Decomposition kinetics of expanded austenite with high nitrogen contents

Decomposition kinetics of expanded austenite with high nitrogen contents

This paper addresses the decomposition kinetics of synthesized homogeneous expanded austenite formed by gaseous nitriding of stainless steel AISI 304L and AISI 316L with nitrogen contents up to 38 at.% nitrogen. Isochronal annealing experiments were carried out in both inert (N2) and reducing (H2) atmospheres. Differential thermal analysis (DTA) and thermogravimetry were applied for identification of the decomposition reactions and X-ray diffraction analysis was applied for phase analysis. CrN precipitated upon annealing; the activation energies are 187 kJ/mol and 128 kJ/mol for AISI 316L and AISI 304L, respectively. Isothermal stability plots for expanded austenite developed from AISI 304L and AISI 316 were obtained.

General information
Publication status: Published
Organisations: Department of Management Engineering
Contributors: Christiansen, T., Somers, M. A. J.
Pages: 181-189
Publication date: 2006
Peer-reviewed: Yes

Publication Information
Journal: Zeitschrift für Metallkunde
Volume: 421
ISSN (Print): 0044-3093
Ratings:
Web of Science (2006): Indexed yes
Original language: English
Source: orbit
Source-ID: 194673
Research output: Contribution to journal › Journal article – Annual report year: 2006 › Research › peer-review