

Table of Contents

Preface

Mechanical Failure of Advanced Ceramics: The Value of Fractography	
R. Danzer	1
Fractography of Advanced Ceramics – The CEN Pre-Standard	
R. Morrell and J. Kübler	19
Indentation Cracks in Silicon Nitride	
T. Lube	27
In-situ Observation of Hertzian Cracks in Indentation Damage of Brittle Materials	
H. Usami, J. Sugishita, H. Kanie and K. Ohashi	39
Fracture Properties of Ion-Implanted Surfaces of Silica Glasses Investigated by Vickers Indentation Measurements	
Z. Tóth, E. Rudnayová, A. Juhász, G. Pető and J. Lendvai	47
Crack Propagation in Plasma-Sprayed Thermal Barrier Coatings	
E. Wessel and R.W. Steinbrech	55
Fracture of PZT Ceramics under Compression Loading	
B.L. Cheng, J.J.C. Busfield, F. Guiu, M. Algueró and M.J. Reece	61
Fracture and Fractography of Electroceramics	
P. Supancic	69
Tensile Behaviour of 3Y-TZP/Ni Composites	
S. López-Esteban, J.F. Bartolomé, J.S. Moya, A. Sagisaka, K. Matsumoto and T. Tanimoto	79
Fracture of Green and Sintered Ceramic Bodies	
A. Börger, M. Hangl, M. Fellner and R. Danzer	83
Fracture Behavior of Porous Silicon Nitrides	
T. Ohji, N. Kondo, Y. Inagaki and Y. Shigegaki	91
Thermal Shock Failure of Brittle Materials	
M. Fellner and P. Supancic	97
Microfractography of Advanced Ceramics	
J. Dusza	107
Fractography of Alumina Fibre Reinforced Ex-Polysiloxane Matrix Composites	
E. Rudnayová and P. Glogar	119
Notch Sensitivity of Two C-SiC Fibre-Reinforced Ceramics	
V. Liedtke, J. Dusza, E. Semerad and R. Weiss	125
The Role of SEM in Controlling the Manufacturing Process of CMCs Fabricated by the Pressure Slurry Infiltration/Polymer Infiltration Method	
Z.S. Rak	131
Evaluation of Surface Preparation Techniques, SFG: Swing Frame Grinding and LPG: Low-Temperature Precision Grinding, by Comparison of Results on Alumnia and Silicon Carbide Model Materials	
B.I. Batiashvili, D.S. Butskhrikidze, G.L. Mamulashvili, O.B. Mgaloblishvili, R.S. Turmanidze, B. Mills, W. Steinkellner, E. Schafler, F.G. Rösel, H. Peterlik and K. Kromp	139
Technological Possibilities of Low-Temperature Precision Grinding Process when Machining Hard and Brittle Materials	
B.I. Batiashvili, D.S. Butskhrikidze, G.A. Mamulashvili, R.S. Turmanidze, K. Kromp, B. Mills and O.B. Mgaloblishvili	149
Fractography of Bioceramics	
H.G. Richter	157
The Failure of Surface-Treated Y-TZP Dental Ceramics	
T. Kosmač	181
Stress-Corrosion Cracking in Alumina Ceramics	
S.M. Barinov, L.V. Fateeva, V.J. Shevchenko, B. Balloková, P. Hvizzdoš and E. Rudnayová	187
Mechanical Characteristics and Fracture Behavior of High-Porosity Laminated Alumina	
S.A. Firstov, Y.N. Podrezov, D.G. Verbylo and M. Szafran	193
Creep Mechanism of SiCN-Derived Nano/Micro Composite	
P. Šajgalík, M. Hnatko, Z. Lenčés and J. Dusza	201

Fracture Toughness and Strength of Al₂O₃ - ZrO₂ Nanocomposites	209
M. Boniecki, Ž. Librant, H. Tomaszewski and W. Wesołowski	
Hardness and Fracture Toughness of SiC-Preforms Infiltrated with MoSi₂	215
Z. Pánek	
Interphase Boundary in Zirconia – Carbide Particulate Composites	221
Z. Pędziuch, K. Haberko, M. Faryna and K. Sztwiertnia	
The Influence of Sintering Additives on the Fracture Behaviour and Wear of Liquid-Phase Sintered Polycrystalline Alumina	227
D. Galusek, L. Kido, Z. Pánek, Z. Lenčés, P. Šajgalík and F.L. Riley	
Mechanical Properties of Recently Developed Si₃N₄-SiC Nanocomposite	233
M. Kašiarová, J. Dusza, M. Hnatko, Z. Lenčés and P. Šajgalík	
BN Coated Whisker - Reinforced Silicon Nitride	237
Š. Kavecký, P. Šajgalík and Z. Lenčés	
An Analysis of Differently Measured Moduli of Elasticity of Media Containing Shape Fabrics of Pores and Microcracks	241
M. Kupková and M. Kupka	
Fracture Response of Ceramic Materials to Indentation Loading	247
L. Melková, Z. Jonšta and K. Mazanec	
Fractography of SN-1 Silicon Nitride within IEA Subtask 7 Research	251
M. Mizuno and Y. Nagano	
Indentation Crack Healing in Low Glass-Content Mullite	257
P. Hvizdoš and M. Kašiarová	
SiC-Si Ceramic Composites Reinforced with Carbonized Fibres Made of Biogenic Substances	261
M. Leute, M. Wilhelm and W. Wruss	
Microstructure and Porcelain Stoneware Properties	265
J. Trpčevská, J. Briančin, Ľ. Medvecký and K. Durišinová	
Observation of the Microstructure of Barium Titanate Ceramics by Light Microscopy	269
E. Medvecký, J. Briančin and J. Trpčevská	