The CsCl- And $CsN0_3$-Induced High Temperature Oxidation Of Nimonic-90 Alloy At 1123 K

Abstract

Nickel-base alloys find vital scope in space and nuclear applications due to their numerous favourable properties such as low density, high strength and corrosion resistance. The high temperature oxidation of Nimonic-90 (N-90) alloys has been studied in the absence or presence of CsCl and $CsN0_3$ salts at 1123 K for a period of 180 ks in atmospheric condition. The alloy is more severely attacked by CsCl than $CsN0_3$ due to formation of volatile chlorides. The tests included mass change monitoring, oxide scale analysis by X-ray diffraction, surface morphology examination by scanning electron microscopy (SEM) and detection of possible surface contaminants by energy dispersive X-ray analysis (EDAX).