

## Contents of Volume 9

### Number 1

Editorial . . . . .	1
The Role of Condensed Silicon Monoxide in the Active-to-Passive Oxidation Transition of Silicon Carbide. KLAUS G. NICKEL (FRG)	3
Mechanical Properties of $\text{Si}_3\text{N}_4 + \beta\text{-Si}_3\text{N}_4$ Whisker Reinforced Ceramics . . . . . J. DUSZA & P. ŠAJGALÍK (ČSFR)	9
Densification of 0.99 $\text{SnO}_2$ –0.01 $\text{CuO}$ Mixture: Evidence for Liquid Phase Sintering . . . . . NATHALIE DOLET, JEAN-MARC HEINTZ, MARC ONILLON & JEAN-PIERRE BONNET (France)	19
Effect of Alumina Restraints on the Stability of Tetragonal Zirconia in Alumina–Zirconia Composite Powders J. L. SHI, Z. X. LIN & T. S. YEN (People's Republic of China)	27
Effects of Mechanical Damage on the Electrical Properties of Zirconia Ceramics . . . . . L. DESSEMOND & M. KLEITZ (France)	35
Characterization of Hydrothermal Barium Titanate . . . . . DETLEV HENNINGS & SERIYATI SCHREINEMACHER (FRG)	41
Capacitive Layers Based on Lead Magnesium Niobate Buried in a Multilayer Substrate . . . . . N. CASAGRANDA & M. LEJEUNE (France)	47
The Reaction of AlN with some Metal Oxides at High Temperatures . . . . . P. CANNARD (UK), THOMMY EKSTRÖM (Sweden) & R. J. D. TILLEY (UK)	53
Microstructure and Properties of Metal Infiltrated RBSN Composites . . . . . NAHUM A. TRAVITZKY & NILS CLAUSSEN (FRG)	61
A Ceramic Matrix Composite Obtained by Highly Exothermic Reaction . . . . . W. J. BOTTA F., V. C. PANDOLFELLI, J. A. RODRIGUES, R. TOMASI (Brazil), R. STEVENS, B. DERBY (UK) & R. J. BROOK (FRG)	67
Synthesis and Properties of $\text{Y}_2\text{O}_3$ Powder Obtained by Different Methods . . . . . BORO DJURIČIĆ, DRAGO KOLAR & MUSTAFFA MEMIĆ (Yugoslavia)	75

### Number 2

Development and Characterization of Electroconductive $\text{Si}_3\text{N}_4$ -TiN Composites . . . . . A. BELLOSI, S. GUICCIARDI & A. TAMPIERI (Italy)	83
Microstructural Development during Liquid-phase Sintering of $\text{Si}_3\text{N}_4$ Ceramics . . . . . C. BOBERSKI, H. BESTGEN & R. HAMMINGER (FRG)	95
Influence of Oxygen Partial Pressure on the Wetting Behaviour of Silicon Nitride by Molten Silicon . . . . . J. G. LI & H. HAUSNER (FRG)	101

Reactions within Quartz-Carbon Mixtures in a Nitrogen Atmosphere . . . . .	107
M. EKELUND & B. FORSLUND (Sweden)	
Peroxide Route to Synthesize Strontium Titanate Powders of Different Composition . . . . .	121
G. PFAFF (FRG)	
Mechanical Properties in the Ceria-Zirconia System . . . . .	127
S. MASCHIO, O. SBAIZERO & S. MERIANI (Italy)	
Crack Tip Bridging Stresses in Alumina and Duplex Ceramics . . . . .	133
H. E. LUTZ, X. Z. HU & M. V. SWAIN (Australia)	
Micromechanical Stresses in Sapphire Whisker and Alumina Fiber Reinforced Mullite and Garnet Ceramic Matrix Composites . . . . .	143
ZHUANG LI & RICHARD C. BRADT (USA)	
The Influence of Whisker Dimensions on the Mechanical Properties of Cordierite/SiC Whisker Composites. . . . .	153
I. WADSWORTH & R. STEVENS (UK)	

### Number 3

Influence of Sintering Conditions on Mechanical and Thermal Properties of Cordierite-ZrO <sub>2</sub> Composites . . . . .	165
NAHUM A. TRAVITZKY, NILS CLAUSSEN (FRG) & D. P. H. HASSELMAN (USA)	
Preparation and Characterization of a Dispersion Toughened Ceramic for Thermomechanical Uses (ZTA). Part I: Material Preparation. Characterization of Microstructure . . . . .	169
A. LERICHE, G. MOORTGAT, F. CAMBIER (Belgium), P. HOMERIN, F. THEVENOT, G. ORANGE & G. FANTOZZI (France)	
Preparation and Characterization of a Dispersion Toughened Ceramic for Thermomechanical Uses (ZTA). Part II: Thermomechanical Characterization. Effect of Microstructure and Temperature on Toughening Mechanisms . . . . .	177
G. ORANGE, G. FANTOZZI, P. HOMERIN, F. THEVENOT (France), A. LERICHE & F. CAMBIER (Belgium)	
Conductivity Data and Preparation Routes for NiMn <sub>2</sub> O <sub>4</sub> Thermistor Ceramics . . . . .	187
A. FELTZ, J. TÖPFER & F. SCHIRRMEISTER (FRG)	
Kinetic Demixing Profile Calculation under a Temperature Gradient in Multi-component Oxides. . . . .	193
D. MONCEAU, C. PETOT & G. PETOT ERVAS (France)	
Interfacial Thermodynamics of the System Silver Chloride (Liquid)-Sapphire. . . . .	205
U. RIEDEL, J. MAIER & R. J. BROOK (FRG)	
Compliance Analysis of a Bridged Crack under Monotonic and Cyclic Loading . . . . .	213
XIAOZHI HU, YIU-WING MAI & SRINIVASARAO LATHABAI (Australia)	
Synthesis of Silicon Nitride by Carbothermal Reduction and Nitriding of Silica: Control of Kinetics and Morphology . . . . .	219
T. LIČKO, V. FIGUSCH & J. PÚCHYOVÁ (Czechoslovakia)	
Preparation and Characterization of Tape Cast Aluminum Nitride Substrates . . . . .	231
T. CHARTIER, E. STREICHER & P. BOCH (France)	

### Number 4

Editorial . . . . .	243
---------------------	-----

Stuijts Memorial Lecture 1991: Some New Developments in Ceramic Science and Technology A. J. BURGGRAAF (The Netherlands)	245
Effect of Dopants on the Sintering Behaviour and Stability of Tetragonal Zirconia Ceramics G. S. A. M. THEUNISSEN, A. J. A. WINNUBST & A. J. BURGGRAAF (The Netherlands)	251
Residual Stress and the Stress–Strain Relation for Mg-PSZ P. H. J. VAN DEN BERG & G. DE WITH (The Netherlands)	265
Revised Phase Equilibrium Relationships in the System $\text{Al}_2\text{O}_3\text{-ZrO}_2\text{-SiO}_2$ MARIA CONCEIÇÃO GRECA, JOSÉ VITÓRIO EMILIANO & ANA MARIA SEGADÃES (Portugal)	271
Liquid Phase Sintering of $\text{LaCrO}_3$ RASIT KOC (Turkey) & HARLAN U. ANDERSON (USA)	285
Peroxide Route to Synthesize Calcium Titanate Powders of Different Composition G. PFAFF (FRG)	293
The Compaction Behaviour of Oxidised Silicon Powder R. G. STEPHEN & F. L. RILEY (UK)	301
Inherent Reinforcement of Ceramic Microstructures by Grain Boundary Engineering A. KRELL & P. BLANK (FRG)	309
Crack Closure Forces in Ceramics: Characterization and Formation JÜRGEN RÖDEL (FRG)	323
<i>Number 5</i>	
Editorial	335
Viewpoint. G. DE WITH	337
Preparation of Fine-grained High- $\mu$ Ferrites by Spray-roasting Nitrate Solutions WOLFGANG F. KLADNIG (Austria) & MANFRED F. ZENGER (FRG)	341
Sol–Gel Silica in the Healing of Microcracks in SiC-coated Carbon/Carbon Composites TSUNG-MING WU, WEN-CHENG WEI & SHU-EN HSU (Republic of China)	351
The Effects of $\text{C}_3\text{H}_8$ on the Chemical Vapor Deposition of Silicon Carbide in the $\text{CH}_3\text{SiCl}_3 + \text{H}_2$ System BYUNG JIN CHOI, SUN HO JEUN & DAI RYONG KIM (Korea)	357
Thermal and Electrical Properties of Alkoxy-derived Cordierite Ceramics HISAO SUZUKI, HAJIME SAITO & TAKASHI HAYASHI (Japan)	365
Spray-dried Homogeneous Cordierite and MLAS Glass–Ceramic Powders A. DOUY, P. CANALE & J. COUTURES (France)	373
$\text{Pb}_2\text{KNb}_5\text{O}_{15}$ Ferroelectric Ceramics: Elaboration, Control of Stoichiometry and Dielectric Properties LU ZHIGAO, J. P. BONNET, J. RAVEZ & P. HAGENMULLER (France)	381
Decalcification of Stabilized Zirconia by Silica and some other Oxides S. COLIN, B. DUPRE, C. GLEITZER, X. LE COQ, M. C. KAERLE & C. GUENARD (France)	389

Reaction Sintering of $\text{Ca}_2\text{SiO}_4$ - $\text{CaZrO}_3$ Composites . . . . .	397
D. L. CALLAHAN, GARETH THOMAS (USA), J. S. MOYA & PILAR PENA (Spain)	
<i>Number 6</i>	
Editorial . . . . .	405
Corrosion of Technical Ceramics by Molten Aluminium. . . . .	407
U. SCHWABE, L. R. WOLFF, F. J. J. VAN LOO & G. ZIEGLER (The Netherlands)	
Influence of Chemical Composition on Corrosion of Alumina in Acids and Caustic Solutions . . . . .	417
W. GENTHE & H. HAUSNER (FRG)	
The Acoustic Emission Analysis of the Crack Processes in Alumina . . . . .	427
C. SKLARCZYK (FRG)	
Statistical Analysis of Bend Strength Data According to Different Evaluation Methods. . . . .	437
M. STEEN, S. SINNEMA & J. BRESSERS (The Netherlands)	
Additives Content in ZnO Films Prepared by Spray Pyrolysis . . . . .	447
FRÉDÉRIC CAILLAUD, AGNÈS SMITH & JEAN-FRANÇOIS BAUMARD (France)	
Influence of Water Vapour on High-temperature Oxidation of $\text{Al}_2\text{O}_3$ -MgO-doped Hot-pressed Silicon Nitride	453
E. PROVERBIO, D. ROSSI & R. CIGNA (Italy)	
Fabrication and Conductivity of a New Compound $\text{Ca}_2\text{Cr}_2\text{O}_5$ . . . . .	459
I. KONTOULIS & B. C. H. STEELE (UK)	
<i>Comment on Electrical Properties and Defect Structure of Barium Metatitanate within the p-Type Regime by Janusz Nowotny and Mieczyslaw Rekas . . . . .</i>	463
D. M. SMYTH (USA)	
<i>Reply to D. M. Smyth: On the Defect Structure of <math>\text{BaTiO}_3</math> . . . . .</i>	467
JANUSZ NOWOTNY (Australia) & MIECZYSLAW REKAS (FRG)	
Contributor Index . . . . .	471