

STATUS OF METALLIC MATERIALS DEVELOPMENT FOR APPLICATION IN ADVANCED HIGH-TEMPERATURE GAS-COOLED REACTORS

C.2. CREEP PROPERTIES

- 227 Creep Rupture Behavior of Candidate Materials for Nuclear Process Heat Applications / *F. Schubert, Udo Bruch, R. Cook, H. Diehl, Philip J. Ennis, W. Jakobeit, H. J. Penkalla, Eberhard te Heesen, G. Ullrich*
- 241 Creep Rupture Properties of Hastelloy-X and Incoloy-800H in a Simulated HTGR Helium Environment Containing High Levels of Moisture / *Kyung Sub Lee*
- 250 Creep and Rupture Behavior of a Special Grade Hastelloy-X in Simulated HTGR Helium / *Yuji Kurata, Yutaka Ogawa, Tatsuo Kondo*
- 260 Creep Rupture Properties of Superalloys Developed for Nuclear Steelmaking / *Tatsuhiko Tanabe, Yoshikazu Sakai, Tatsuo Shikama, Masakazu Fujitsuka, Heitaro Yoshida, Ryoji Watanabe*
- 273 Creep Properties of Hastelloy-X in Impure Helium Environments / *Tsuneo Nakanishi, Haruo Kawakami*
- 283 Creep Properties of Inconel-617 in Air and Helium at 800 to 1000°C / *Roger H. Cook*
- 289 Creep Behavior of Materials for High-Temperature Reactor Application / *Klaus Schneider, Walter Hartnagel, Peter Schepp, Bernhard Ilschner*
- 296 Creep and Relaxation Behavior of Inconel-617 / *Walter Osthoff, Hans Schuster, Philip J. Ennis, Hubertus Nickel*
- 308 Remaining-Life Estimation for High-Temperature Materials Under Creep Load by Replicas / *Burkhard Neubauer*

C.3. FATIGUE PROPERTIES

- 315 Investigations on the Fatigue Behavior of High-Temperature Alloys for High-Temperature Gas-Cooled Reactor Components / *Hans-Peter Meurer, Günter K. H. Gnirss, Wolfgang Mergler, Gerhard Raule, Hans Schuster, Georg Ullrich*

(Continued)

ON THIS COVER

This month's cover is a graphic design by artist Carl Heldt for the second part of *Nuclear Technology's* special issue on high-temperature gas-cooled reactor materials.

CONTENTS / AUGUST 1984—VOL. 66, NO. 2

(Continued)

- 324** High-Cycle Fatigue Behavior of Incoloy Alloy 800H in a Simulated HTGR Helium Environment Containing High Moisture Levels / *Peter Soo, Robert L. Sabatini*
- 347** Low-Cycle Fatigue of Heat-Resistant Alloys in High-Temperature Gas-Cooled Reactor Helium / *Hirokazu Tsuji, Tatsuo Kondo*

C.4. SHORT-TERM PROPERTIES

- 357** Tensile and Impact Properties of Candidate Alloys for High-Temperature Gas-Cooled Reactor Applications / *Udo Bruch, Dieter Schuhmacher, Philip J. Ennis, Eberhard te Heesen*
- 363** Effect of Carburizing Service Environments on the Mechanical Properties of High-Temperature Alloys / *Philip J. Ennis, Klaus P. Mohr, Hans Schuster*

C.5. FRACTURE MECHANICS

- 371** Fracture Mechanics Investigations on High-Temperature Gas-Cooled Reactor Materials / *Klaus Krompholz, Erik Bodmann, Günter K. H. Gnirss, Horst Huthmann*

D. GAS/METAL REACTION

- 383** Thermodynamic and Kinetic Aspects of the Corrosion of High-Temperature Alloys in High-Temperature Gas-Cooled Reactor Helium / *Willem J. Quadackers, Hans Schuster*
- 392** Relationship of H₂O and CH₄ Supply Rates in HTGR Helium to the Carburization of Hastelloy-X and Alloy 800H / *H. Inouye*
- 404** The Development and Application of a Unified Corrosion Model for High-Temperature Gas-Cooled Reactor Systems / *Karl G. E. Brenner, Leslie W. Graham*
- 415** The Corrosion Behavior of High-Temperature Alloys During Exposure for Times up to 10 000 h in Prototype Nuclear Process Helium at 700 to 900°C / *H. G. A. Bates*
- 429** Evaporation Behavior of Hastelloy-X Alloys in Simulated Very High Temperature Reactor Environments / *Masami Shindo, Tatsuo Kondo*
- 439** The Effects of Controlled Impurity Helium on the Mechanical Behavior of Hastelloy Alloy X / *C. C. Li, W. R. Johnson, L. D. Thompson*
- 465** Behavior of Metallic Materials Between 550 and 870°C in High-Temperature Gas-Cooled Reactor Helium Under Pressures of 2 and 50 bar / *M. Capelaere, M. Perrot, J. Sannier*

DEPARTMENT

- 215** Authors