

## Effect of Moisture Removal from Molten Salt on Corrosion of Alloys

**Authors :** Bhavesh D. Gajbhiye, Divya Raghunandan, C. S. Sona, Channamallikarjun S. Mathpati

**Abstract :** Molten fluoride salt FLiNaK (LiF-NaF-KF: 46.5-11.5-42 mol %) is a promising candidate as high temperature coolant for next generation nuclear reactors due to its superior thermophysical properties. Corrosion of alloys in molten FLiNaK has however been recognized as a serious issue in the selection of structural materials. Corrosion experiments of alloys Inconel-625 (Fe-Ni alloy) and Hastelloy-B (Ni-Mo alloy) were performed in FLiNaK salt. The tests were carried out at a temperature of 650°C in graphite crucibles for 60 hours under inert atmosphere. Corrosion experiments were performed to study the effect of moisture removal in the salt by pre heating and vacuum drying. Weight loss of the alloy samples due to corrosion was measured and corrosion rate was estimated. The surface morphology of the alloy samples was analyzed by Scanning Electron Microscopy. A significant decrease in the corrosion rate was observed for the alloys studied in moisture removed salt.

**Keywords :** FLiNaK, hastelloy, inconel, weight loss

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