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Nota di contenuto	Safety Assessment for Chemical Processes; Contents; 1 Basic Terminology in Loss Prevention; 1.1 General Safety Terms; 1.1.1 Hazard Potential and Expectable Damage; 1.1.2 Risk; 1.2 Basic Terminology for Plant/Process Operation; 2 Procedure for Process Safety Investigations; 2.1 Scope of Investigation in its Dependence on the Process Development Stage; 2.2 Definition of Significant Plant or Process Modifications; 2.3 Types of investigations Corresponding to the Life Cycle Progress; 3 Test Methods For The Thermal Stability Assessment Of Substances And Mixtures 3.1 Theoretical Considerations For Laboratory Processes3.2 Screening - Methods For kg-Scale Processes; 3.2.1 Difference Thermal Analysis (DTA) and Differential Scanning Calorimetry (DSC); 3.2.2 The Carius Tube Test; 3.2.3 The Miniautoclave Test; 3.2.4 Open Cup Measuring Techniques; 3.3 Further Basic Assessment Test Methods For kg-Scale Processes; 3.3.1 The Burning Test For Solids; 3.3.2 Test On The Ignitability Of Solids; 3.3.3 Flash-point of Liquids; 3.3.4 Ignition

Temperature of Liquids; 3.4 Partial Testing for Explosion Risk; 3.5 Deflagration Testing
 3.6 Assignment of Testing Methods to Process Unit Operations for the kg-Scale
 3.7 References to Other Problems and Test Methods; 4 Methods for the Investigation and Assessment of Chemical Reactions;
 4.1 Reaction Engineering Fundamentals; 4.1.1 Stoichiometry and Extent of Reaction; 4.1.2 Reaction Rate; 4.1.3 Ideal Reactor Models; 4.1.4 Introduction of Characteristic Numbers; 4.1.5 Mass Balances of the Ideal Reactors; 4.1.6 Sample Solutions for Isothermal Operating Conditions; 4.1.7 The General Heat Balance of Cooled Ideal Reactors;
 4.2 The Heat Explosion Theory
 4.3 Investigation And Assessment Of Normal Operating Conditions
 4.3.1 The Safety Technical Assessment Of Normal Operating Conditions;
 4.3.1.1 Safe Normal Operation Of The Cooled CSTR; 4.3.1.2 Safe Normal Operation of the Cooled PFTR; 4.3.1.3 Safe Normal Operation of Cooled Batch Reactors; 4.3.1.4 Safe Normal Operation of the Cooled Semibatch Reactor; 4.3.2 Special Problems In The Assessment Of Normal Operating Conditions; 4.3.2.1 Safe Normal Operation of Reactions Under Reflux; 4.3.2.2 Safe Normal Operation of Polymerization Reactions
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 4.4.2 Methods For The Investigation Of Upset Operating Conditions

Sommario/riassunto

In spite of the good safety records of chemical plants many people regard chemical production as dangerous because of a few major accidents that have occurred. A knowledge of at least the fundamentals of chemical safety technology is indispensable for chemists and engineers working in chemical industry. The increasingly stringent legal and administrative requirements can only be answered by more highly qualified employees. This book combines the author's experience of 15 years of research in the field of chemical safety and 10 years in the chemical industry. It provides newcomers