Effect of some sodium salts coatings on the high-temperature oxidation of Nimonic-80A alloy at 1173 K

Abstract

The effects of some sodium salts, namely Na_2S0_4, NaCl, $NaN0_3$ and Na_2C0_3 coatings, on the high-temperature oxidation behaviour of Nimonic-80A (N-80A) alloy at 1173 K in a slow current of air are presented. The oxidation kinetics and effects of salt deposition on the N-80A alloy were investigated. The alloy is more severely attacked by NaCl than by Na_2S0_4, due to the formation of volatile chlorides. $NaN0_3$-and Na_2C0_3-induced alloy seem to be more aggressive than Na_2S0_4 and NaCl due to the evolution of nitrogeneous and $CO/C0_2$ gases respectively. The scale morphologies were determined on the basis of X-ray diffraction analysis and scanning electron microscopic techniques.