

Introduction: High-Temperature Corrosion in Energy-Related Systems

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Materials used at elevated temperatures are required to have both excellent mechanical properties and oxidation/corrosion resistance. These tend to be opposing properties from the standpoint of alloying, which presents technical challenges to the extent that there is an ever-increasing need to understand better the fundamental issues affecting optimal design of high-temperature materials. Indeed, recent demands for improved energy savings, reduced environmental pollution, and decreased emissions of CO₂ and other greenhouse gases impose the need for further advancements in high-temperature materials.

A series of specialized meetings entitled, *International Symposium on High-Temperature Oxidation and Corrosion (ISHOC)*, have been held regularly in Japan since 2000. The fourth of these meetings was ISHOC-2014, which was held in the northern city of Hakodate on July 23–27, 2014. The main objective of the ISHOC series is to address current issues of high-temperature materials used in harsh service environments. This includes providing further elucidation of fundamental

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mechanisms governing a particular mode of degradation and guiding technical solutions for arriving at improved materials. At ISHOC-2014, there was participation by a total of 154 scientists. Of that number, 92 were from Japan and 62 were from 15 different countries. A number of attendees were encouraged to submit a paper based on their presentation for publication in one of two topical special issues of *Oxidation of Metals*:

- I. Processes and performance in harsh environments
- II. High-temperature corrosion in energy-related systems.

The February 2016 issue of *Oxidation of Metals* presented papers on Topic I, while this current issue presents papers on Topic II. Similar to the Topic I issue, the papers in this Topic II issue are by leading researchers in the field of high-temperature corrosion. We are confident that these papers will serve as a great resource in years to come.