithium salts to molten bath decreases unit production of aluminium, reduces power consumption and Fluoride emission and on the other hand increases Potline capacity, Fluoride(cryolite) utilization and increases current efficiency by 1-3 percent.

Keywords: XRD: X-ray-Diffraction, KN: Kilo Newton.