1. Record Nr. UNINA9910877403703321

Titolo	Emergency relief system design using DIERS technology : the Design Institute for Emergency Relief Systems (DIERS) project manual / / H.G. Fisher ... [et al.]
Pubbl/distr/stampa	New York, : DIERS, c1992
ISBN	9786612817403 9781282817401 128281740X 9780470938317 0470938315 9781591247807 1591247802 9780470938300 0470938307
Descrizione fisica	1 online resource (576 p.)
Altri autori (Persone)	FisherH. G
Disciplina	660/.281
Soggetti	Chemical plants - Safety measures Relief valves
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	Emergency Relief System Design Using DIERS Technology: The Design Institute for Emergency Relief Systems (DIERS) Project Manual; Contents; Preface; Introduction; 1. Overview; 2. Design Institute for Emergency Relief Systems (DIERS); 3. A Strategy for Major Accidental Release Prevention; 4. A Strategy for Emergency Relief System Design; 5. An Approach to Emergency Relief System Design Assessment; 6. Two-Phase Vapor-Liquid Flow; 7. Two-Phase Vapor-Liquid Flow Onset and Disengagement; 8. Two-Phase Vapor-Liquid Hydrodynamics; 9. DIERS Bench-Scale Apparatus 10. Runaway Reaction Emergency Relief System Design Computer Program11. References; Appendix A. DIERS Committees; Appendix B. DIERS Sponsors; Appendix C. DIERS Contractors; Chapter I. Vapor

Disengagement Dynamics; 1. Overview; 1-1. Vapor Disengagement Dynamics; 1-2. Design Considerations; 2. Detailed Discussion; 2-1. Open Literature References; 2-2. Project Manual; 3. References; Appendix I-A. The Coupling Equation and Flow Models; Appendix I-B. Best Estimate Procedure to Calculate Two-Phase Vapor-Liquid Flow Onset/Disengagement; Appendix I-C. Fluid Behavior in Venting Vessels Appendix I-D. Energy and Material Balance Derivations for Emergency Pressure Relief of VesselsAnnex I-D1. Internal Energy and Venting Calculations; Chapter II. Pressure Relief System Flow; 1. Introduction; 1-1. Scope; 1-2. Organization; 1-3. Special Terminology; 2. Recommended Design Methods; 2-1. Newtonian Flow; 2-2. Complex Fluids; 2-3. Useful Approximations; 3. Technology Base; 3-1. General Flow Equations; 3-2. Nozzle Flow Models; 3-3. Sharp Reductions; 3-4. Pressure Recovery/Expansions/Equilibrations; 3-5. Pipe Flow; 3.6. Application to Pressure Relief System Elements; 3-7. Networks
3-8. Complex Fluids4. Nomenclature; 5. Acknowledgments; 6. References; Appendix II-A. Thermophysical Property Requirements; Appendix II-B. Equilibrium Flash Calculations; Appendix II-C. Model Parameters for Pipe Entrance Sections; Appendix II-D. Computer Routines in SAFIRE Program; Appendix II-E. Example Problems; Appendix II-F. Generalized Correlations and Design Charts; Chapter III. DIERS Phase III Large-Scale Integral Tests; 1. Summary; 2. Introduction; 2-1. Program Objectivcs; 2-2. Program Description; 3. Test Configurations; 4. Test Results; 4-1. Tests T1 to T8
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1-2. Why High Viscosity Systems Require Special Consideration

Sommario/riassunto

OSHA (29 CFR 1910.119) has recognized AIChE/DIERS two-phase flow publications as examples of ""good engineering practice"" for process safety management of highly hazardous materials. The prediction of when two-phase flow venting will occur, and the applicability of various sizing methods for two-phase vapor-liquid flashing flow, is of particular interest when designing emergency relief systems to handle runaway reactions. This comprehensive sourcebook brings together a wealth of information on methods that can be used to safely size emergency relief systems for two-phase vapor-liquid flow for