References

1. A.J. Moulson and J.M. Herbert. Electroceramics. London: the University Press, 1990.
2. H.M. O'Bryan, JR., and J. Thomson, JR. Phase Equilibria in the TiO_2- Rich Region of the System BeO-TiO_2 J.Am.Ceram.Soc. 57 [12] 1974: 522-526.
3. Y.H. Hu, M.P. Harmer, and D.M. Smyth. Solubility of BaO in $BaTiO_3$ J.Am.Ceram.Soc. 68 [7] 1985: 372-376.
4. R.K. Shama, N.H. Chan and D.M. Smyth. Solubility of TiO_2 in $BaTiO_3$ J.Am.Ceram.Soc. 64 [8] 1981: 448-451.
5. W.R. Eubank, F.T. Rogers, JR., L.E. Schilberg, and Sol Skolnik. Some Factors Influencing the Dielectric Properties of Barium Titanates J.Am.Ceram.Soc. 35 [1] 1952: 16-22.
6. J.M. Herbert. Ceramic Dielectric and Capacitors, Vol 6, New York: Gordon and Breach Science Press, 1985.
7. M.C. McQuarrie. Barium Titanate and Other Ceramic Ferroelectrics: II. Properties of Barium Titanate Am.Ceram.Soc.Bull. 34 [7] 1955: 225-230.
8. G. Durst, M. Grotenhuis, and A.G. Barkon. Solid Solubility Study of Barium, Strontium, and Calcium Titanates J.Am.Ceram.Soc. 33 [4] 1950: 133-139.
9. R.H. Dungen, D.F. Kane and L.R. Bickford, JR. Lattice Constants and Dielectric Properties of Barium Titanate - Barium Stannate - Strontium Titanate Bodies J.Am.Ceram.Soc. 35 [12] 1952: 319-323.
10. C.F. Pulvari. Effect of Imperities on Electrical Solid-State Properties of Barium Titanate J.Am.Ceram.Soc. 42 [8] 1959: 355-363.

11. M.C. McQuarrie. Barium Titanate and Other Ceramic Ferroelectrics: IV. Properties of Barium Titanate Am.Ceram.Soc.Bull. 34 [9] 1955: 295-297.

12. M.C. McQuarrie and F.W. Behnke. " Structure and Dielectric Studies in the System (Ba, Ca)(Ti, Zr)O_3 J.Am.Ceram.Soc. 37 [11] 1954: 539-543.

13. T.R. Armstrong, L.E. Morgens, A.K. Maurice, and R.C. Buchanan. Effects of Zirconia on Microstructure and Dielectric Properties of Barium Titanate Ceramics J.Am.Ceram.Soc. 72 [4] 1989: 605-611.

14. Y. Enomoto and A. Yamaji. Preparation of Uniformly Small Grained $BaTiO_3$ Am.Ceram.Bull. 60 [5] 1981: 566-570.

15. M. Kuwabara and H. Matsuda. Shift of the Curie Point of Barium Titanate Ceramics with Sintering Temperature J.Am.Ceram.Soc. 80 [10] 1997: 2590-2596.

16. R. Ganesh and E. Goo. Microstructure and Dielectric Characteristics of $(Pb_xBa_{0.5-x}Sr_{0.5})TiO_3$ ceramic J.Am.Ceram.Soc. 79 [1] 1996: 225-232.

17. J.W. Liou and B.S. Chiou. Effect of Direct-Current Biasing on the Dielectric Properties of Barium Strontium Titanate Am.Ceram.Soc. 80 [12] 1997: 3093-3099.

18. E.N. Bunting, G.R. Shelton, and A.S. Creamer. Properties of Barium-Strontium Titanate Dielectrics Am.Ceram.Soc. 30 [4] 1947: 114-124.

19. K. Kinoshita and A. Yamaji. Grain-Size Effects on Dielectric Properties in Barium Titanate Ceramics J.Appl.Phys. 47 [1] 1976: 371-373.

20. G. Arlt, D. Hennings, and G. de With. Dielectric Properties of Fine-Grained Barium Titanate Ceramic J.Appl.Phys. 58 [4] 1985: 1619-1625.

21. D.F. Shriver, P.W. Atkins and C.H. Langford. Inorganic Chemistry Oxford: Oxford University Press, 1994.

22. D. Kolar, M. Trontelj and Z. Stadier. Influence of Interdiffusion on Solid Solution Formation and Sintering in the system $BaTiO_3$-$SrTiO_3$ J.Am.Ceram.Soc. 65 [10] 1982: 470-474.

23. X. Li and W.H. Shih. Size effects in Barium Titanate Particles and Cluster J.Am.Ceram.Soc. 80 [11] 1997: 2844-2852.

24. T.T. Fang, H.L. Hsieh. Effects of Pore Morphology and Grain Size on the Dielectric Properties and Tetragonal-Cubic Phase Transition of High Purity Barium Titanate J.Am.Ceram.Soc. 76 [5] 1993: 1205-1211.

25. W.D. Kingery, H.K. Bowen and D.R. Uhimann. Introduction to Ceramics, Vol 2, Massachusetts, 1975.

26. Y.H. Hu, M.P. Harmer and D.M. Smyth. Solubility of BaO in $BaTiO_3$ J.Am.Ceram.Soc. 68 [7] 1985: 372-376.

27. S. Witek and D.M. Smyth. Variability of the Sr/Ti Ratio in $SrTiO_3$ J.Am.Ceram.Soc. 67 [6] 1984: 372-375.

Appendix

Calculation of Lattice parameter

Bragg equation

$$n\lambda = 2d \sin\theta$$

and $$\sin^2\theta = K(h^2 + l^2 + k^2)$$

where $$K = \frac{\lambda^2}{4a^2}$$

$d_{Si\ (std)} = 3.135$ and 1.919

from XRD

$d_{Si} = 1.922$

$\Delta d = d_{Si} - d_{Si\ (std)} = 0.003$

wher Δd is the shift of Si peak

$d_{002} = 2.027$ and $d_{200} = 2.002$

from $\sin\theta = \frac{\lambda}{2d}$, $\lambda_{Cu} = 1.539$ nm

peak (002) = 2.027 - 0.003 = 0.024

$\sin\theta = \frac{1.539}{2\ (2.024)} = 0.3802$

K = 0.1445

c = 4.039

peak (200) = 2.005 − 0.003 = 0.002

$\sin\theta = \frac{1.539}{2\ (2.002)} = 0.3844$

K = 0.1478

a = 4.004

Biography

Miss Suttinee Snansieng was born on the 22nd of August in 1973. She was born in Chaing Mai, the north of Thailand. In 1996 she attained a Bachelor Degree in Industrial Chemistry from Faculty of Science, Chaing Mai University. She studied for Master Degree in the field of Ceramic Technology at Chulalongkorn University in June 1996 and completed all programes in 1999.