

Introduction

Traditionally, oxygen producers and users have individually developed methods to test and select engineering materials for oxygen systems. There were significant variations among these methods. The exchange of information was limited, and there was confusion for vendors supplying equipment. ASTM Committee G-4 on Compatibility and Sensitivity of Materials in Oxygen Enriched Atmospheres was formed in 1975 to achieve a consensus view. The committee's first standard, the Standard Guide for Evaluating Materials for Oxygen Service (G 63-80), provides this consensus.

Having produced ASTM Guide G 63, and with several test method standards on the verge of publication, Committee G-4 undertook this symposium to achieve several goals:

- to provide a fairly comprehensive reference on a subject that is not widely addressed in the readily accessible literature,
- to provide an introductory reference for newcomers to oxygen system design,
- to provide a data base to support the use of ASTM Guide G 63, and
- to suggest new directions for future efforts of Committee G-4.

The papers presented touch each major area of interest. Five papers discuss the testing of materials for ignition, propagation, and fire damage potential. Two papers discuss the system considerations of whole component testing and cleanliness. Three papers discuss metals flammability and selection. Many papers include substantial review of literature data and contribute new data.

There remain recognized ignition mechanisms, characteristics of propagation, and the like that were not the subjects of papers in this symposium. Future symposia may address these other issues, or may upgrade and expand the information in this volume. These papers, however, will be of value to the uninitiated and the veteran alike and form an excellent foundation for future efforts.

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