

REFERENCES

1. Kelly J.R., Nishimura I. and Campbell S.D., Ceramics in dentistry: Historical roots and current perspectives, *J Prosthet Dent*, 1996; **75** (1): 18-32.
2. Pisitanusorn A., Schulle W., Thiansem S. and Ananta S., The Influence of Crystalline Phase Additions on the Mechanical Properties of Dental Ceramic Materials. Part 1.1: Ceramic Materials Reinforced with Alumina-based Nanocomposites, *Interceram: Whitewares; Buchbesprechung*, 2006; **55** (5): 250-253.
3. Pisitanusorn A., Thiansem S., Schulle W. and Ananta S., The Influence of Crystalline Phase Additions on the Mechanical Properties of Dental Ceramic Materials Part 1.1: Ceramic Materials Reinforced with Alumina-Metal Oxide Based Nanocomposites, *Interceram: Whitewares; Buchbesprechung*, 2006; **55** (4): 423-425.
4. Morena R., Lockwood P.E., Evans A.L. and Fairhurst C.W., Toughening of dental porcelain by tetragonal ZrO₂ Additions, *J Am Ceram Soc*, 1986; **69** (4): C75-C77.
5. Tuan W.H., Chen R.Z., Wang T.C., Cheng C.H. and Kuo P.S., Mechanical properties of Al₂O₃/ZrO₂ composites, *J Euro Ceram Soc*, 2002; **22** (16): 2827-2833.
6. Cattell M.J., Chadwick T.C., Knowles J.C., Clarke R.L. and Lynch E., Flexural strength optimisation of a leucite reinforced glass ceramic, *Dent Mater*, 2001; **17** (1): 21-33.
7. Mackert J.J.R. and Russell C.M., Leucite crystallization during processing of a heat-pressed dental ceramic, *Int J Prosthodont*, 1996; **9** (3): 261-265.
8. Mackert J.J.R., Butts M.B. and Fairhurst C.W., The effect of the leucite transformation on dental porcelain expansion, *Dent Mater*, 1986; **2** (1): 32-36.
9. Rheinberger V., Perspectives in dental ceramics, *Glastech Ber Glass Sci Technol*, 1997; **70**: 339-400.

10. Cattell M.J., Chadwick T.C., Knowles J.C. and Clarke R.L., The crystallization of an aluminosilicate glass in the K₂O-Al₂O₃-SiO₂ system, *Dent Mater*, 2005; **21** (9): 811-822.
11. Cattell M.J., Chadwick T.C., Knowles J.C., Clarke R.L. and Samarawickrama D.Y.D., The nucleation and crystallization of fine grained leucite glass-ceramics for dental applications, *Dent Mater*, 2006; **22** (10): 925-933.
12. Mackert J.J.R. and Williams A.L., Microcracks in dental porcelain and their behavior during multiple firing, *J Dent Res*, 1996; **75** (7): 1484-1490.
13. Chen I.W. and Wang X.H., Sintering dense nanocrystalline ceramics without final-stage grain growth, *Nature*, 2000; **404** (6774): 168-171.
14. Bobbio A., The first endosseous alloplastic implant in the history of man, *Bull Hist Dent*, 1970; **20** (1): 1-6.
15. Land C.H., Porcelain dental art, *Dent Cosmos*, 1903; **65**: 615-620.
16. Weinstein M. and Weinstein A.B.; J.M. Ney Company, assignee. Fused porcelain-to-metal teeth. 1962.
17. McLean J.W. and Hughes T.H., The reinforcement of dental porcelain with ceramic oxides, *Br Dent J*, 1965; **119**: 251-267.
18. Anusavice K.J., Dental ceramics, In: Anusavice K.J. editor, Phillips' science of dental materials, Philadelphia, Saunders, 2003. p 655-719.
19. Hermansson L. and Carlsson R., On the crystallization of the glassy phases in whitewares, *Trans Br Ceram Soc*, 1978; **77** : 32-35.
20. Rosenblum M.A. and Schulman A., A review of all-ceramic restorations, *J Am Dent Assoc*, 1997; **128** (3): 297-307.
21. Jones D.W., Development of dental ceramics, *Dent Clin North Am*, 1985; **29**: 621-644.
22. Rouf M., Hermansson L. and Carlsson R., Crystallisation of glasses in the primary phase field of leucite in the K₂O-Al₂O₃-SiO₂ system, *Trans J Br Ceram Soc*, 1978; **77**: 36-39.
23. Meneses D.D., Malki M. and Echegut P., Optical and structural properties of calcium silicate glasses., *J Non-Cryst Sol* 2006; **352**: 5301-5308.

24. Tu Y. and Tersoff J., Structure and energetics of the Si- SiO₂ interface, *Phys Rev Lett* 2000; **84** (19): 4393-4396.
25. Zachariassen W.H., The atomic arrangement in glass, *J Am Chem Soc*, 1932; **54**: 3841-3851.
26. Orlowski H.J. and Koenig C.J., Thermal expansion of silicate fluxes in the crystalline and glassy states, *J Am Ceram Soc* 1941; **24**: 80-84.
27. Watson H.L., Some properties of fused quartz and other forms of silicon dioxide, *J Am Ceram Soc*, 1926; **9**: 511-534.
28. Fairhurst C.W., Anusavice K.J., Hashinger D.T., Ringle R.D. and Twiggs S.W., Thermal expansion of dental alloys and porcelains, *J Biomed Mater Res*, 1980; **14**: 435-446.
29. Desouki S.E., Shaisha E.E., Shaltout I. and Mady H.A., A new concept about the static structure and alkali non-bridging oxygen dependence of the mixed alkali effect in bismuthate glasses, *Int J Pure Appl Phys*, 2007; **3**: 10–21.
30. Bernard H.W., Ruud G.C. and Peter A.V., Glass: Ullmann's encyclopedia of industrial chemistry New York, John Wiley & Sons, 2000.
31. Dong J.K., Luthy H., Wohlwend A. and Scharer P., Heat-pressed ceramics: technology and strength, *Int J Prosthodont*, 1992; **5**: 9-16.
32. Chaim R., Baum L. and Brandon D.G., Mechanical properties and microstructure of whisker-reinforced alumina-30vol% glass matrix composite, *J Am Ceram Soc*, 1989; **72**: 1636-1642.
33. Szarska S., Jungner H., Staniewicz B.B. and Wiatr M., Characteristics of defect formation in aluminium oxide reinforced bioactive glass, *Radiation Measurements*, 2007; **45** (4-5): 903-906.
34. Shareef M.Y., Van Noort R., Messer P.F. and Piddock V., The effect of microstructural features on the biaxial flexural strength of leucite reinforced glass-ceramics, *J Mater Sci - Mater Med*, 1994; **5** (2): 113-118.
35. Osaka A., Ono M. and Takahashi K., Aluminum oxide anomaly and structure model of alkali aluminosilicate glasses, *J Am Ceram Soc*, 1987; **70**: 242-245.
36. Chevalier J. and Gremillard L., Ceramics for medical applications: A picture for the next 20 years, *J Euro Ceram Soc*, 2009; **29** (7): 1245-1255.

37. McLean J.W., The science and art of dental ceramics Vol. I: The nature of dental ceramics and their clinical used, Chicago, Quintessence, 1979.
38. Denry I.L., Recent advances in ceramics for dentistry, *Crit Rev Oral Biol Med*, 1996; **7** (2): 134-143.
39. Francischone C.E. and Vasconcelos L.W., Metal-free esthetic restorations. 2nd Edn, Sao paulo, Quintessence, 2003.
40. Denry I.L. and Rosenstiel F., Phase transformations in feldspathic dental porcelains, In: Fischman G., Clare A., Hench L. editors, Bioceramics: materials and applications, Westerville, The American Ceramic Society, 1995. p 149-156.
41. Dunn B., Levy M.N. and Reisbick M.H., Improving the fracture resistance of dental ceramic, *J Dent Res*, 1977; **56**: 1209-1213.
42. Denry I.L., Rosenstiel S.F., Holloway J.A. and Niemiec M.S., Enhanced chemical strengthening of feldspathic dental porcelain, *J Dent Res*, 1993; **72**: 1429-1433.
43. Seghi R.R., Daher T. and Caputo A., Relative flexural strength of dental restorative ceramics, *Dent Mater*, 1990; **6**: 181-184.
44. Anusavice K.J., Hojjatie B. and Chang T.C., Effect of grinding and fluoride-gel exposure on strength of ion exchanged porcelain, *J Dent Res*, 1994; **73**: 1444-1449.
45. Anusavice K.J. and Hojjatie B., Effect of thermal tempering on strength and crack propagation behavior of feldspathic porcelains, *J Dent Res*, 1991; **70**: 1009-1013.
46. DeHoff P.H., Vontivillu S.B., Wang Z., and Anusavice K.J., Stress relaxation behavior of dental porcelains at high temperatures, *Dent Mater*, 1994; **10**: 178-184.
47. Asaoka K., Yoshida K. and Sakamaki K., Effect of transient stress on acoustic emission behaviour during firing of dental porcelain, *J Mater Sci*, 1992; **27**: 3118-3122.
48. Anusavice K.J., Shen C., Vermost B. and Chow B., Strengthening of porcelain by ion exchange subsequent to thermal tempering, *Dent Mater*, 1992; **8**: 149-152.

49. Wall G.C. and Cipra D.L., Alternative crown systems. Is the metal ceramic crown always the restoration of choice? , *Dent Clin North*, 1992; **36**: 765-782.
50. Spear F. and Holloway J., Which All-Ceramic System Is Optimal for Anterior Esthetics? , *J Am Dent Assoc*, 2008; **139** (suppl_4): 19S-24S.
51. Horn H.R., A new lamination: porcelain bonded to enamel, *NY State Dent J*, 1983; **49** (6): 401-403.
52. Calamia J., R., Etched porcelain facial veneers: a new treatment modality based on scientific and clinical evidence, *N Y J Dent*, 1983; **53** (6): 255-259.
53. Pospiech P., All-ceramic crowns: bonding or cementing?, *Clin Oral Investig*, 2002; **6** (4): 189-197.
54. Roberson T.M., Heyman H.O., and Swift E.J.J., Sturdevant's Art and Science of Operative Dentistry. 5th Edn, St. Louis, Mosby, 2006.
55. Mackert J.R. Effects of thermally induced changes on porcelain-metal compatibility. In: Preston J. ed., *Perspectives in dental ceramics, Proceedings of the fourth international symposium on ceramicsed*. Chicago: Quintessence, 1988: 53-64.
56. Mazzi F., Galli E. and Gottardi G., The crystal structure of tetragonal leucite, *Am Mineral* 1976; **61**: 108-115.
57. Faust G.T., Phase transition in synthetic and natural leucite, *Schweiz Mineral Petrogr Mitt*, 1963; **43**: 165-195.
58. Cattell M.J., Clarke R.L. and Lynch E.J.R., The transverse strength, reliability and microstructural features of four dental ceramics - Part I, *J Dent*, 1997; **25** (5): 399-407.
59. Palmer C., Putnis A. and Salje E., Twinning in tetragonal leucite, *Phys Chem Miner* 1988; **16**: 298-303.
60. Wyart J., Etude sur la leucite, *Bull Soc franc Mineral Cristallogr*, 1938; **61**: 228-238.
61. Pencor D.R., A high temperature single crystal diffractometer study of leucite, $(K,Na)AlSi_2O_6$, *Z Kristallogr*, 1968; **127**: 213-224.
62. Palmer D.C. and Salje E.K.H., Phase transitions in leucite: Dielectric properties and transition mechanism, *Phys Chem Miner*, 1990; **17** (5): 444-452.

63. Ibsen R.L., Chadwick T.C. and Pritchard S.A., Strong dental porcelain and method for its manufacture. 1991.
64. Burk B. and Burnett A.P., Leucite containing porcelains and method of making same. 1978.
65. Levin E.M., Robbins C.R. and Mcmurdie H.F., Phase Diagram for Ceramists, Vol I Columbus, Ohio, The American Ceramic Society, 1964.
66. Schairer J.F. and Bowen N.L., The system $K_2O-Al_2O_3-SiO_2$, *Am J Sci*, 1955; **253**: 681-746.
67. Binns D.B., The chemical and physical properties of dental porcelain, In: McLean J.W. editor, Dental ceramics, Proceedings of the 1st international symposium on dental ceramics, Chicago, Quintessence, 1983. p 41-56.
68. Smith J.V. and Brown W.L., Feldspar minerals, Vol. I. 2nd Edn, Berlin, Springer-Verlag, 1988.
69. Mackert J.J.R., Butts M. and Morena R., Phase changes in a leucite-containing dental porcelain frit, *J Am Ceram Soc*, 1986; **69**: 69-72.
70. Barreiro M.M., Riesgo O. and Vicente E.E., Phase identification in dental porcelains for ceramo-metallic restorations, *Dent Mater*, 1989; **5** (1): 51-57.
71. Piche' P.W., O'Brien W.J., Groh C.L. and Boenke K.M., Leucite content of selected dental porcelains, *J Biomed Mater Res*, 1994; **28** (5): 603-609.
72. Mormann W.H. and Bindl A., The Cerec 3-a quantum leap for computer-aided restorations: initial clinical results, *Quintessence Int*, 2000; **31** (10): 699-712. eng.
73. Nathanson D., Principles of porcelain use as an inlay/onlay material, In: Garber D., Goldstein R.E. editors, Porcelain and composite inlays and onlays, aesthetic posterior restorations, Carol Stream, IL, Quintessence, 1994. p 32-36.
74. Wohlwend A. and Schaerer P., The Empress technique for the fabrication of full ceramic crowns, inlays and veneers, *Quintessenz Zahntech*, 1990; **16** (16): 966-978.
75. Gurel G., Esthetic Dentistry, In: Gurel G. editor, The Science and Art of Porcelain laminate veneers, Berlin, Quintessence, 2003.

76. Denry I.L., Mackert J.J.R., Holloway J.A. and Rosenstiel S.F., Effect of cubic leucite stabilization on the flexural strength of feldspathic dental porcelain, *J Dent Res*, 1996; **75** (12): 1928-1935.
77. Denry I.L. Low Expansion Feldspathic Porcelain. 1999.
78. Rasmussen S.T., Groh C.L. and O'Brien W.J., Stress induced phase transformation of a cesium stabilized leucite porcelain and associated properties, *Dent Mater*, 1998; **14** (3): 202-211.
79. Prasad A. and Vaidyanathan T.K., Crystallization of cubic leucite by composition additives, *J Dent Res*, 1990; **69**: 210.
80. Li X. and Shaw L.L., Formation of leucite-free zone in laser densified dental porcelains, *Mater Lett*, 2007; **61** (18): 3946-3950.
81. Hermansson L. and Carlsson R. High and low temperature forms of leucite. In: *Proceedings, 8th International Symposium on the Reactivity of Solidsed*. Gothenberg, Sweden: Swedish Institute for Silicate Research, 1976: 541-545.
82. Mackert J.J.R., Effects of thermally induced changes on porcelain-metal compatibility, In: Preston I.D. editor, *Perspectives in dental ceramics* Proceedings of the Fourth International Symposium on Ceramics, Chicago, Quintessence Publishing, 1988. p 53-64.
83. Mackert J.J.R. and Evans A.L., Quantitative x-ray diffraction determination of leucite thermal instability in dental porcelain, *J Am Ceram Soc*, 1991; **74** (2): 450-453.
84. Mackert J.J.R. and Evans A.L., Effect of cooling rate on leucite volume fraction in dental porcelains, *J Dent Res*, 1991; **70**: 137-139.
85. Mackert J.J.R., Rueggeberg F.A., Lockwood P.E., Evans A.L. and Thompson W.O., Isothermal anneal effect on microcrack density around leucite particles in dental porcelain, *J Dent Res*, 1994; **73**: 1221-1227.
86. Cesar P.F., Yoshimura H.N., Miranda W.G. and Okada C.Y., Correlation between fracture toughness and leucite content in dental porcelains, *J Dent Res*, 2005; **33** (9): 721-729.
87. Cesar P.F., Soki F.N., Yoshimura H.N., Gonzaga C.C. and Styopkin V., Influence of leucite content on slow crack growth of dental porcelains, *Dent Mater*, 2008; **24** (8): 1114-1122.

88. White S.N., Mechanical fatigue of a feldspathic dental porcelain, *Dent Mater*, 1993; **9** (4): 260-264.
89. Kelly J.R., Clinically relevant approach to failure testing of all-ceramic restorations, *J Prosthet Dent*, 1999; **81** (6): 652-661.
90. Kon M., Kawano F., Asaoka K. and Matsumoto N., Effect of leucite crystals on the strength of glassy porcelain, *Dent Mater*, 1994; **13**: 138-147.
91. Cattell M.J., Knowles J.C., Clarke R.L. and Lynch E., The biaxial flexural strength of two pressable ceramic systems, *J Dent*, 1999; **27** (3): 183-196.
92. Mackert J.J.R., Russell C. and Evans W., Evidence of a critical leucite particle radius for microcracking in dental porcelains, *J Dent Res*, 1996; **75**: 126.
93. Chantikul P., Anstis G.R., Lawn B.R. and Marshall D.B., A Critical Evaluation of Indentation Techniques for Measuring Fracture Toughness: II, Strength Method, *J Am Ceram Soc*, 1981; **64** (9): 539-543.
94. Metzler K.T., Woody R.D., Miller 3rd A.W. and Miller B.H., In vitro investigation of the wear of human enamel by dental porcelain, *J Prosthet Dent*, 1999; **81** (3): 356-364.
95. Issued by Ceramco Report: Suzuki S. In vitro wear of Ceramco porcelain as opposed to human enamel: Publisher; 1996.
96. Beall G. and Duke D., Transparent glass ceramics, *J Mater Sci*, 1969; **4**: 340-350.
97. Doherty P.E., Ceramic microstructures New York, John Wiley and Sons, 1968.
98. McMillan P., Glass-ceramics. 2 nd Edn, London, Academic Press, 1979.
99. Mayo M.J., Processing of nanocrystalline ceramics from ultrafine particles, *Int Mater Rev*, 1996; **41**: 85-115.
100. Luo J. and Stevens R., The role of residual stress on the mechanical properties of Al₂O₃-5 vol% SiC nano-composites, *J Am Ceram Soc*, 1997; **17** (13): 1565-1572.
101. Mazaheri M., Valefi M., Hesabi Z.R. and Sadrnezhaad S.K., Two-step sintering of nanocrystalline 8Y₂O₃ stabilized ZrO₂ synthesized by glycine nitrate process, *Ceram Int*, 2009; **35** (1): 13-20.

102. Mazaheri M., Zahedi A.M., Haghighatzadeh M. and Sadrnezhaad S.K., Sintering of titania nanoceramic: Densification and grain growth, *Ceram Int*, 2009; **35** (2): 685-691.
103. Wang C.J., Huang C.Y. and Wu Y.C., Two-step sintering of fine alumina-zirconia ceramics, *Ceram Int*, 2009; **35** (4): 1467-1472.
104. Ryshkewitch E., Oxide Ceramics: Physical Chemistry and Technology New York, Academic Press, 1960.
105. Chevalier J., What future for zirconia as a biomaterial? , *Biomaterials*, 2006; **27** (4): 535–543.
106. Garvie R.C., Hannink R.H.J. and Pascoe R.T., “Ceramic Steel?” *Nature*, 1975; **258**.
107. Tinschert J., Zvez D., Marx R. and Anusavice K.J., Structural reliability of alumina-, feldspar-, leucite-, mica- and zirconia-based ceramics, *J Dent*, 2000; **28** (7): 529-535.
108. Guazzato M., Albakry M., Ringer S.P. and Swain M.V., Strength, fracture toughness and microstructure of a selection of all-ceramic materials. Part II. Zirconia-based dental ceramics, *Dent Mater*, 2004; **20** (5): 449-456.
109. Piconi C. and Maccauro G., Zirconia as a ceramic material, *Biomaterials*, 1999; **20**: 1-25.
110. Kosmac T., Oblak C., Jevnikar P., Funduk N. and Marion L., The effect of surface grinding and sandblasting on flexural strength and reliability of Y-TZP zirconia ceramic, *Dent Mater*, 1999; **15** (6): 426-433.
111. Green D.J., A technique for introducing surface compression into zirconia ceramics, *J Am Ceram Soc*, 1983; **66**: C178–C179.
112. Guazzato M., Albakry M., Swain M.V. and Ironside J., Mechanical properties of In-Ceram Alumina and In-Ceram Zirconia, *Int J Prosthodont*, 2002; **15**: 339-346.
113. Clarke D.R. and Schwartz B., Transformation toughening of glass ceramics, *J Mater Res*, 1987: 801-804.
114. Hannink R.H.J., Kelly P.M. and Muddle B.C., Transformation Toughening in Zirconia-Containing Ceramics, *J Am Ceram Soc*, 2000; **83** (3): 461-487.

115. Oh Y.J., Oh T.S. and Jung H.J., Microstructure and mechanical properties of cordierite ceramics toughened by monoclinic ZrO₂, *J Mater Sci*, 1991; **26** (23): 6491-6495.
116. Conrad H.J., Seong W.J. and Pesun I.J., Current ceramic materials and systems with clinical recommendations: A systematic review, *J Prosthet Dent*, 2007; **98** (5): 389-404.
117. Fang J., Thompson A.M., Harmer M.P. and Chan H.M., Effect of Y and La on the Sintering Behavior of Ultra-High-Purity Al₂O₃, *J Am Ceram Soc*, 1997; **80**: 2005–2012.
118. Apel E., Hoen C.V., Rheinberger V. and Holand W., Influence of ZrO₂ on the crystallization and properties of lithium disilicate glass-ceramics derived from a multi-component system, *J Euro Ceram Soc*, 2007; **27**: 1571-1577.
119. Upadhyaya D.D., Gonal M.R. and Prasad R., Studies on crystallization behaviour of 3Y-TZP/Al₂O₃ composite powders, *Mater Sci Eng A*, 1999; **270** (2): 133-136.
120. Vaßen R. and Stover D., Processing and properties of nanophase ceramics, *J Mater Proc Technol*, 1999; **92-93**: 77-84.
121. Kuntz J.D., Wan J., Zhan G.D. and Mukherjee A.K. in Proc.TMS Annu. Meet. on Ultrafine grained materials II., *The Minerals, Metals and Materials Society*. Warrendale, PA, 2002: 225.
122. Zhan G.D., Kuntz J., Wan J., Garay J. and Mukherjee A.K., Spark-plasma-sintered BaTiO₃/Al₂O₃ nanocomposites, *Mater Sci Eng A*, 2003; **356** (1-2): 443-446.
123. Zhan G.D., Kuntz J., Wan J., Garay J. and Mukherjee A.K., A novel processing route to develop a dense nanocrystalline alumina matrix (< 100nm) nanocomposite material, *J Am Ceram Soc*, 2003; **86**: 200-202.
124. Zhan G.D., Kuntz J.D., Wan J. and Mukherjee A.K., Single-wall carbon nanotubes as attractive toughening agents in alumina-based nanocomposites, *Nat Mater*, 2003; **2** (1): 38-42.
125. Meguid S.A., Mechanics and mechanisms of toughening of advanced ceramics, *J Mater Proc Technol*, 1996; **56**: 978-989.

126. Xu C., Huang C. and Ai X., Toughening and strengthening of advanced ceramics with rare earth additives, *Ceram Int*, 2006; **32**: 423-429.
127. Kelly P.M. and Francis Rose L.R., The martensitic transformation in ceramics-its role in transformation toughening, *Prog Mater Sci*, 2002; **47**: 463-557.
128. Bhaduri S. and Bhaduri S.B., Enhanced low temperature toughness of Al_2O_3 - ZrO_2 nano/nano composites, *Nanostruct Mater*, 1997; **8**: 755-763.
129. Evans A.G., Perspective on the development of high-toughness ceramics, *J Am Ceram Soc*, 1990; **73**: 187-206.
130. Reimanis I.E., A review of issues in the fracture of interfacial ceramics and ceramic composites, *Mater Sci Eng A*, 1997; **237**(2): 159-167.
131. Rühle M., Evans. A.G., McMeeking. R.M., Charalambides P.G. and Hutchinson J.W., Microcrack toughening in alumina/zirconia, *Acta Metall*, 1987; **35**: 2701-2710.
132. Gu W.H., Faber K.T. and Steinbrech R.W., Microcracking and R-curve behavior in $\text{SiC}-\text{TiB}_2$ composites, *Acta Metall Mater*, 1992; **40**: 3121-3128.
133. Niihara K., Nakahira A. and Sekino T. in Nanophase and Nanocomposite Materials. *Mater Res Soc Symp Proc* 286. Pittsburgh, PA, 1993: 405-412.
134. Kuntz J.D., Zhan G.D. and Mukherjee A.K., Improved fracture toughness in advanced nanocrystalline ceramic composites, *Chem Eng & Mater Sci*, 2004: University of California-Davis, United States.
135. Niihara K., Nakahira A., Sasaki G. and Hirabayashi M. in *Proceeding of the First MRS International Meeting on Advanced Materials*. Pittsburgh, PA: Materials Research Society, 1989: 129-134.
136. Niihara K. and Nakahira A. In Proceeding Satellite Symp. 2, Adv. Structural Inorganic Composites, *7th Int Meet on Modern Ceramics Technologies*ed. Amsterdam: Elsevier, 1991: 637.
137. Choy K.L., Duplock P., Rogers P.S., Davies J.C. and Pirzada M.T., The mechanical behaviour of glass and glass-ceramic matrix composites, *Mater Sci Eng A*, 2000; **278**: 187-194.
138. Ray A. and Tiwari A.N., Compaction and sintering behavior of glass-alumina composite, *Mater Chem Phys*, 2001; **67**: 220-225.

139. Bernardo E. and Scarinci G., Sintering behavior and mechanical properties of Al_2O_3 platelet-reinforced glass matrix composites obtained by powder technology, *Ceram Int*, 2004; **30**: 785-791.
140. Boccaccini A.R. and Winkler V., Fracture surface roughness and toughness of Al_2O_3 -platelet reinforced glass matrix composites, *Composites Part A: Appl Sci and Manufac*, 2002; **33** (1): 125-131.
141. Chen R.Z. and Tuan W.H., Pressureless sintering of $\text{Al}_2\text{O}_3/\text{Ni}$ nanocomposites, *J Eur Ceram Soc*, 1999; **19**: 463-468.
142. International Organization for standardization ISO 6872, Dental ceramics, 2nd Edn Geneva, Switzerland, 1995 (E).
143. International Organization for standardization ISO 2738, Permeable SinteredMetalMaterials-Determination of Density, Oil Content and Open Porosity, 1987.
144. Klug H. and Alexander L.E., X-ray Diffraction Procedures for Polycrystalline and Amorphous Materials. 2nd Edn, New York, Wiley, 1974.
145. Sih G.C., Carpinteri A. and G. S., *Advanced technology for design and fabrication of composite materials and structures: applications to the automotive, marine, aerospace, and construction industryed*. Dordrecht: Kluwer Academic publishers, 1995.
146. Anstis G.R., Chantikul P., Lawn B.R. and Marshall D.B., A Critical Evaluation of Indentation Techniques for Measuring Fracture Toughness: I, Direct Crack Measurements, *J Am Ceram Soc*, 1981; **64** (9): 533-538.
147. Fischer H. and Marx R., Fracture toughness of dental ceramics: comparison of bending and indentation method, *Dent Mater*, 2002; **18** (1): 12-19.
148. Weibull W., A statistical distribution function of wide application, *J Applied Mechanism*, 1951; **9**: 293-297.
149. Abernethy R.B., The new Weibull handbook FL, North Palm Beach, 2000.
150. Thompson G.A., Abernethy R.B. and Kelly J.R., Determining Weibull two-parameter estimates by different methods, *J Dent Res*, 2001; **80**: 199-203.
151. Wagner W.C. and Chu T.M., Biaxial flexural strength and indentation fracture toughness of three new dental core ceramics, *J Prosthet Dent* 1996; **76**: 140-144.

152. Ong J.L., Farley D.W. and Norling B.K., Quantification of leucite concentration using X-ray diffraction, *Dent Mater*, 2000; **16** (1): 20-25.
153. JCPDS-ICDD card no.15-47, International Centre for Diffraction Data, Newton Square, PA 2000.
154. JCPDS-ICDD card no. 36-420, International Centre for Diffraction Data, Newton Square, PA 2000.
155. Pinto M.M., Cesar P.F., Rosa V. and Yoshimura H.N., Influence of pH on Slow Crack Growth of Dental Porcelains, *Dent Mater*, 2008; **24**: 814-823.
156. Pisitanusorn A., Ananta S., Yimnirun R. and Thiansem S., Fabrication and Characterization of High Strength Dental Porcelain Nanocomposite from Thailand's Raw Materials, *Chiang Mai J Sci*, 2005; **32**: 549-553.
157. Alizadeh P. and Marghussian V.K., Effect of Nucleating Agents on the Crystallization Behaviour and Microstructure of $\text{SiO}_2\text{-CaO-MgO}(\text{Na}_2\text{O})$ Glass-Ceramics, *J Eur Ceram Soc*, 2000; **20**: 755-782.
158. Tošić M.B., Mitrović M.M. and Dimitrijević R.Ž., Crystallization of leucite as the main phase in aluminosilicate glass with low fluorine content, *J Mater Sci*, 2000; **35** (14): 3659-3667.
159. Roy S. and Basu B., On the Development of Two Characteristically Different Crystal Morphology in $\text{SiO}_2\text{-MgO-Al}_2\text{O}_3\text{-K}_2\text{O-B}_2\text{O}_3\text{-F}$ Glass-Ceramic System, *J Mater Sci: Mater Med*, 2009; **20**: 51-66.
160. Müller R., Abu-Hilal L.A., Reinsch S. and Höland W., Coarsening of Needle-like-shaped Apatite Crystals in $\text{SiO}_2\text{-Al}_2\text{O}_3\text{-Na}_2\text{O-K}_2\text{O-CaO-P}_2\text{O}_5\text{-F}$ Glass, *J Mater Sci*, 1999; **34**: 65-69.
161. Seghi R.R., Denry I.L. and Rosenstiel S.F., Relative fracture toughness and hardness of new dental ceramics, *J Prosthet Dent*, 1995; **74** (2): 145-150.
162. Morena R., Lockwood P.E. and Fairhurst C.W., Fracture toughness of commercial dental porcelains, *Dent Mater*, 1986; **2** (2): 58-62.
163. Green D.J. Microcracking Mechanisms in Ceramics. In: Bradt R.C., Evans A.G., Hasselman D.P.H., Lange F.F. eds., *Fracture Mechanics of Ceramics*: Plenum Press 1983: 457-478.

164. Sınmazsık G. and Ovecoglu M.L., Physical properties and microstructural characterization of dental porcelains mixed with distilled water and modeling liquid, *Dent Mater*, 2006; **22**: 735–745.
165. Craig R.G. and Powers J.M., Restorative dental materials. 11th Edn, St. Louis, CV Mosby, 2002.
166. Scherrer S.S., Denry I.L. and Wiskott H.W.A., Comparison of three fracture toughness testing techniques using a dental glass and a dental ceramic, *Dent Mater*, 1998; **14** (4): 246-255.
- 167 Huang H., Wei B., Zhang F.Q., Sun J. and Gao L., [Effect of two-step sintering method on properties of zirconia ceramic], *Hua Xi Kou Qiang Yi Xue Za Zhi*, 2008; **26** (2): 175-178.