

STP 1267

Flammability and Sensitivity of Materials in Oxygen-Enriched Atmospheres: Seventh Volume

Dwight D. Janoff, William T. Royals, and Mohan V. Gunaji, Editors

ASTM Publication Code Number (PCN):
04-012670-31



ASTM
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Contents

Overview	vii
ASTM G-4 Twenty-Year Report Card: Keynote Address—F. J. BENZ	1
TEST METHOD DEVELOPMENT	
The Seal Configuration Tester, A New Approach to the Evaluation of Elastomeric Materials for Oxygen Service—L. H. HASELMAIER, SR. AND B. A. POWELL	11
A 500 Bar Gaseous Oxygen Impact Test Apparatus for Burn-Out Testing of Oxygen Equipment—C. BINDER, G. KIEPER, AND P. HERRMANN	23
Design of the LOX and GOX Systems for the Stennis Space Center High Heat Flux Facility—M. J. YENTZEN	36
New Test Capabilities for the Evaluation of Material Flammability in Oxygen-Enriched Atmospheres—T. A. STEINBERG AND B. C. SCOWN	57
IGNITION AND COMBUSTION OF METALS	
Promoted Ignition-Combustion Behavior of Light Metals in Oxygen-Enriched Atmospheres—R. ZAWIERUCHA, K. MCILROY, AND J. F. MILLION	69
Ignition and Combustion of Titanium and Titanium Alloys—M. V. GUNAJI, S. SIRCAR, AND H. D. BEESON	81
Effect of Beryllium on the Burn Propensity of Titanium Alloys—R. M. SCHMEES	86
Promoted Combustion of Pure Metals in Oxygen-Enriched Atmospheres—S. SIRCAR, J. STOLTZFUS, C. BRYAN, AND J. KAZAROFF	100
Flammability of Metals in Fluorine and Nitrogen Trifluoride—C. J. GUGLIEMINI, S. H. KADRI, R. L. MARTRICH, J. W. SLUSSER, J. VORA, B. L. WERLEY, AND A. J. WOYTEK	107
Reaction of Molten/Burning Aluminum with Liquid Oxygen—H. M. BARTHÉLÉMY AND C. MULLER	128

IGNITION AND COMBUSTION OF NONMETALS

An Evaluation of Polymers as Ignition Sources During Particle Impact in Oxygen—J. DEES, E. FORSYTH, M. V. GUNAJI, AND J. M. STOLTZFUS	143
Cone Calorimeter Testing of Epoxy/Fiberglass and Brominated Epoxy/Fiberglass Composites in Normal and Oxygen-Enriched Environments—F.-Y. HSHIEH AND H. D. BEESON	152
The Effects of Configuration, Forced Convection, and Oxygen Concentration on the Flammability Behavior of Electronic Equipment—E. M. RIMANOSKY, D. D. JANOFF, D. ALTEMIR, AND M. D. PEDLEY	168
Evaluation of the Compatibility of Materials Used in Breathing-Air Devices—A. JAIN, M. V. GUNAJI, AND C. J. BRYAN	184
CLEANING FOR OXYGEN SERVICE	
A Protocol for Evaluating the Cleaning Efficiency, Corrosion Property and Oxygen Compatibility of Non-Ozone Depleting Cleaning Agents—T. C. CHOU AND A. FIEDOROWICZ	195
Laser-Assisted Cleaning of Contaminated Surfaces—A. C. ENGELSBURG	222
MISCELLANEOUS	
Medical Oxygen Administration: A Comparison of National Training Courses—L. M. STARR	233
Case Study of an Oxygen-Acetylene Cutting Torch Failure and Measured Overpressures Due to Flashback Reactions—B. E. NEWTON, A. R. PORTER, W. C. HULL, S. H. HENRY, D. S. ANDERSON, AND L. N. RANDALL	243
Index	267