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Filtration with Non-Newtonian Fluids

2.9 Laboratory Tests2.9.1 Vacuum Filter Leaf; 2.9.2 Compression Permeability Cell; 2.9.3 Capillary Suction Time; 2.9.4 Other Laboratory Tests and Procedures; 2.10 Developments in Filtration Modelling and Understanding; 2.11 References; 2.12 Nomenclature; 3 Sedimentation Fundamentals; 3.1 Dilute Sedimentation; 3.2 Hindered Settling; 3.2.1 Voidage Functions; 3.2.2 Batch Settling: Kynch Theory; 3.2.3 Batch Flux; 3.2.4 Use of Batch Flux Curve for local concentration; 3.3 Sedimentation with significant compression effects; 3.3.1 Stirring and channels during sedimentation

3.4 Settling Under Inclined Surfaces3.4.1 Nakamura-Kuroda Equation; 3.4.2 Grashof Number and Sedimentation Reynolds Number; 3.5 References; 3.6 Nomenclature; 4 Filter Media; 4.1 Introduction; 4.2 Woven Cloths; 4.2.1 Monofilaments and Multifilaments; 4.3 Cloth Selection; 4.3.1 Effect of Yarn Type and Weave Pattern; 4.3.2 Criteria of Choice; 4.4 Operational Aspects of Woven Media in Filters; 4.4.1 Loading of Yams with Solids; 4.4.2 Bacterial Growths; 4.4.3 Precipitation from Solution; 4.4.4 Inadequate Drainage; 4.4.5 Critical Concentration; 4.4.6 Critical Pressure

4.4.7 Classification of Particles4.4.8 Effect of Gas Bubbles; 4.4.9 Evaporation Effects; 4.4.10 Effect of Fabric Construction; 4.4.11 Effect of Cloth Underdrainage; 4.5 Aspects of the Cloth Selection and Performance; 4.5.1 Cloth Shrinkage; 4.5.2 Cloth Stretching; 4.5.3 Filter Cake Release; 4.5 4 Cloth Structural Effects; 4.5 5 Cloth Cleaning Process; 4.6 Nonwoven Filter Media; 4.7 Mathematical Models of Flow Through Filter Media; 4.7.1 Permeability of Clean Media; 4.7.2 Particle-Stopping Power; 4.7.3 Nonwoven, Random Fibre Media; 4.7.4 Woven Media; 4.7.4.1 Multifilament Cloth Permeability

4.7.4.2 Monofilament Cloth Permeability

Sommario/riassunto

A valuable presentation of theoretical and practical information in the area of liquid-solid filtration. The development of theoretical models is highlighted with practical design data and problem-related examples. Modern trends, e.g., membrane systems, are reported together with the fundamental aspects of particulate technology. The increasing interest in pollution control and environmental protection provides an expansive market for this book. Chemical engineers, chemists, physicists, water treatment/sewage engineers, civil engineers and all those concerned with filtration and pollution will