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	Descrizione fisica	1 online resource (158 p.)
	Altri autori (Persone)	KrauseUlrich, Dr.
	Disciplina	363.379
	Soggetti	Silos - Fires and fire prevention Fire extinction Chemical plants - Risk assessment
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Fires in Silos: Hazards, Prevention, and Fire Fighting; Contents; Preface; 1 Introduction; 1.1 Problem Description; 1.2 Influence of Material Properties on Fire; 1.2.1 Particle Size Distribution, Particle Shape and Internal Surface Area; 1.2.2 Bulk Porosity and Bulk Density; 1.2.3 Porosity of Individual Particles; 1.2.4 Particle Density; 1.2.5 Humidity; 1.3 Chemical Properties of Bulk Goods; 1.3.1 Chemical Structure; 1.3.2 Heat of Formation and Calorific Value; References; 2 Ignition Sources; 2.1 Introduction; 2.2 External Ignition Sources; 2.2.1 Hot Solids, Liquids or Gases
2.2.1.1 Ignition of Gases by Hot Solids
2.2.1.2 Ignition of Dust Clouds by Hot Solids; 2.2.1.3 Ignition of Solids by Hot Solids; 2.2.2 Flames or Remote Burning Objects; 2.2.3 Electric Current, Static Electricity, Electromagnetic Waves and Particulate Radiation; 2.2.3.1 Electric Current; 2.2.3.2 Static Electricity; 2.3 Self-Heating; 2.4 Physical Characteristics of Self-Ignition Processes and Smoldering Fire Propagation; References; 3 Fire Risk Assessment; 3.1 Introduction; 3.2 Experimental Techniques; 3.2.1 Ignition Sensitivity; 3.2.1.1 Minimum Ignition Temperature (MIT)
3.2.1.2 Minimum Explosible Concentration (Lower Explosion Limit (MEC/LEL))
3.2.1.3 Minimum Ignition Energy (MIE); 3.2.2 Explosion Severity; 3.2.2.1 Explosion Pressure (P_{max}); 3.2.2.2 Maximum Rate of Pressure Rise (dp/dt); 3.2.2.3 K_{max} Specific Constant; 3.2.3 Thermal Susceptibility; 3.2.3.1 Maciejasz Index (MI); 3.2.3.2 Temperature of Emission of Flammable Volatiles (TEV); 3.2.3.3 Thermogravimetry (TG) Test; 3.2.3.4 Differential Scanning Calorimetry (DSC); 3.2.3.5 Susceptibility Evaluation: Activation Energy (E_a)
3.2.3.6 Susceptibility Evaluation: Characteristic Oxidation Temperature (T_{charac})
3.2.4 Thermal Stability; 3.2.4.1 Self-Ignition Temperature (SIT); 3.2.5 Classification of Solid Dangerous Goods; 3.2.5.1 Solids which are Readily Combustible; 3.2.5.2 Substances Liable to Spontaneous Combustion; 3.2.5.3 Substances which, in Contact with Water, Release Flammable Gases; 3.2.5.4 Oxidizing Substances; 3.2.6 Other Tests; 3.2.6.1 Flammability; 3.2.6.2 Burning Behavior; 3.2.6.3 Greiner Oven; 3.2.6.4 Impact Sensitivity; 3.2.6.5 Friction Sensitivity; References; 4 Explosion Risk and Protection
4.1 Essential Conditions for Explosion Occurrence
4.2 Parameters of Dust Explosion; Definitions; 4.3 Some Physical and Chemical Properties of Agricultural Dusts; 4.4 Explosion Characteristics; 4.5 Propagation of Explosion; 4.6 Dynamics of Explosions in Long Ducts and Galleries; 4.7 Causes of Fires and Fire-Explosion Protection; 4.7.1 Age of the Facilities, Maintenance and Repair Work; 4.7.2 Nature of Processed Materials; 4.7.3 Ignition Sources; 4.7.4 Plant Operation; 4.7.5 Type of Buildings and Facilities; 4.7.6 Equipment for Dust Collection; 4.7.7 Plant Automation; 4.7.8 Human Factor
4.8 Fire and Explosion Prevention and Protection in the Storage of Agro, Feed and Food Products

Providing many lessons learned from past silo fires coupled with in-depth knowledge from experts, this book explains current prevention measures in detail -- helping to prevent future damage. It covers numerous types of fire detection devices and fire fighting equipment, backed by extensive data tables listing fire and explosion characteristics of bulk materials, color photographs of silos on fire and documentation of firefighters' actions. In addition, diagrams and formulas as well as pre-prepared check lists are included for risk assessment and fire fighting actions. Possibly lifesaving