

Dr. Raj Dongré – Biographical Resume

Rajendra Nidhish Dongré, Ph. D. is a native of Maharashtra, India, who has lived most of his professional career in the United States. With his professional involvement in asphalt (bitumen) and asphalt-related topics, he has traveled all over the world and has proven to be very useful link between US, India and other countries. He is well-known for his seminars and presentations as frequently invited speaker at many international conferences.

Dr Dongré is currently a consultant to the Federal Highway Administration. For the past 12 years he has been involved with the refinement of various Superpave specifications and development of standards. He has published numerous papers on material testing and specification.

Dr. Dongré received his BSCE from the Maharaja Sayajirao University of Baroda and his Master's and Ph.D. from The Pennsylvania State University (1994) in the USA. His background has varied aspects of asphalt highway engineering ranging from academic to research and consulting engineering. He owns a consulting engineering firm and a testing laboratory for over 10 years. Dongré Laboratory Services Inc. (DLSI) provides the very best in asphalt (Bitumen) testing with all the Superpave and traditional tests. Our laboratory is also capable of testing hot-mix asphalt and all its related issues. On the consulting side of my business I provide technical assistance in areas of polymer and crumb rubber modification of asphalt binders. DLSI also has a joint venture with Pebblecrest Materials and Services Corporation (PCMS) which specializes in all polymer modification related issues. DLSI is also proficient in forensic testing of pavement failures and helping state and local transportation departments with paving related problem solving.

Besides his leadership qualifications and hard-working habits as a devoted civil engineer, he is active in professional societies. He has been active as chair, secretary or member of various technical committees of TRB, ASTM, and AAPT for the last 10 years.

Dr. Dongré has published over 30 research papers in journals in the US as well as abroad.

Current Research Activities:

1. Field Evaluation of the Witczak and Hirsch Models for Predicting Dynamic Modulus of Hot-Mix Asphalt
2. Refinement and implementation of Superpave high temperature specification parameter $G^*/\sin\delta$
3. AASHTO Mechanistic-Empirical Pavement Design Guide – Sensitivity analysis of parameters and implementation in the field.
4. Training seminars on the use of new Superpave asphalt and mixture specifications in DongYing, China.
5. Development of a new coating technology (AGGCote) for asphalt concrete aggregates (metal) to mitigate moisture damage and enhance rutting resistance.

- This technology is inexpensive and very easy to implement in the existing hot-mix plants in US and abroad. This technology is currently being used in the states of Utah and Wyoming in the USA.
6. Development of throw and go pot-hole patching technology using cold patch material that can be easily implemented in US and abroad.

Publications:

1. Dongré, R. N. *Application of J Integral to Asphalt Concrete*, a Thesis in Civil Engineering, The Pennsylvania State University, The Graduate School, Department of Civil Engineering: August 1988.
2. Dongré, R. N., M. G. Sharma, and D. A. Anderson. "Development of Fracture Criterion for Asphalt Mixes at Low Temperatures." *Transportation Research Record 1228*, TRB, Washington, D. C., 1989, pp. 94-105.
3. Anderson, D. A., D. W. Christensen, R. Dongré, M. G. Sharma, J. Runt, and P. Jourdahl. *Asphalt Behavior at Low service Temperatures*, Final Report to the Federal Highway Administration. Publication No. FHWA-RD-88-078, March 1990. Federal Highway Administration, 6300 Georgetown Pike, McLean, VA 22101-2296.
4. Anderson, D. A., R. Dongré, and E. L. Dukatz. "Effects of Minus No. 200-Sized Aggregate on Fracture Behavior of Dense-Graded Hot-Mix asphalt." to be published in *Effects of Aggregates and Mineral Fillers on Asphalt Mixture Performance: ASTM STP 1147*, R. C. Meininger, ed. Philadelphia, PA: American Society for Testing and Materials, 1992.
5. Anderson, D. A., H. U. Bahia, and R. Dongré, "Rheological Properties of Mineral Filler-Asphalt Mastics and their Relationship to Pavement Performance," to be published in *Effects of Aggregates and Mineral Fillers on Asphalt Mixture Performance: ASTM STP 1147*, R. C. Meininger, ed. Philadelphia, PA: American Society for Testing and Materials, 1992.
6. Anderson, D. A., and R. Dongré, "Development of the SHRP Direct Tension Test for Bitumen," Proceedings of the Euroasphalt Eurobitume Congress, May 7-10 1996, Strasbourg, France.
7. Dongré, Raj, Sharma, M. G., and Anderson, D. A., "Characterization of Failure properties of Asphalt Binders," Physical Properties of Asphalt Cement Binders: ASTM STP 1241, John c. Hardin, Ed., American Society for Testing and Materials, Philadelphia, 1995.
8. Anderson, D. A., and R. Dongré, "The SHRP Direct Tension Specification Test -- Its Development and Use," Physical Properties of Asphalt Cement Binders:

- ASTM STP 1241, John c. Hardin, Ed., American Society for Testing and Materials, Philadelphia, 1995.
9. Dongré R., Anderson D., "Determination of Uniaxial Stress-Strain Curves using Shear Complex Modulus Obtained from Dynamic Shear Rheometer" Proceedings of the Euroasphalt Eurobitume Congress, May 7-10 1996, Strasbourg, France.
 10. Dongré R., Christensen D. W., "Standard Reference Material for Rheometers - Our Experience" Proceedings of the Euroasphalt Eurobitume Congress, May 7-10 1996, Strasbourg, France.
 11. Dongré R., D'Angelo J., McMahon S., "Implementation of the Superpave Direct Tension Device" Proceedings of the Euroasphalt Eurobitume Congress, May 7-10 1996, Strasbourg, France.
 12. Kandhal, P. S., Dongré R., and Malone Mark, "Prediction of Low-Temperature Cracking of Pennsylvania Project Using Superpave Binder Specifications" Proceedings of the 66th Annual Meeting of the Association of Asphalt Paving Technologists, Baltimore, Maryland, March 18-20, 1996.
 13. Dongré, R., Button, J. W., Kluttz, R. Q., and Anderson, D. A., "Evaluation of Superpave Binder Specification with Performance of Polymer-Modified Asphalt Pavements," Progress of Superpave (Superior Performing Asphalt Pavement): Evaluation and Implementation, ASTM STP 1322, R. N. Jester, Ed., American Society for Testing and Materials, 1997.
 14. Robert Q. Kluttz and Raj Dongré, "Effect of SBS Polymer Modification on the Low-Temperature Cracking of Asphalt Pavements," Asphalt Science and Technology, Ed. Arthur M. Usmani, Marcel Dekker, Inc., 1997, pp. 217-234.
 15. Dongré, Raj, D'Angelo, John, and McMahon, S., DEVELOPMENT OF THE SUPERPAVE DIRECT TENSION TEST DEVICE, Transportation Research Record, 76th Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 1997.
 16. Raj Dongré and John D'Angelo, Effect of New Direct Tension Test Protocol on the Superpave Low-Temperature Specification for Bitumen Binders, Bearing Capacity of Roads and Airfields, 1998, Trondheim, Norway.
 17. Dongré, R., Youtcheff, J. and Anderson, D., 'Better roads through rheology', Applied Rheology, Trade Magazine, Verlag, Hanover, Germany, pp. 75-82 (1996).
 18. Dongré, Raj, Ramaiah, Satish, D'Angelo, John, THE USE OF A VISCOSITY STANDARD FLUID TO CONTROL QUALITY OF RHEOLOGICAL MEASUREMENTS FOR CHARACTERIZING ASPHALT BINDERS,

- Transportation Research Record, 76th Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 1997.
19. Mohammed Memon & Raj Dongré, THE IMPACT OF CHEMICAL MODIFICATION ON
 20. SUPERPAVE BINDER SPECIFICATIONS OF MODIFIED ASPHALT BINDERS, Vol. 43, NO., 4, 216th National Meeting of the American Chemical Society, August 22-27, 1998 Boston,
 21. MA.
 22. Bouldin, M. G., R. N. Dongré, , and L. Zanzotto, The Future of Performance-Related Binder Specifications, Vol. 1, Proceedings of the 39th International Petroleum Conference, Sep. 20-23, 1999, Bratislava, Slovak Republic.
 23. G. M. Rowe, M. J. Sharrock, M. G. Bouldin, R. N. Dongré, Advanced Techniques to Develop Asphalt Master Curves from the Bending Beam Rheometer, Vol. 1, Proceedings of the 39th International Petroleum Conference, Sep. 20-23, 1999, Bratislava, Slovak Republic.
 24. Raj Dongré, Mark G. Bouldin, and Dean A. Maurer, Field Validation of New Superpave Low-Temperature Binder Specification Procedure: Performance Data from Pennsylvania Test Sections, Transportation Research Record, 79th Annual Meeting of the Transportation Research Board, TRB, Transportation Research Record No. 1728, Washington, D.C. 2000.
 25. Dongré, Raj, Effect of Physical Hardening on stress relaxation behavior of Asphalt Binders, Proceedings of the Euroasphalt Eurobitume Congress, Sep. 20-22 2000, Barcelona, Spain.
 26. Dongré, Raj, Bouldin, M. G., IMPLICATIONS OF THE NEW LOW TEMPERATURE SPECIFICATION ON PG GRADING AND TESTING OF ASPHALT BINDERS, Proceedings of the Euroasphalt Eurobitume Congress, Sep. 20-22 2000, Barcelona, Spain.
 27. Mark G. Bouldin, Raj Dongré, Ludo Zanzotto and Geoffrey M. Rowe, The Application Of Visco-Elastic Models To Predict The Relative Performance Of Binders For Grading Purposes, Proceedings of the Euroasphalt Eurobitume Congress, Sep. 20-22 2000, Barcelona, Spain.
 28. Dongré, Raj, D'Angelo, John, Antle, Charles, Effect Of Using Silicone Rubber Molds On The Low-Temperature Binder Grading Parameters: BBR S(60) And m-Value, Transportation Research Record, 80th Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 2001.
 29. Bouldin, M. G., Dongré, Raj, D'Angelo, John, Proposed Refinement to the Superpave High Temperature Specification Parameter for Performance Graded

- Binders, Transportation Research Record, 80th Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 2001.
30. Raj Dongré and Charles Antle, Analysis Of The Statistical Distribution Of Failure Stress Values Determined Using The Superpave Direct Tension Test, Transportation Research Record, 81st Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 2002.
 31. Jiri Stastna, Ludo Zanzotto, Raj Dongré, John D'Angelo, MODELLING OF REPEATED CREEP AND RECOVERY FROM LIMITED DYNAMIC TESTING DATA, paper submitted to the Journal of Applied Asphalt Binder Technology for publication, Sep. 10-11 2002, Philadelphia, PA.
 32. Raj Dongré, John D'Angelo, and G. Reinke, A new parameter for Superpave High Temperature Specification, Transportation Research Record, 82nd Annual Meeting of the Transportation Research Board, TRB, Washington, D.C. 2003.
 33. Development of New Standard Test Methods for Characterizing Low Temperature Properties of Asphalt Binders by Raj Dongré and John D'Angelo, ASTM Standardization News, November 2003.
 34. John D'Angelo & Raj Dongré "Superpave Binder Specifications and Their Performance Relationship to Modified Binders", Proceedings of the 2004 Canadian Technical Asphalt Association Annual Meeting.
 35. R. Q. Kluttz and Raj Dongré, Effect of Different SBS modifiers on Superpave Low Temperature Specification Parameters Including Tcr, Proceedings of the RILEM Conference on Cracking in Pavements held in Limoges, France, 5-8 May 2004, paper No. 57.
 36. D'Angelo, John A., Raj Dongré, Development of a Performance Based Binder Specification in the United States, Proceedings of the Third Eurasphalt and Eurobitume Congress, 12-14 May 2004, Vienna, pp-2100.
 37. Raj Dongré, Leslie Myers, Chuck Paugh, and John D'Angelo, Field Evaluation of Witczak and Hirsch Models for Predicting Dynamic Modulus of Hot-Mix Asphalt, submitted for publication in the 2005 Annual meeting of the Association of Asphalt Paving Technologists.