

Foreword

Beyond Nickel Base Superalloys II

The following four papers were presented at the “Beyond Ni Base Superalloys” symposium as a part of the Materials Science & Technology (MS&T) conference held in Pittsburgh, PA (October 7 to 11, 2012):

1. “High temperature creep and oxidation behavior of Mo-Si-B alloys with high Ti contents” By: D. SCHLIEPHAKE, M. AZIM, K.V. KLINSKI-WETZEL, B. GORR, H.-J. CHRIST, H. BEI, E.P. GEORGE, and M. HEILMAIER
2. “Phase equilibria, microstructure, and high temperature strength of TiC-Added Mo-Si-B alloys” By: SHIMPEI MIYAMOTO, KYOSUKE YOSHIMI, SEONG-HO HA, TAKAHIRO KANEKO, JUNYA NAKAMURA, TETSUYA SATO, KOUICHI MARUYAMA, RONG TU, and TAKASHI GOTO
3. “A comparison of static and cyclic long-term oxidation of two Nb-Cr-Si-B alloys” By: KATHRYN THOMAS, S.K. VARMA
4. “Effect of alloying elements on Nb-rich portion of Nb-Si-X ternary systems and *in-situ* crack observation of Nb-Si-based alloys” By: SEIJI MIURA, TORU HATABATA, TAKUYA OKAWA, AND TETSUO MOHRI

The first two papers concentrated on the development of Mo-based alloys, whereas the last two papers focused on the performance of multi-component Nb-based alloys. These two types of alloys represent some of the best advancements achieved thus far in ultra-high temperature structural alloys where simultaneous but often times conflicting high temperature materials properties criteria are required, ranging from the demands for high temperature thermodynamic stability and mechanical integrity to the needs for an excellent environment resistance. These four papers demonstrated that despite the tremendous progress achieved so far, striking a delicate balance in satisfying these requirements remains one of the “grand challenges” for high temperature structural materials. We thank *Metallurgical and Materials Transactions* for facilitating the publication of the symposium.

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