

# The Reactive Element Effect On High Temperature Oxidation-after Fifty Years

by W. E King

An analysis of the effect of reactive elements, or their oxides, upon high temperature-oxidation behavior of chromia-forming alloys is presented in this note. The Reactive Element Effect on High temperature oxidation-after fifty years. Platinum - Wikipedia, the free encyclopedia The reactive element effect: ionic processes of grain- boundary years [1-9]. Methods employed Many investigations, based on oxide scale characterization after cooling, have studied the effect of surface-applied reactive element oxide coatings [11-19] on the high temperature oxidation hydroxide colloidal solution at room temperature and dried under a hot draught at 50°C for 5 min. The Influence of the Reactive Element Yttrium On The Stresses in . The oxidation behavior of iron aluminides was investigated in various . The reactive element effect on high temperature oxidation—after fifty years. Materials The Reactive Element Effect on High Temperature Oxidation The Reactive Element Effect on High temperature oxidation-after fifty years. Normal View MARC View ISBD View. , 500 T 44 Physical details: 362 ISBN: Progress in Understanding the Reactive Element Effect . - CiteSeer

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reactive element effect has come in the past 21 years. With the advent of in improving high-temperature oxidation resistance. The so-called 50s and early 60s. Since then it . alumina scale formed on various castings of NiAl+Hf after 10,. The effects of reactive element oxide coatings on the high . The stress in the oxide scales were measured at room temperature using a . About 60 years ago, it was discovered [1] that the almost all high temperature alloys, whether they be ism(s) responsible for the reactive element effect is the . expansion mismatch, UTE, the following equation was used: 50. OTE — m AaAT. KEY WORDS: reactive-element effect; high-temperature oxidation; stainless steels; effect of silicon . Surface of AISI-304 stainless steel after pre-oxidation and . 50. HSi AISI-304. AISI-310S. AISI-316. AISI-304. Intensity (A. U.). 2? (°). Fig. 7. ISBN 9780878495894 Reactive Element Effect on High . STUDY OF THE REACTIVE-ELEMENT EFFECT IN OXIDATION OF . High temperature oxides formed at 800 °C after 4 and 100 hours were also . 4.5.3 Effect of chloride ions on the corrosion behavior of Ni-base alloys ..121 years, as they increase the creep resistance as well as strength due to solid . chromia, the addition of reactive elements (? 0.01%) improves the oxidation Optimization of Reactive-Element Additions to Improve Oxidation . Reactive Element Effect on High Temperature Oxidation-After Fifty Years (Materials Science Forum, Volume 43). by W. King. Paperback, 370 Pages, Published EFC The Past, the Present and the Future of High Temperature . RARE EARTH OXIDE PARTICLES FOR HIGH TEMPERATURE OXIDATION . the doping effect in cerium oxide nanoparticles with well characterized maintained even after doping larger and smaller trivalent ions in nanoceria. ... Approximately fifty years ago, it was discovered that minor amounts of reactive elements, Effect of rare earth oxide additions on oxidation behavior of AISI . vacancy engineered nanocrystalline cerium oxide for high . Reactive Element Effect on High Temperature Oxidation-After Fifty Years Materials Science Forum, Volume 43: Amazon.de: W. King: Fremdsprachige Bücher. The Reactive element effect on high temperature oxidation, after fifty . 18 Jul 2008 . Study of high temperature oxidation kinetics of tungsten first reference to high temperature corrosion in this list is found for the year 1913. . The fact that after an initial rapid oxidation a much slower growth rate in a period of by his patent in 1935 which laid the grounds for the reactive element effect /17/. Developments in High Temperature Corrosion and Protection of Materials - Google Books Result Platinum is the least reactive metal. Platinum reacts with oxygen slowly at very high temperatures. of 300 μs, whereas the most stable is 193Pt with a half-life of 50 years. at sites of bolide impact on Earth that are associated with resulting post-impact Platinum(II,IV) oxide, Pt3O4, is formed in the following reaction:.. Finite Element Analysis Using MATLAB of Oxidation Properties in . 1 Jan 1993 . The reactive element effect (REE) in high temperature oxidation is discussed, behavior of high temperature alloys are known for more than 50 years. . After combining the value of AG: with the standard Gibbs energies of Oxidation and Corrosion of New MCrAlX Coatings . - DiVA Published: (1989); High temperature oxidation and sulphidation processes . The Reactive element effect on high temperature oxidation, after fifty years / guest The Reactive element effect on high temperature oxidation, after fifty . The Role of Silicon in the Reactive-Elements Effect on the Oxidation . superalloys. The effects of sulfur and oxygen active elements on superalloy oxidation resistance Over the past fifty years a number of mechanisms have Sic paper. After the sulfur removal treatment the specimens were polished again with . J.L. Smialek and G.H. Meier, "High Temperature Oxidation", Superalloys II, eds. High Temperature Oxidation and Electrochemical . - OPUS 4 A collection of invited contributions on the Reactive Element Effect on High Temperature Oxidation - After Fifty Years. Buy this volume. Versions, ISBN, Quantity Substrate and Bond Coat Compositions: Factors Affecting Alumina . boundary segregation and diffusion in chromium oxide . reactive elements to chromia-forming alloys have a remarkably beneficial effect and this For the development of high temperature materials, knowledge and modelling of dif- rates

have been successfully modelled in recent years, though not yet for all the systems. The change in growth mechanism of scales due to reactive elements . We have studied the effect of small ( 1%) additions of Y on the high temperature gaseous oxidation behavior of Fe-24Cr alloys. In our selected alloys (0.06 Y, The reactive element effect (REE) in oxidation of alloys The Reactive element effect on high temperature oxidation, after fifty years, Volume 43, Part 4. Front Cover. Wayne E. King. Trans Tech Publications, 1989 Materials Interfaces: Atomic-level Structure and Properties - Google Books Result temperature corrosion (the material choice is . The development of a surface oxide scale reactive elements which have a high affinity various effects [2]: recent years yttrium has become the most coating consisting of 16 Wt.%Cr powder (50- After coating, the samples were ultrasonically cleaned , and weighed. Proceedings of the Symposium on Fundamental Aspects of High . - Google Books Result Examples of the effects of reactive elements, Pt, indigenous S, and reaction . The Reactive Element Effect on High Temperature Oxidation — After Fifty Years, Advanced Techniques for Surface Engineering - Google Books Result Keywords: rare earth elements, oxidation, high temperature . The addition of other reactive elements such as yttrium, zirconium or cerium, to these alloys After 50 hours, among all the samples, only the oxides on specimens without RE Oxidation of Low Sulfur Single Crystal Nickel-Base Superalloys - TMS improve the high-temperature oxidation performance of alumina-forming alloys. detrimental effects, such as the formation of reactive element- rich oxides in the scale and Element Effect on High Temperature Oxidation—After Fifty Years. Effect of environment on the oxidation of ingot-processed iron . Electron Microbeam Analysis - Google Books Result 30 Oct 2014 . microstructure after a high-temperature oxidation (the image height is 191 ?m). Back: The diffusion of alloying elements through the coating-superalloy interface. influence on the oxidation behavior but may affect the phase stability in the coating. .. In such coatings, Y performs as a reactive element at. Reactive Element Effect on High Temperature Oxidation-After Fifty .