

# Flotation and Infiltration of Artificial Alumina Rafts on the Surface of Molten Cryolite

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## Abstract

Alumina powder injection into the electrolytic bath usually involves raft formation: the alumina spreads on the surface of the electrolyte while the bath temporarily freezes around the powder. It stays afloat on the surface until the infiltration of the alumina by the bath and disturbances (agitation, splashing of liquid) lead to the sinking of the raft. Compressed discs of secondary alumina were prepared and inserted on the surface of molten cryolitic bath as artificial rafts for certain periods of time, to observe the flotation of the disc, the form and thickness of the frozen bath layer and the infiltration of alumina by the bath. Several sets of tests were conducted. The apparent densities of the discs were calculated to determine the role of surface tension in the flotation of the discs.

**Keywords:** Alumina raft; artificial alumina raft; flotation of alumina raft; infiltration of alumina raft; frozen bath.