

1. Record Nr.	UNINA9910458920903321
Titolo	Fundamentals of solid-propellant combustion [[electronic resource] /] / edited by Kenneth K. Kuo, Martin Summerfield
Pubbl/distr/stampa	New York, N.Y., : American Institute of Aeronautics and Astronautics, Inc., c1984
ISBN	1-60086-567-4 1-60086-348-5 1-61583-527-X
Descrizione fisica	1 online resource (906 p.)
Collana	Progress in astronautics and aeronautics ; ; v. 90
Altri autori (Persone)	KuoKenneth K SummerfieldMartin
Disciplina	629.1 s
Soggetti	Solid propellants - Combustion Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title; Copyright; Table of Contents; Authors; Preface; Acknowledgments; Chapter 1. Survey of Rocket Propellants and Their Combustion Characteristics; Performance of a Solid-Propellant Rocket Motor; Stable Combustion of a Rocket Motor; Temperature Sensitivity of Burning Rate; Thermochemical Properties of Propellant Ingredients; Thermochemical Properties of Propellant Combustion Products; Combustion Processes of Various Types of Solid Propellants; Double- Base Propellants; Ammonium Perchlorate Composite Propellants; Composite Modified Double-Base Propellants Nitramine Composite PropellantsBurning Rate Controlling Factors of Solid Propellants; Combustion Characteristics Required for Solid Propellants and General Description of the Combustion Wave; Heat- Transfer Mechanism in Combustion Waves; Heat Transfer in Solid Phase; Heat Transfer in Gas Phase; Reaction Rate in Gas Phase; Burning Rate of Solid Propellant Calculated by a Simplified Gas-Phase Model; Chapter 2. Chemistry of Ignition and Combustion of Ammonium- Perchlorate-Based Propellants; Chemistry of Ignition; Sequence of Ignition; Theories of Ignition; Role of Oxidizer and Binder

Effect of Pressure; Effect of Oxidizing Atmosphere; Ignition of Composite Propellant Fuels by  $\text{HClO}_4$  Vapor; Preignition Reactions; Effect of Catalysts on Ignition; Chemistry of Combustion; Introduction to Combustion Mechanism; Surface Reactions; Subsurface Reactions; Gas-Phase Reactions; Effect of Catalysts on Propellant Combustion; Future Research Directions; Chapter 3. The Thermal Behavior of Cyclotrimethylenetrinitramine (RDX) and Cyclotetramethylenetetranitramine (HMX); Crystallography; Sublimation of HMX; Decomposition of the Solid RDX and HMX; Liquefaction; Decomposition of Liquid Pyrolysis of HMX; Shock Tube Studies; Ignition of HMX; Self-Deflagration of HMX and RDX; Self-Deflagration Rate as a Function of Pressure; Self-Deflagration Rate as a Function of Pressure and Initial Sample Temperature; Surface Structure of Self-Deflagrating HMX; Chapter 4. Chemistry of Nitrate Ester and Nitramine Propellants; Decomposition of Nitrocellulose; Kinetics of Nitrocellulose Decomposition; Products and Mechanism of Nitrocellulose Decomposition; Plasticizers and Stabilizers in Nitrocellulose Decomposition; Catalysis of Nitrate Ester Propellants; Decomposition of Nitramines Kinetics of HMX and RDX Decomposition; Products and Mechanism of HMX and RDX Pyrolysis; Catalysis of Nitramine Propellants; Flame Zone Chemistry; Chapter 5. Solid-Propellant Ignition Theories and Experiments; Introduction; Radiant Energy Ignition Sources; Shock Tube and Other Ignition Experiments; Theoretical Models of Solid-Propellant Ignition and Related Theory; Comments on Solution Methods; Solid-Phase Reaction Mechanism Theory; Theory of Ignition by Heterogeneous Reaction with External Oxidizer; Gas-Phase Theory of Solid-Propellant Ignition; Gas-Phase Theory-Shock Tube Cases Gas-Phase Theory-Radiant Heat Input

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