

| | | |
|--|--------------------------------------|------|
| I. Foreword | (Krüssmann) | VIII |
| II. Apparatus Designs | | |
| II.1 Plate Heat Exchangers | | 1 |
| The plate heat exchanger – (most) effective technique for rational heat exchange | (Dietrich/Schenker) | 2 |
| Gasketed plate heat exchangers | (Julian Peschel) | 16 |
| Classification of Welded Plate Heat Exchangers | (Thorsten Klahm) | 22 |
| Fully welded plate heat exchangers | (Uwe Benda) | 32 |
| Semi-welded plate heat exchangers | (Uwe Benda) | 36 |
| II.2 Plate & Shell Heat Exchangers | | 41 |
| Plate & Shell – Heat Exchangers with a fluid (or product) as the primary heat transfer medium and a fluid as the secondary medium | (Dr. Jonathan Pascoe/Siegfried Lück) | 42 |
| Plate & Shell Heat Exchangers | (Thomas Bieler/Mike Hallmann) | 52 |
| Fully welded plate heat exchanger | (Pentii Raunio) | 62 |
| II.3 Spiral Heat Exchangers | | 73 |
| Spiral Heat Exchangers | (Dipl.-Ing. Markus Lentz) | 74 |
| II.4 Block Heat Exchangers | | 89 |
| Annular groove and wavy groove heat exchangers made of graphite | (P. Neumann) | 90 |
| II.5 Microstructure Heat Exchanger | | 97 |
| Microstructure Heat Exchangers: an overview | (J.Brandner/Klaus Schubert) | 98 |
| Rectangular channels for microtechnical apparatus | (Dr. Carmine Raffa/Dr. Olaf Stange) | 114 |
| Micro heat exchanger with a wire cloth structure | (Richard Balzer BSc) | 122 |
| III. Plate structurization | | 127 |
| Economical plate heat exchanger system with high functionality | (Ralf Hartmann/Mario Wetzky) | 128 |
| IV. Material Technology | | 133 |
| IV.1 Copper | | 133 |
| Compact heat exchangers made of copper materials | (Dr. Ing. Ladjı Tikana) | 134 |
| IV.2 Tantalum | | 143 |
| Tantalum heat exchangers – solutions for corrosive processes | (Holger Flemig) | 144 |
| IV.3 Graphite | | |
| Impervious Graphite | (Holger Flemig) | 150 |
| IV.4 Ceramics | | 153 |
| Innovative Plate Heat Exchangers of Sintered Silicon Carbide Ceramic | (Dr. Frank Meschke) | 154 |

| | | |
|---|--|-----|
| IV.6 Plastics | | 165 |
| Spiral Heat Exchangers of Polymer Materials | (B. Mast / H. Schulaks) | 166 |
| V. Surface Technology | | 177 |
| Conditioning and reconditioning of heat exchanger plates made of austenitic stainless steel alloys nickel/nickel alloys, titanium ect. | (Dr.-Ing. Georg Henkel/Dipl.-Ing. Benedikt Henkel) | 178 |
| VI. Preventive Measures for Mitigation of Fouling for Compact Heat Exchangers | | 185 |
| VI.1 Inspection | | |
| The Eddy Current Inspection Method | (Ingo Becker) | 186 |
| VI.2 Filtration/Mirco Filtration | | 193 |
| Eliminating Contamination Problems in Processes and shortening maintenance Loops in Plate and Tube Bundle Heat Exchangers | (Dipl.-Ing. Alexander Matosovic) | 194 |
| Integrated System Solutions for Cooling Circuits with Compact Heat Exchangers | (Dipl.-Ing. R. Dickhaus) | 208 |
| VI.3 Chemical Conditioning | | |
| Chemical Deblocking of Heat Exchangers by On-Stream-Cleaning and –Disinfection with Special Products and Services | (Dr.-Ing. Hans-Joachim Greunig) | 220 |
| VI.4 Cleaning and Reconditioning | | |
| Reliability, Availability and Maintainability (RAM) with Compabloc Heat Exchangers | (Alfa Laval) | 230 |
| VII. Applications | | 239 |
| The use of plate heat exchangers to cool and mix high-viscosity media | (M. Reppich / F. Schenker) | 240 |
| Heat Recovery by Plate Heat Exchangers | (Dipl.-Ing. Hermann Petermann / Dipl.-Ing Hartwig van Düllen) | 248 |
| New Possibilities for the Application of Ceramic Heat Exchangers in Processes with High-temperatures and Difficult Atmospheres | (Andreas Hiller/Jan Löser / Christoph Schmid / Gotthard Nauditt) | 256 |
| Development of a ceramic plate-fin Heat Exchanger for operation temperatures up to 1250°C | (J. Schulte-Fischedick, Stefan Zunft) | 264 |
| Appendix | | 277 |
| 1. Authors-Index | | 278 |
| 2. Advertisers-Index | | 283 |