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CONVEYING SYSTEM OPERATION; Troubleshooting and material flow problems; Optimizing and up-rating of existing systems; Operating problems; Erosive wear; Particle degradation; Moisture and condensation; Health and safety; DEFINITIONS; CONVEYING AND SYSTEMS; Solids loading ratio; Dilute phase conveying; Dense phase conveying; Low-pressure and negative-pressure (vacuum) conveying; High-pressure conveying
Acceleration lengthNull point; Pulsating flow; Stepped pipeline; Transient; VELOCITY RELATED; Superficial air velocity; Free air velocity; Slip velocity; Slip ratio; Minimum conveying air velocity; Conveying line inlet air velocity; Conveying line exit air velocity; Saltation; Choking; PROPERTIES; Free air conditions; Specific humidity; Relative humidity; Stoichiometric value; Air retention; Permeability; Hardness; Brinell hardness; Vickers hardness; Mohs' scale; NOMENCLATURE; SYMBOLS; GREEK; NONDIMENSIONAL PARAMETERS; SUPERSCRIPTS; SUBSCRIPTS; REFERENCE POINTS; PREFIXES; REFERENCE
2 - AIRFLOW AND PARTICLE FLOW IN PIPELINESINTRODUCTION; CONVEYING AIR VELOCITY; EVALUATION OF VELOCITY; SINGLE PHASE FLOW; The darcy equation for pressure drop; The influence of conveyed solids on pressure drop; SLIP VELOCITY; PARTICLE FEEDING INTO PIPELINES; ACCELERATION PRESSURE DROP; CONVEYING AIR VELOCITY PROFILE; PARTICLE DEPOSITION ISSUES; Pipeline orientation influences; Horizontal conveying; Conveying vertically up; Inclined pipelines; Conveying vertically down; FLOW THROUGH PIPELINE BENDS; MODE OF FLOW THOUGH PIPELINES; SOLIDS LOADING RATIO; DILUTE PHASE FLOW; DENSE PHASE FLOW
Sliding bed flow

Sommario/riassunto

Pneumatic Conveying Design Guide, 3rd Edition is divided into three essential parts, system and components, system design, and system operation, providing both essential foundational knowledge and practical information to help users understand, design, and build suitable systems. All aspects of the pneumatic conveying system are covered, including the type of materials used, conveying distance, system constraints, including feeding and discharging, health and safety requirements, and the need for continuous or batch conveying. This new edition also covers information on the other conveying systems available and compares them to this method. The existing content is brought up-to-date and the references are expanded and updated. This guide is an almost encyclopedic coverage of pneumatic conveying and as such is an essential text for both designers and users of pneumatic conveying systems. Each aspect of the subject is discussed from basic principles to support those new to, or learning about, this versatile technique