

Referências bibliográficas

Andersen, A.; Bjerrum, L. Slides in subaqueous slopes in loose sand and silty. **Publication 81, Norwegian Geotechnical Institute**, Oslo, p. 1-9, 1968.

Alarcon-Guzman, A.; Leonards, G. A.; Chameau, J. L. Undrained monotonic and cyclic strength of sand, **Journal of the Geotechnical Engineering Division, ASCE**, volume 114, n. 10, p. 1089-1108, 1988.

Atkinson, J. H.; Bransby, P. L. The mechanics of soils. An introduction to critical state soil mechanics. **McGraw-Hill**, 1978.

Been, K.; Jefferies, M. G. A state parameter for sands. **Géotechnique**, volume 35, n. 2, p. 99-112, 1985.

Been, K.; Crooks, J. H. A.; Becker, D. E.; Jefferies, M. G. The Cone penetration test in sands. Part I: States parameter interpretation. **Géotechnique**, volume 36, n. 2, p. 239-249, 1986.

Been, K.; Jefferies, M. G.; Crooks, J. H. A.; Rothenburg, L. The Cone penetration test in sands. Part II: General inference of states. **Géotechnique**, volume 37, n. 3, p. 285-300, 1987.

Been, K.; Jefferies, M. G.; Hachey, J. The critical state of sands. **Géotechnique**, volume 41, n. 3, p. 365-381, 1991.

Bjerrum, L. Subaqueous slope failures in Norwegian fjords. **Publication 88, Norwegian Geotechnical Institute**, Oslo, 1971.

Bolton, M. D. The strength and dilatancy of sands. **Géotechnique**, volume 36, n. 1, p. 65-78, 1986.

Boukpeti, N.; Drescher, A. Triaxial behavior of refined Superior sand model. **Computers Geotechnics**, volume 26, p. 65-81, 2000.

Boukpeti, N.; Mróz, Z.; Drescher, A. A model for static liquefaction in triaxial compression and extension. **Canadian Geotechnical Journal**, volume 39, p. 1243-1253, 2002.

Boukpeti, N.; Mróz, Z.; Drescher, A. Refined Superior sand model and static liquefaction. **Fourteenth Engineering Mechanics Conference, Department of civil Engineering, The University of Texas at Austin, Austin, Texas, U.S.A.** Compiled by Dilip R. Maniar. Ed. John L. Tassoulas. May 21-24, 2000.

Broms, B.; Bennermark, H. Free discussion, Proceeding, **Geotechnical Conference**, volume 2, Oslo, Norway, p. 118-120, 1967.

Byrne, P. M.; Imrie, A.S.; Morgenstern, N. R. Results and implications of seismic response studies – Duncan Dam. Proceeding, **46th Annual Canadian Geotechnical Conference**, Saskatoon, Saskatchewan, p. 271-281, 1993.

Casagrande, A. On Liquefaction Phenomena, **Géotechnique**, volume XXI, n. 3, p. 197-202, 1971.

Casagrande, A. Characteristic of Cohesionless Soils Affecting the Stability of Slope and Earth Fill. **Journal of the Boston Society of Civil Engineering**, January, p. 13-32, 1936.

Cárdenas, G. J. Plan de abandono de depósitos de relave en la zona de Casapalca. **Tesis de Grado para optar el Título de Ingeniero Civil, UNI.**, Lima, Perú, 2001.

Carter, D. P.; Seed, H. B. Liquefaction potential of sand deposits under low levels of excitation, **Report UCB/EERC-88/11, Earthquake Engineering Research Center**, University of California, Berkeley, 309 p., 1988.

Casagrande, A. Liquefaction and cyclic deformation of sands-A critical review. Proceedings, **5th Pan-American Conference on Soil Mechanics and Foundation Engineering**, Buenos Aires, Argentina, 1975.

Castro, G. Liquefaction of sand. **Harvard Soil Mechanic Series 87**, Harvard University, Cambridge, Massachusetts, 1969.

Castro, G. Liquefaction and cyclic mobility of saturated sand. **Journal of the Geotechnical Engineering Division, ASCE**, volume 101, p.501-569, 1975.

Castro, G.; Poulos, S. J. Factors affecting liquefaction and cyclic mobility. **Journal of the Geotechnical Engineering Division, ASCE**, volume 103, p. 501-516, 1977.

Chang, K.T. An Analysis of Damage of Slope Sliding by Earthquake on the Paiho Main Dam and its Earthquake Strengthening. Tseng-hua Design Section. **Dept. of Earthquake Resistant design and Flood Control Command of Miyna Reservoir**, Peoples Republic of China, 1978.

Conlon, R. Landslides at Toulmoustouc River, Quebec. **Canadian Geotechnical Journal**, volume 3, n. 3, p. 113-144, 1966.

Cornforth D. H.; Worth, E.G.; Wright, W. L. Observation and analysis of a flow slide in sand fill. In **British Geotechnical Society, Field Instrumentation in Geotechnical Engineering**, Wiley, New York, p. 136-151, 1975.

Coulter, M; Migliaccio, L. Effects of the earthquakes of March 27, 1964 at Valdez, Alaska. **Professional paper 542-C, U.S. Geological Survey, U.S. Department of the interior**, Washington, D. C. 1966.

Das, B. M. Principles of Soil Dynamics. **PWS Publishing Co.** 1992.

Desai, C. S.; Siriwardane, H. J. Constitutive Laws for Engineering Material with Emphasis on Geologic Materials. **Prentice Hall, Inc**, 1984.

Drescher, A.; Mroz Z. A refined superior sand model. Proceeding, **Numerical Models in Geomechanics VI**. Eds. Pande G.N. e Pietruszczak S., p. 21-26, 1997.

Duncan, J. M.; Chang, C. Y. Nonlinear Analysis of Stress and Strain in Soils. **Journal of the Soil Mechanics and Foundation Division, ASCE**, volume 96, n. SM5, p. 1629-1653, Sept. 1970.

Duncan, J. M.; Byrne, P., Wong, K. S.; Mabry, P. Strength, Stress-Strain and Bulk Modulus Parameters for Finite Element Analyses of Stresses and Movements in Soil Masses. **Geotechnical Engineering Research Report No UCB/GT 80-01**, Department of Civil Engineering, University of California, Berkeley, 1980.

Eckersley J. D. Flowslides in stockpiled coal. **Engineering Geology**, volume, 22, p. 13-22, 1985.

Evans, M. D.; Seed, H. B. Undrained cyclic triaxial testing of gravels: the effect of membrane compliance, Repot UBS/EERC-87/08, **Earthquake Engineering Research Center**, University of California, Berkeley, 1987.

Elgamal, A.; Yang, Z.; Parra, E. Post-Liquefaction soil Dilatancy and Lateral Spreading. **Fourteenth Engineering Mechanics Conference**, Department of civil Engineering, The University of Texas at Austin, Austin, Texas, U.S.A. Compiled by Dilip R. Maniar. Ed. John L. Tassoulas. May 21-24, 2000.

Fellenius, B. The landslide at Guntorp. **Géotechnique**, volume 5, n. 1, p. 120-125, 1953.

Finn, W. D. L. Post-Liquefaction flow deformations. **Soil Dynamics and Liquefaction 2000**, Eds. Pak and Yamamura, p. 108-122, 2000.

Finn, W. D. L.; Ledbetter, R. H.; Wu, G. Liquefaction in silty soils: design and analysis. Ground Failures under seismic conditions, **Eds. Prakash e Dakoulas**, p. 51-76, Oct. 1994.

Finn, W. D. L.; Ledbetter, R. H.; Fleming, R. L., Jr.; Templeton, A. E.; Forrest, T. W.; Stacy, S. T. Dam on liquefiable foundation: Safety assessment and remediation. Proceeding, **17th International Conference on Large Dams**, Vienna, p. 531-533, 1991.

Gomes, R. C; Pereira, E.L. e Ribeiro, L.F.M., 2002. Avaliação do Potencial de Liquefação de Rejeitos de Mineração. Anais do III SBMR – Simpósio Brasileiro de Mecânica das Rochas, São Paulo – SP, outubro, pp. 91-101.

Gutierrez, M.; Verdugo, R. Analysis of flow and liquefaction of sand via a simple model. **Earthquake Geotechnical Engineering**. Ed. Ishihara, Balkema, Rotterdam, p. 893-898, 1995.

Hanzawa, H.; Itoh, Y.; Suzuki, K. Shear characteristics of a quick sand in the Arabian Gulf. **Soil and Foundation**, volume 19, n. 4, p. 2071-2095, 1979.

Hazen, A. Hydraulic-Fill Dams. **ASCE Transactions**, volume 83, p. 1713-1745, 1920.

Holzer, T. L.; Youd, T. L.; Hanks, T. C. Dynamic of liquefaction during the 1987 Superstition Hills, California, earthquake. **Science**, volume 244, p. 56-59, 1989.

Hryciw, R. D.; Vitton, S.; Thomann, T. G. Liquefaction and flow failure during seismic exploration. **Journal of the Geotechnical Engineering Division, ASCE**, volume 116, n.12, p. 1881-1889, 1990.

Hyodo, M.; Tanimizu, H.; Yasufuku, N.; Murata, H. Undrained cyclic and monotonic triaxial behaviour of saturated loose sand. **Soils and Foundations**, volume 34, n. 1, p. 19-32, 1994.

ICOLD. **Tailing Dams. Risk of Dangerous Occurrences**, Bulletin 121, 2001

International Council on Metal and the environment (ICME). **Case Studies on Tailing Management**, November 1998.

Ishihara, K. Post-earthquake failure of a tailing dam due to liquefaction of de pound deposit. Proceedings, **International Conference on the case Histories in Geotechnical Engineering**, University of Missouri, St. Louis, volume 1, p. 1129-1143, 1984.

Ishihara, K. Stability of natural deposits during earthquakes. Proceedings, **11th International Conference on Soil Mechanics and Foundation Engineering**, San Francisco, volume 1, p. 321-376, 1985.

Ishihara, K. Liquefaction and flow failure during earthquakes, **Géotechnique**, volume 43, n. 3, p. 351-415, 1993.

Ishihara, K. Evaluation of residual strength of sandy soils. Proceedings, **13th International Conference on Soil Mechanics and Foundation Engineering**, New Delhi, volume 5, p. 175-181, 1994.

Ishihara, K.; Tatsuoka, F. and Yasua, S. Undrained deformation and liquefaction of sand under cyclic stresses. **Soils and Foundations**, volume 15, n. 1, p. 29-44, 1975.

Jakobsen, B. The landslide at Surte on the Gota River, September 29, 1952. Proceeding, **Royal Swedish Geotechnical Institute**, Stockholm, 1952.

Jennings, P. C. The failure of a slimes dam at Bafokeng. **Civil Engineering in South Africa**, volume, 6, p. 135-140, 1979.

Juárez-Badillo, E.; Rico-Rodríguez, A. **Mecánica de Suelos**. volume 1, Ed. Limusa, Mexico, 1975.

Juárez-Badillo, E. General volumetric constitutive equation for geomaterials. Special volume on Constitutive Laws of Soils. **XI International Conference on Soil Mechanics and Foundation Engineering**, San Francisco. Japanese Society for Soil Mechanics and Foundation Engineering, Tokyo, p. 131-135, 1985.

Juárez-Badillo, E. Deviatoric stress-strain equation for soils. **XIII International Conference on Soil Mechanics and Foundation Engineering**, New Delhi, India, volume 1, p. 349-356, 1994.

Juárez-Badillo, E. General deviatoric stress-strain theory for soils. **X Pan-American Conference on Soil Mechanics and Foundation Engineering, Guadalajara**, México, volume 1, 204-214, 1995.

Juárez-Badillo, E. General equations to describe the mechanical behaviour of granular soils. **XIV International Conference on Soil Mechanics and Foundation Engineering**, Hamburg, volume 1, 133-138, 1997a.

Juárez-Badillo, E. Comportamiento no drenado de una arena compacta saturada. Reunión Conmemorativa del XL Aniversario de la Sociedad Mexicana de Mecánica de Suelos, México, D. F., p. 63-65, 1997b.

Juárez-Badillo, E. Improved general stress-strain equations for granular soils. **XI Pan-American Conference on Soil Mechanics and Geotechnical Engineering**, Foz do Iguaçu, Brazil, volume 1, p. 297-306, 1999a.

Juárez-Badillo, E. Static liquefaction of very loose sands; Discussion. **Canadian Geotechnical Journal**, volume 36, p. 967-973, 1999b.

Juárez-Badillo, E. Static liquefaction of very loose sands; Discussion¹. **Canadian Geotechnical Journal**, volume 36, p. 974-979, 1999c.

Kleiner, D. E. Design and construction of an embankment dam to impound gypsum wasted. Proceeding, **12th International Congress on Large Dams, International Commission on Large Dams**, Mexico City, p. 235-249, 1976.

Kramer, S. L. Triggering of liquefaction flow slides in coastal soil deposits. **Engineering Geology**, volume, 26, n. 1, p. 17-31, 1988.

Kramer, S. L. Geotechnical Earthquake Engineering. **Prentice Hall**, 1996.

Kramer, S. L.; Seed, H. B. Initiation of soil liquefaction under static loading condition. **Journal of the Geotechnical Engineering Division, ASCE**, volume 114, n.4, p. 412-430, 1988.

Koppejan, A. W.; Wamelan, B. M.; Weinberg, L. J. Coastal flowslides in the Dutch Province of Zeeland, Proceeding, **2nd International Conference on Soil Mechanic and Foundation Engineering**, volume 5, p. 89-96, 1948.

Ladd C. C.; Foott, R. New design procedure for stability of soft clays, **Journal of the Geotechnical Engineering Division, ASCE**, volume 100, n. GT7, p. 763-786, 1974.

Lade, P. V. Initiation of static instability in the submarine Nerlerk berm. **Canadian Geotechnical Journal**, volume 30, p. 895-904, 1993.

Lade, P. V.; Yamamuro, J. A. Effects of nonplastic fines on static liquefaction of sands. **Canadian Geotechnical Journal**, volume 34, p. 918-928, 1997.

Lade, P.V.; Yamamuro J. A. Physics and Mechanics of Soil Liquefaction. **Rotterdam, Balkema**, 1999.

Meneses-Loja, J.; Ishihara, K.; Towhata, I. Flow failure of saturated sand under simultaneous monotonic and cyclic stresses. **Journal of the Geotechnical and Geoenvironmental Engineering**, volume 126, n. 2, p.131-138, February 2000.

Middlebrooks, T. A. Fort Peck Slide, **ASCE Transactions**, volume 107, p. 723-742, 1942.

Mitchell, D. E. Liquefaction slides in hydraulically placed sands. Proceeding, **4th International Symposium on Landslides**, Toronto, 1984.

Muir Wood, D. Soil Behavior and Critical State Soil Mechanics. **Cambridge University Press**, 1990.

Nova, R.; Wood D.M. A constitutive model for sand in triaxial compression. **Int.J.Num.Anal. Meth.Geomech**, volume 3, p. 255-278, 1979.

Olson, S. M.; Stark, T. D.; Walton, W. H.; Castro, G. 1907 static liquefaction flow failure of the north dike of Wachusett Dam. **Journal of the Geotechnical and Geoenvironmental Engineering**, volume 126, n. 12, p.1184-1193, December 2000.

Parra, P. C. e Pereira, N.T.L. Ruptura da Barragem de Rejeitos da Mina de Fernandinho. **Anais do Simpósio - Barragens de Rejeitos e Disposição de Resíduos Industriais e de Mineração**. vol 1, Novembro, pág 423 - 444. 1987.

Parra, P. C. e Ramos, J.V. Ruptura, Recuperação e Estabilização da Barragem de Rejeitos da Mina do Pico de São Luiz. **Anais do Simpósio - Barragens de Rejeitos e Disposição de Resíduos Industriais e de Mineração**. volume 1, Novembro, p. 445 - 462. 1987.

Potts, D. M.; Zdravkovic, L. Finite Element Analysis in Geotechnical Engineering. Theory. **Thomas Telford**, 1999.

Poulos, S. J. The steady state of deformation. **Journal of the Geotechnical Engineering Division, ASCE**, volume 107, n. GT5, p. 553-562, May 1981.

Poulos, S. J.; Castro, G.; France, W. Liquefaction evaluation procedure. **Journal of the Geotechnical Engineering Division, ASCE**, volume 111, n. 6, p. 772-792, 1985.

Rauch, A. F. EPOLLS: An Empirical Method for Predicting Surface Displacements Due to Liquefaction-Induced Lateral Spreading in Earthquakes. **A dissertation presented to the faculty of Virginia Polytechnic Institute and State University in partial of the requirements for the degree Doctor of Philosophy in Civil Engineering**, May 1997.

Riemer, M. F.; Seed, R. B. Factor affecting apparent position of steady state line. **Journal of the Geotechnical and Geoenvironmental Engineering**, volume 123, n. 3, p.281-288, 1997.

Riemer, M. F.; Seed, R. B. Observed effects of testing conditions on the residual strengths of loose, saturated sands at large strains. **Proceedings of 4th Japan-U.S. Workshop on Earthquake Resistant Design of Lifeline Facilities and countermeasures for soil liquefaction**, in M. Hamada and T.D. O'Rourke, eds., Technical Report NCEER-92-0019, National Center for Earthquake Engineering Research, Buffalo, New York, volume 1, p. 223-238, 1992.

Romanel. C. Modelos Constitutivos para Materiais Geotécnicos II. **Notas de Aula. Mestrado - PUC-Rio**, 2003.

Roscoe, K. H.; Pooroshasb, H. B. A fundamental principle of similarity in model tests for earth pressure problems. **Proceedings, 2nd Asian Regional Conference on Soil Mechanics**, Tokyo, volume 1, p. 134-140, 1963.

Seed, R. B.; Harder, L. F. SPT-based analysis of cyclic pore pressure generation and undrained residual strength. Proceeding, **H. Bolton Seed Memorial Symposium**, Ed. J. M. Duncan, University of California, Berkeley, volume 2, p. 351-376, 1990.

Seed, H. B. Soil liquefaction and cyclic mobility evaluation for level ground during earthquakes, **Journal of the Geotechnical Engineering Division, ASCE**, 105, n. GT2, p. 201-255, Feb., 1979.

Seed, H. B; Lee, K. L. Liquefaction of saturated sands during cyclic loading. **Journal of the Soil Mech. and Foundations Division, ASCE**, 92, SM6, Nov., 105-134, 1966.

Shibuya, S; Hight, D. W. A bounding surface for granular material. **Soils and Foundations**, volume 27, n. 4, p. 123-136, 1987.

Schofield, A. N.; Wroth, C. P. 1968. Critical State soil Mechanics, **McGraw-Hill**, London, 1968.

Sladen, J. A. Problems with interpretation of sand states from cone penetration test. **Géotechnique**, volume 39, n. 2, p. 323-332, 1985.

Sladen, J. A.; D'Hollander R. D. and Krahn, J. The liquefaction of sands, a collapse surface approach. **Canadian Geotechnical Journal**, volume 22, n. 1, p. 11-27, 1985.

Stark, T. D.; Mesri, G. Undrained shear strength of sand for stability analysis, **Journal of the Geotechnical Engineering Division, ASCE**, volume 118, n. 11, p. 1727-1747, 1992.

Symes, M. J. P. R.; Shibuya, S.; Hight, D. W; Gens, A. Liquefaction with cyclic principal stress rotation. **Proceedings of 11th International Conference on Soil Mechanics and Foundation Engineering**, volume 4, p. 1919-1922, 1985.

Tibana, S. Desenvolvimento de uma Célula Triaxial Cíclica Servo Controlada e Estudo da Susceptibilidade à Liquefação de um Resíduo da Lavra de Mineração de Ferro. **Tese apresentada para obtenção do Título de Doutor em Engenharia Civil. DEC PUC-Rio**, Rio de Janeiro. Maio, 1997.

Vaid, Y. P.; Chung, E. K. F.; Kuerbis, R.H. Stress Path and Steady. **Canadian Geotechnical Journal**, volume 27, n. 1, p. 1-7, 1990.

Vaid, Y. P.; Thomas, J. Liquefaction and post liquefaction behavior of sand. **Journal of the Geotechnical Engineering Division, ASCE**, 121, n. 2, p. 163-173, 1995.

Vaid, Y. P.; Chern, J. C. Effect of static shear on resistance of liquefaction. **Soils and Foundations**, volume 23, n.1, p. 47-60, 1983.

Vaid, Y. P.; Chern, J. C. Cyclic and monotonic undrained response of saturated sands. **Advances in the Art of Testing Soils Under Cyclic Conditions, ASCE**, p. 120-147, 1985.

Vasquez-Herrera, A.; Dobry, R.; Baziar, M. H. Re-evaluation of liquefaction triggering and flow sliding in the Lower San Fernando Dam during the 1971 earthquake, Proceeding, **4th U.S. National Conference on Earthquake Engineering**, Palm Spring, California, p. 783-792, 1990.

Verdugo, R.; Ishihara, K. Ultimate strength of cohesionless soils. **3er Congreso Chileno de Ingeniería Geotécnica**, p. 143-155, 1993.

Verdugo, R.; Ishihara, K. The steady state of sandy soils. **Soils and Foundations**, volume 36, n. 2, p. 81-92, 1996.

Wang, W. Some finding in soil liquefaction. **Water Conservancy and Hydroelectric Power Scientific Research Institute**, Beijing, China, 1979.

Wong, W. Earthquake damage to earth dams and levees in relation to soil liquefaction and weakness in soft clays, Proceedings, **International Conference on Case Histories in Geotechnical Engineering**, volume 1, p. 511-521, 1984.

Wong, R. T.; Seed, H. B.; Chan, C. K. Liquefaction of gravelly soil under cyclic loading condition, **Journal of the Geotechnical Engineering Division, ASCE**, volume 101, n. GT6, p. 571-583, 1975.

Yang, Z.; Elgamal, A. Influence of Permeability on Liquefaction-Induced Shear Deformation, **Journal of Engineering Mechanics**, p. 720-729, July, 2002.

Yegian, M. K.; Gharaman, V. G.; Harutiunyan, R. N. Liquefaction an Embankment Failure Case Histories, 1988 Armenai Earthquake, **Journal of the Geotechnical Engineering Division, ASCE**, volume 120, n.3, p. 581-596, 1994.

Yoshimine, M.; Hosono, Y. Effects of anisotropy of sand on results of undrained triaxial test. **Memoirs of Graduate School of Engineering, Tokyo Metropolitan University**, n. 50, p.158-169, 2000.

Yoshimine, M; Ishihara, K. Flow potential of sand during liquefaction. **Soils and Foundations**, volume 38, n. 3, p.187-196, 1998.

Yoshimine, M.; Ishihara, K.; Vargas, W. Effects of principal stress direction and intermediate principal stress on undrained shear behavior of sand. **Soils and Foundations**, volume 38, n. 3, p. 179-188, 1998.

Youd, T. L. et al. The Borah Peak, Idaho earthquake of October 28, 1983 – Liquefaction, **Earthquake Spectra**, volume 2, n. 11, p. 1374-1392, 1985.

Zeghal, M.; Elgamal, A. Analysis of site liquefaction using earthquake records. **Journal of the Geotechnical Engineering Division, ASCE**, volume 120, n.6, p. 996-1017, 1994.

Apêndice A: Figuras da análise de sensibilidade dos parâmetros das funções pré-pico e pos-pico do Modelo de Juárez-Badillo

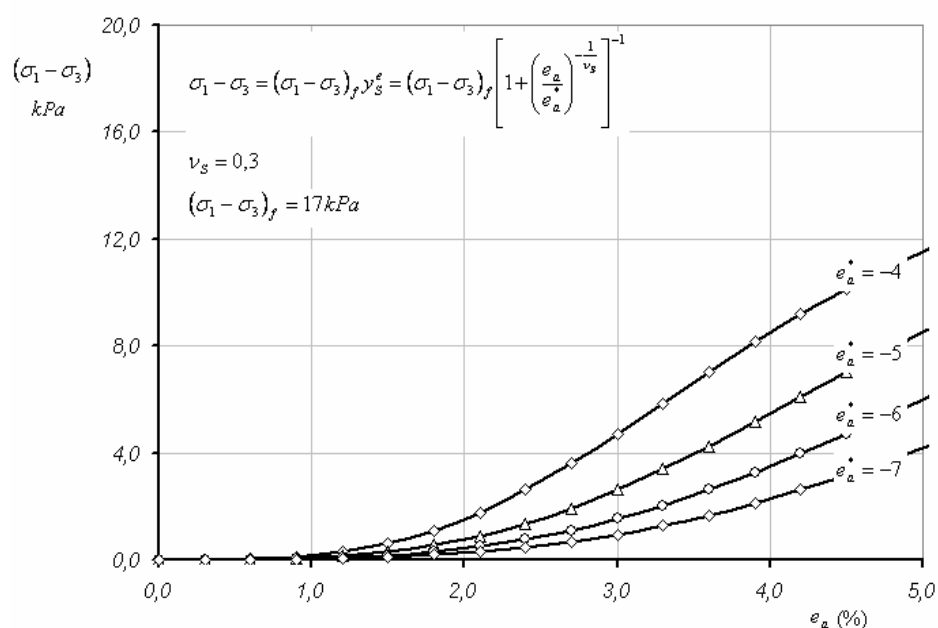


Figura A1 Influência de e_a^* na curva $\varepsilon_a : q$ da função de sensibilidade.

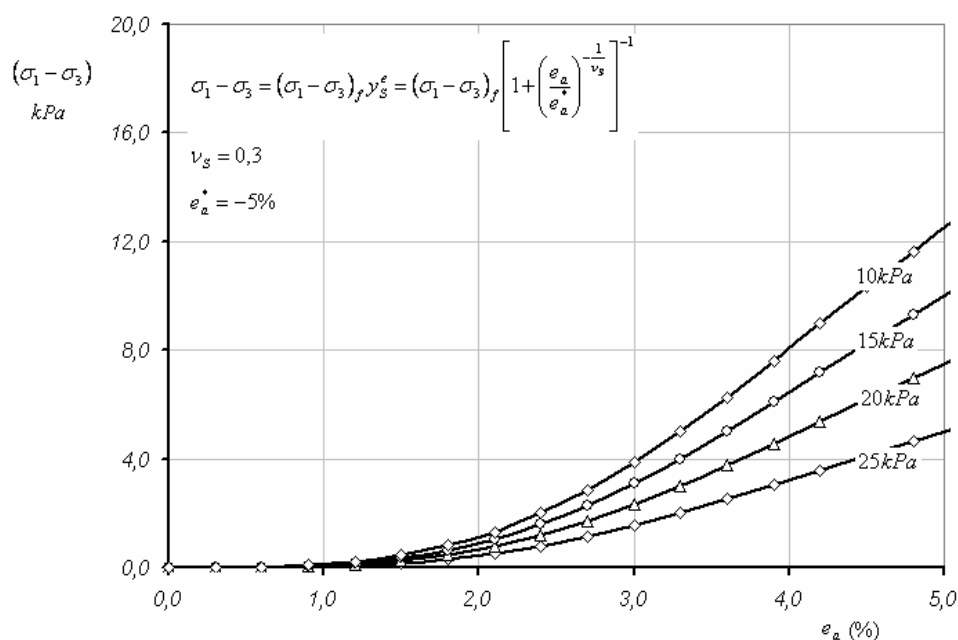


Figura A2 Influência de $(\sigma_1 - \sigma_3)_f$ na curva $\varepsilon_a : q$ da função de sensibilidade.

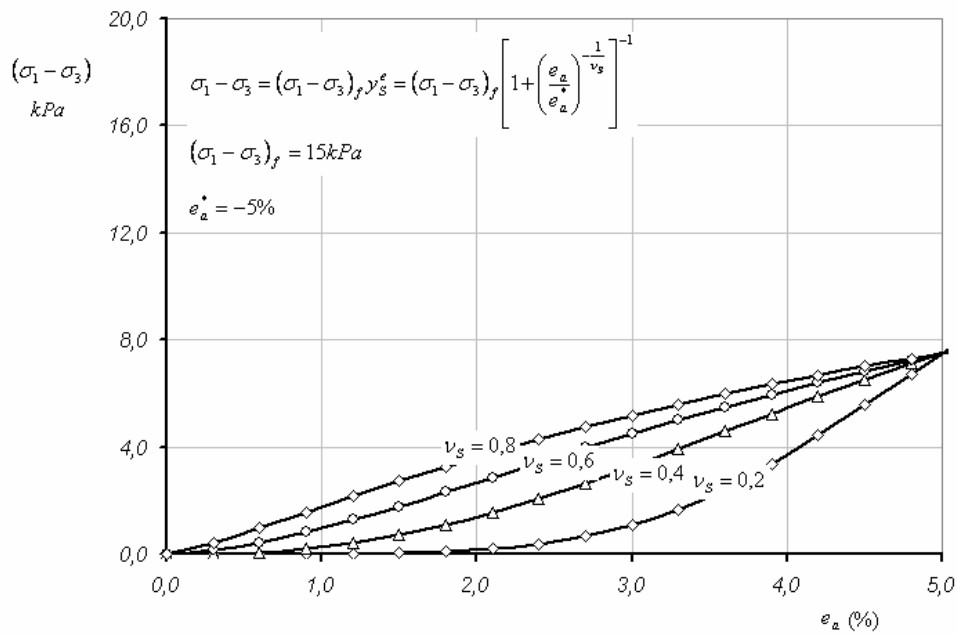


Figura A3. Influência do ν na curva $\epsilon_a : q$ da função de sensibilidade.

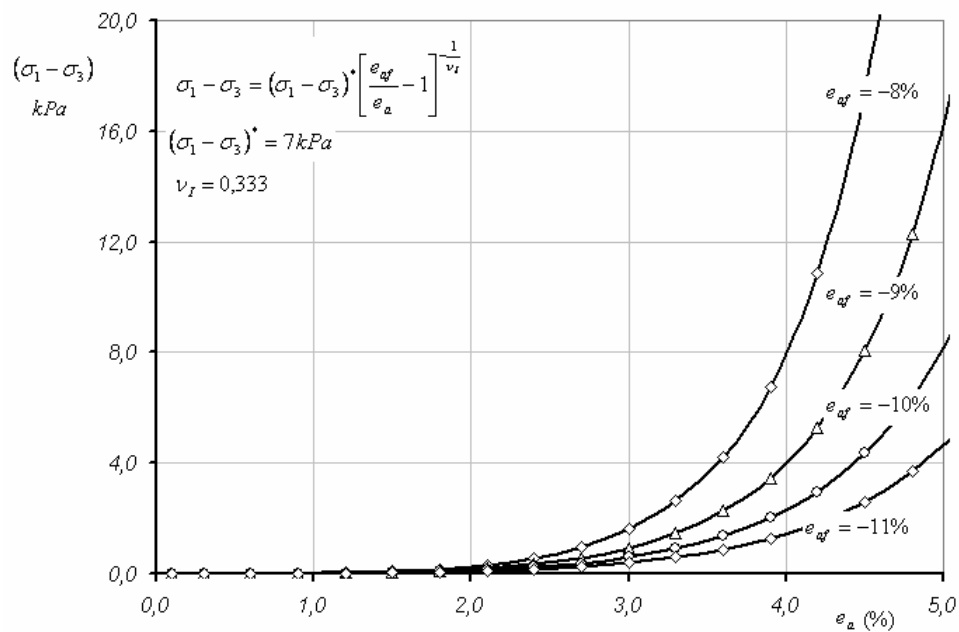


Figura A4 Influência do ϵ_a^* na curva $\epsilon_a : q$ da função de sensibilidade invertida.

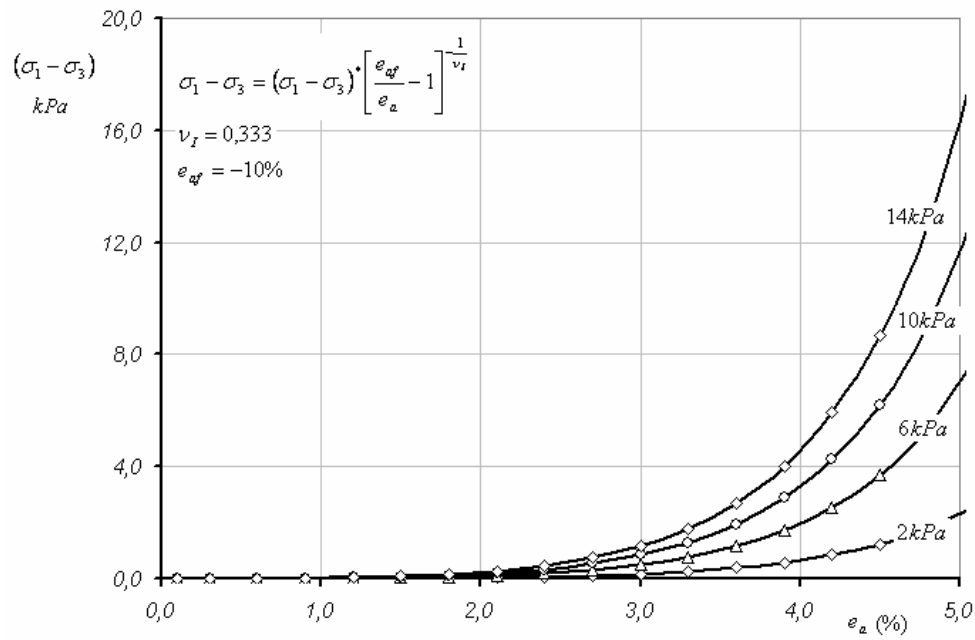


Figura A5 Influência do $(\sigma_1 - \sigma_3)_x$ na curva $\varepsilon_a : q$ da função de sensibilidade invertida.

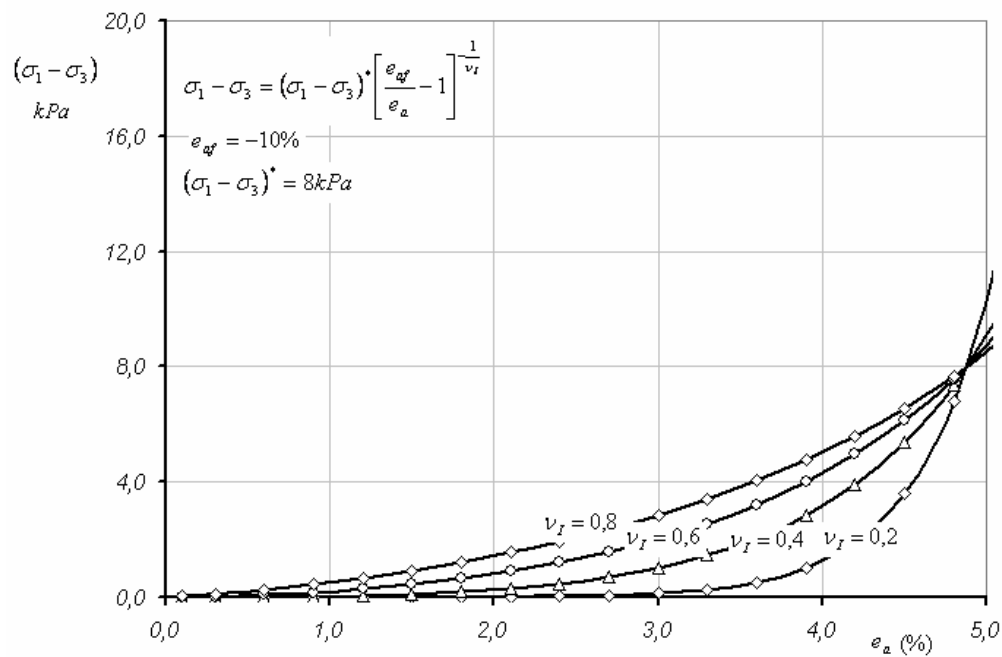


Figura A6 Influência do ν na curva $\varepsilon_a : q$ da função de sensibilidade invertida.

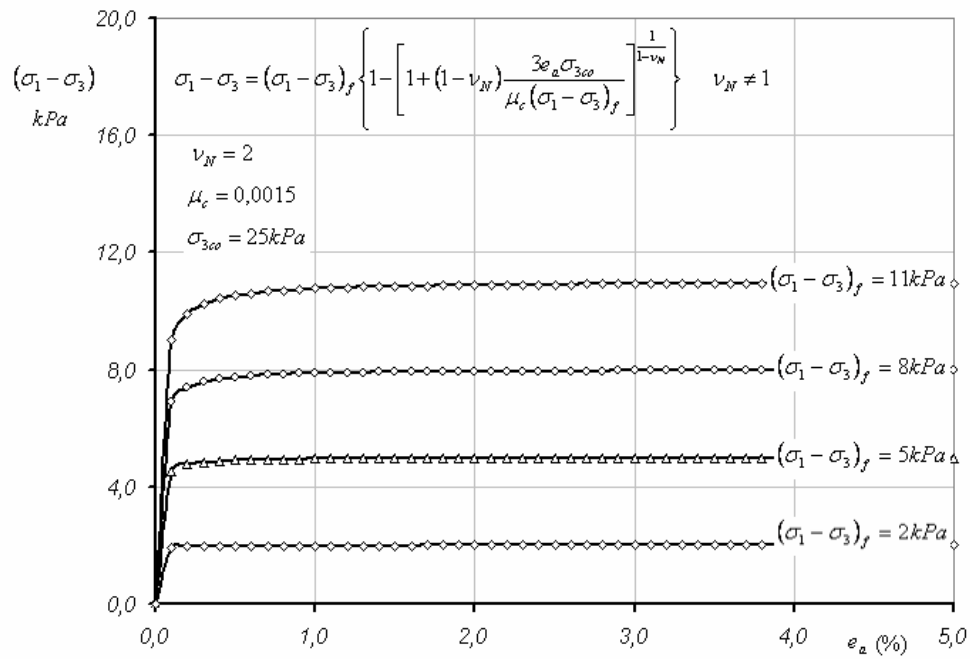


Figura A7 Influência do $(\sigma_1 - \sigma_3)_f$ na curva $\varepsilon_a : q$ da função normal ($\nu \neq 1$).

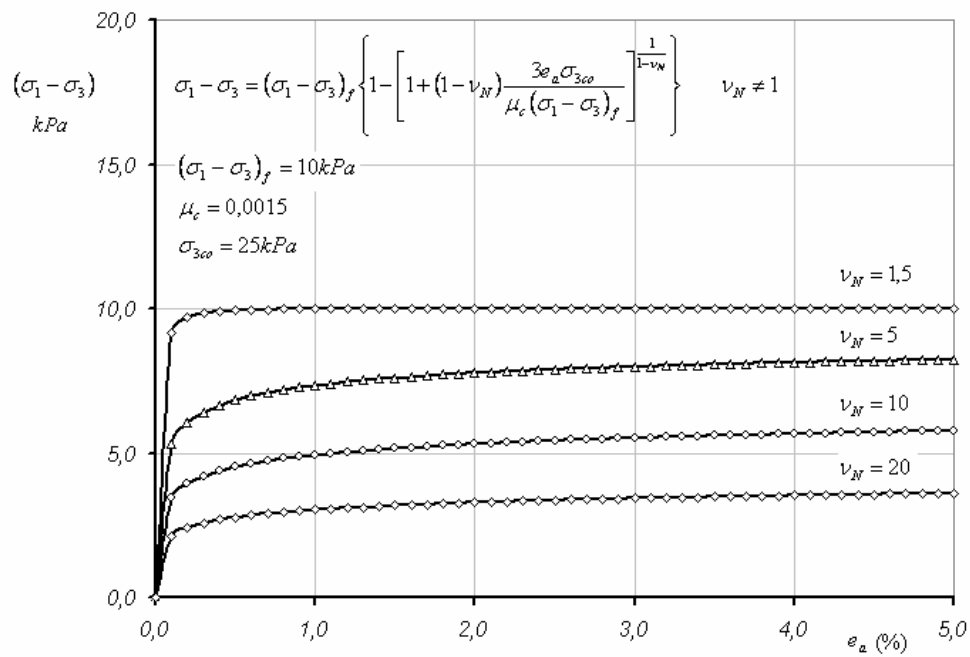


Figura A8 Influência do ν na curva $\varepsilon_a : q$ da função normal ($\nu \neq 1$).

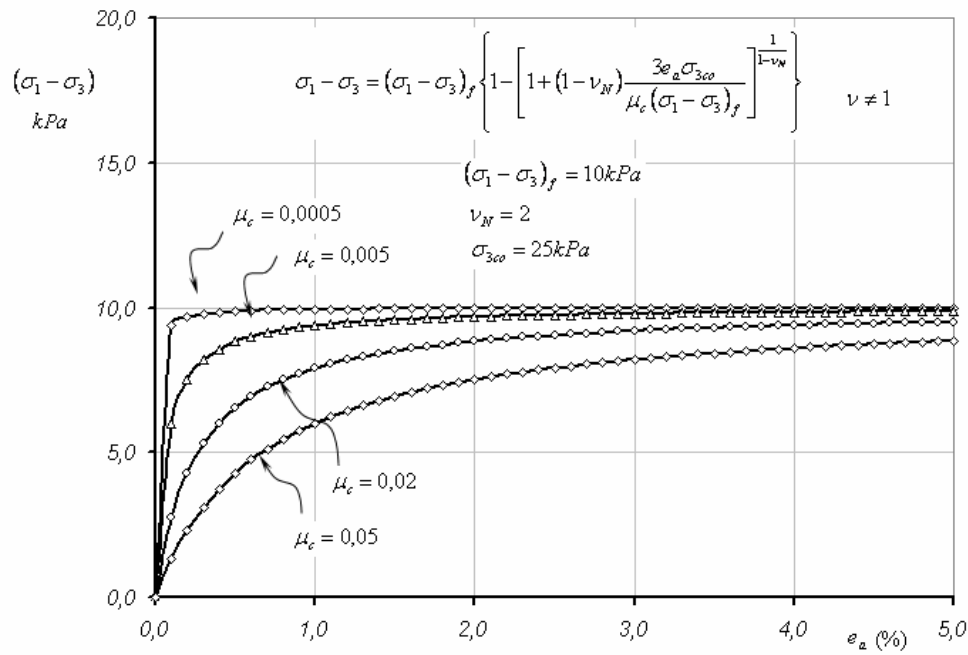


Figura A9 Influência do μ na curva $\epsilon_a : q$ da função normal ($\nu \neq 1$).

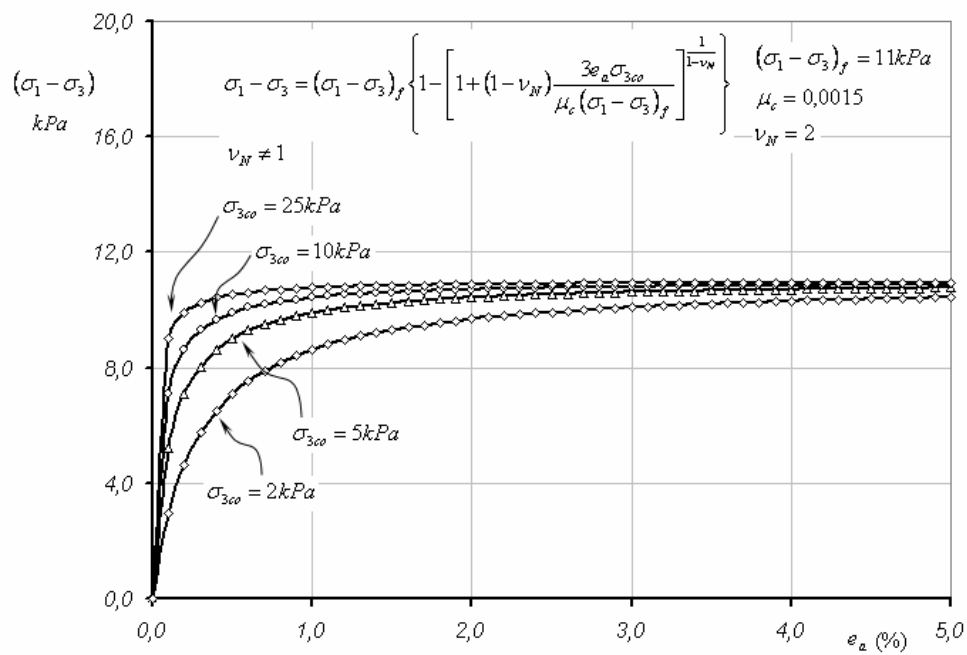


Figura A10 Influência do σ_{co} na curva $\epsilon_a : q$ da função normal ($\nu \neq 1$)

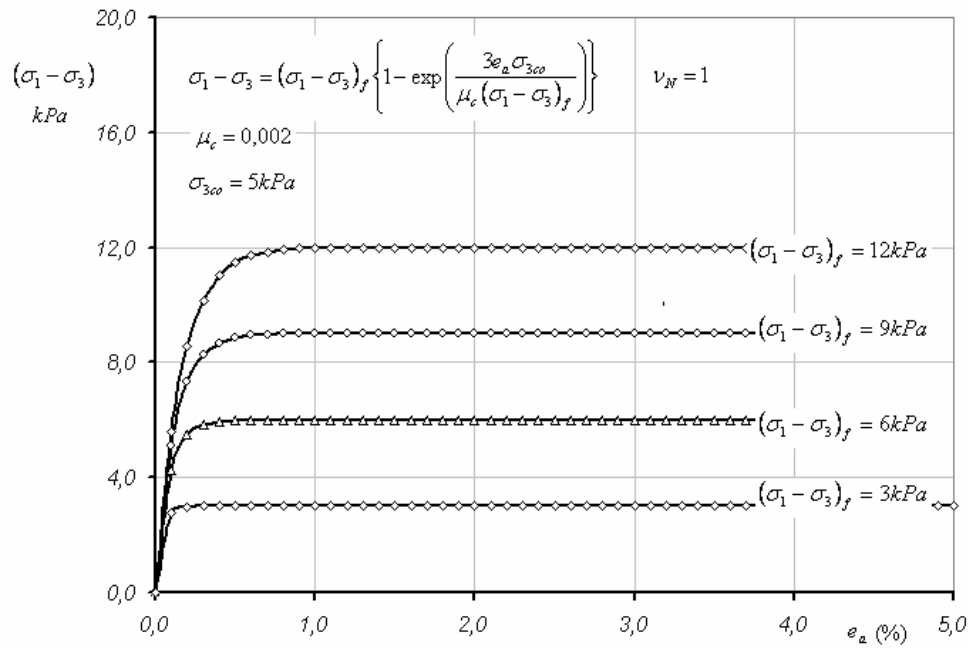


Figura A11 Influência do $(\sigma_1 - \sigma_3)_f$ na curva $\varepsilon_a : q$ da função normal ($\nu = 1$).

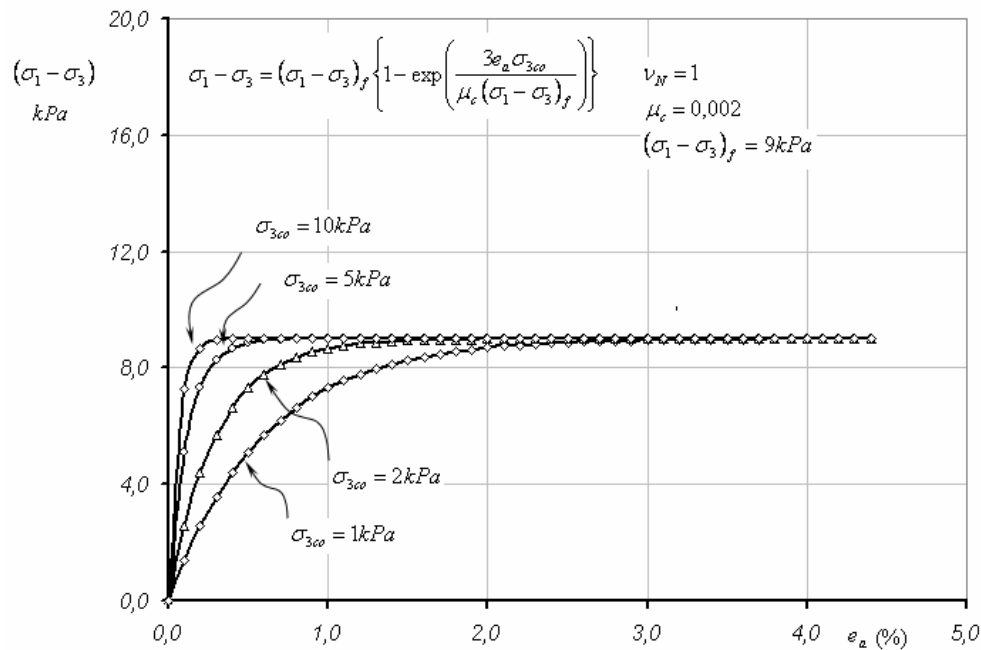


Figura A12 Influência do σ_{3co} na curva $\varepsilon_a : q$ da função normal ($\nu = 1$)

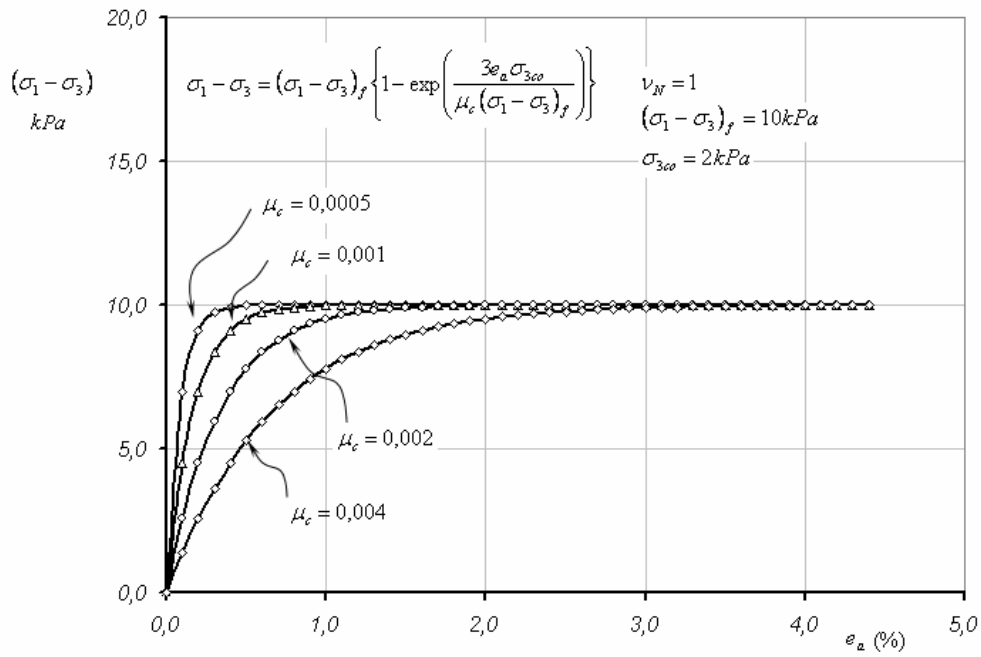


Figura A13 Influência do μ na curva $\varepsilon_a : q$ da função normal ($\nu = 1$).

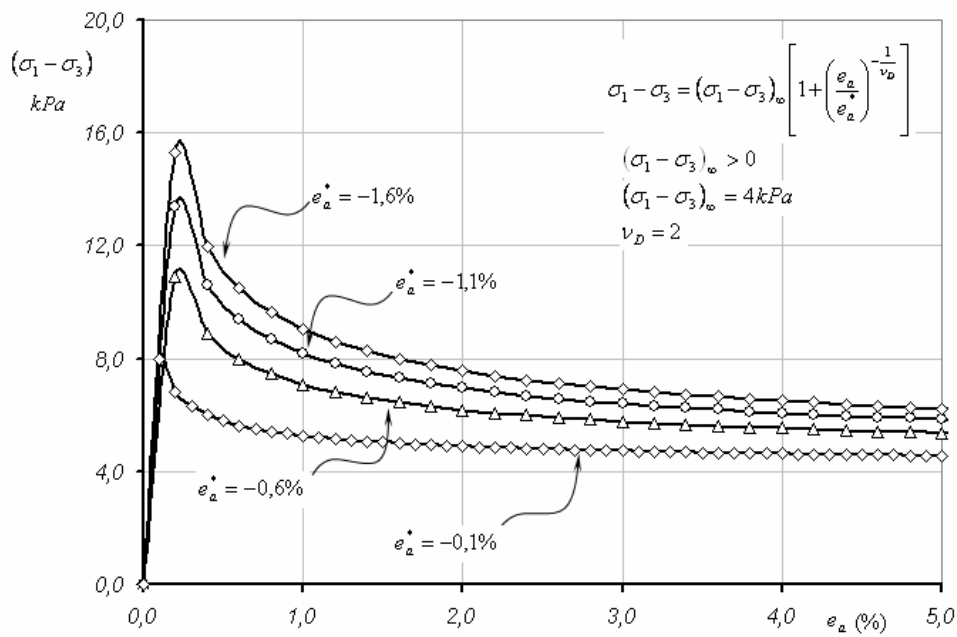


Figura A14 Influência do e_a^* na curva $\varepsilon_a : q$ da função de utilidade ($(\sigma_1 - \sigma_3)_\infty > 0$).

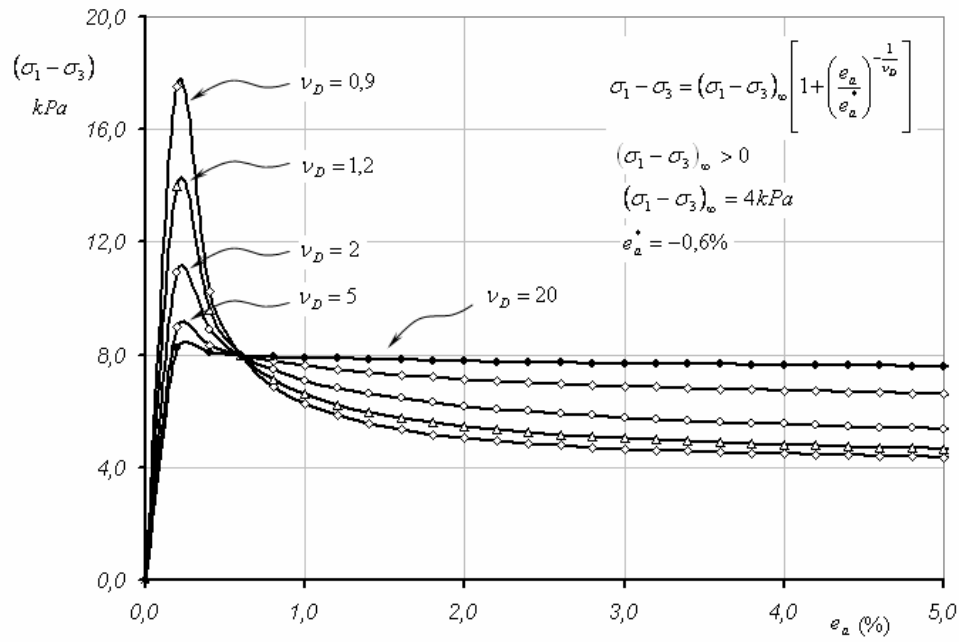


Figura A15 Influência do ν na curva $\varepsilon_a : q$ da função de utilidade $((\sigma_1 - \sigma_3)_\infty > 0)$.

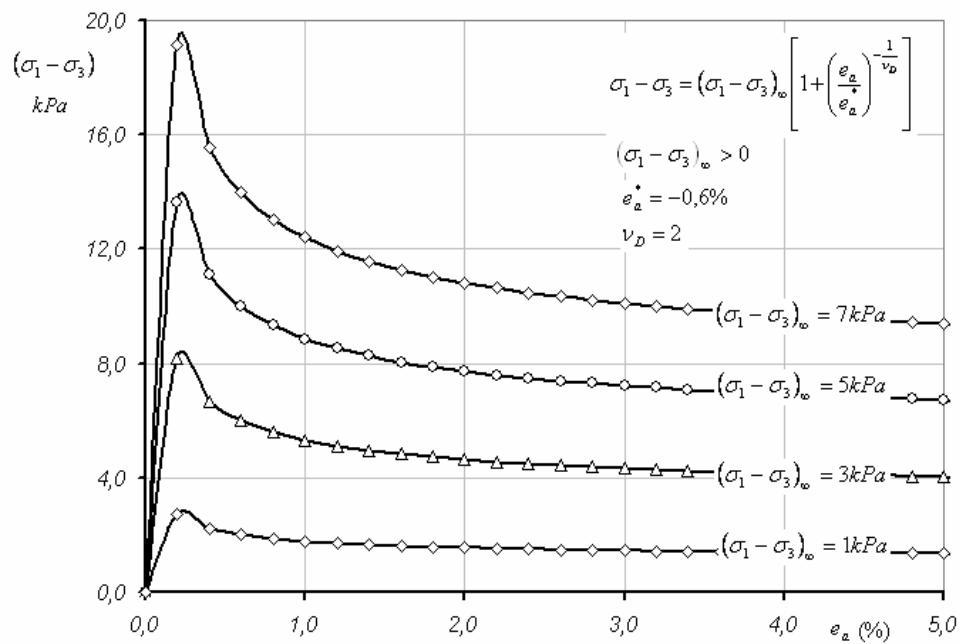


Figura A16 Influência do $(\sigma_1 - \sigma_3)_\infty$ na curva $\varepsilon_a : q$ da função de utilidade $((\sigma_1 - \sigma_3)_\infty > 0)$.

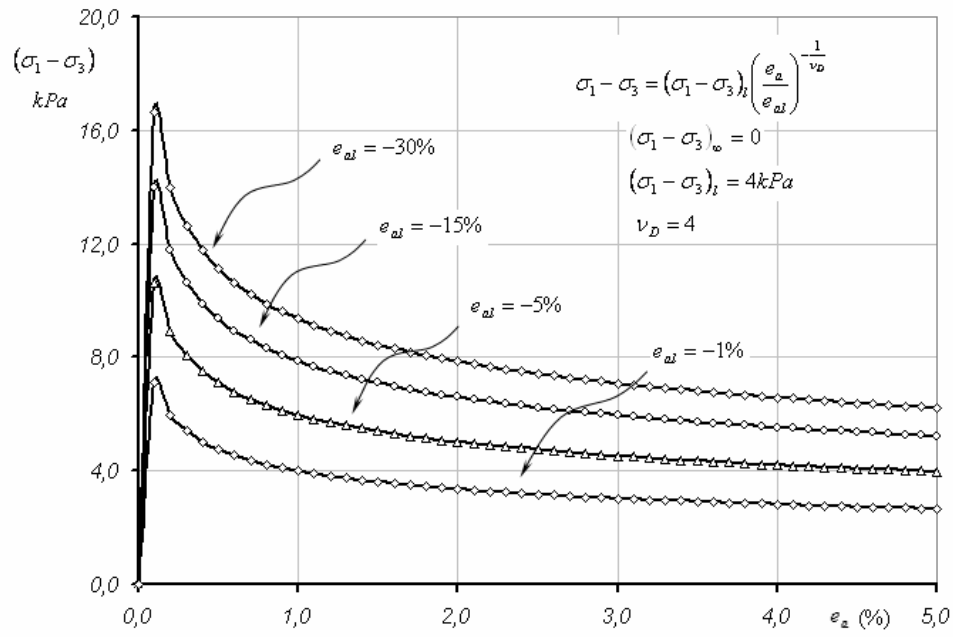


Figura A17 Influência do e_a^* na curva $\varepsilon_a : q$ da função de utilidade ($(\sigma_1 - \sigma_3)_\infty = 0$).

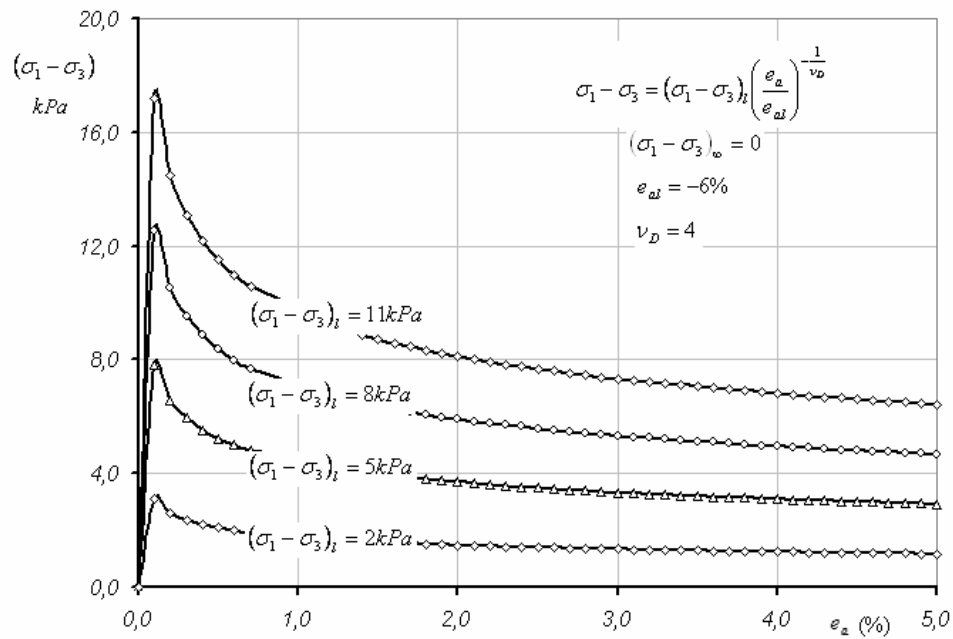


Figura A18 Influência do $(\sigma_1 - \sigma_3)_i$ na curva $\varepsilon_a : q$ da função de utilidade ($(\sigma_1 - \sigma_3)_\infty = 0$).

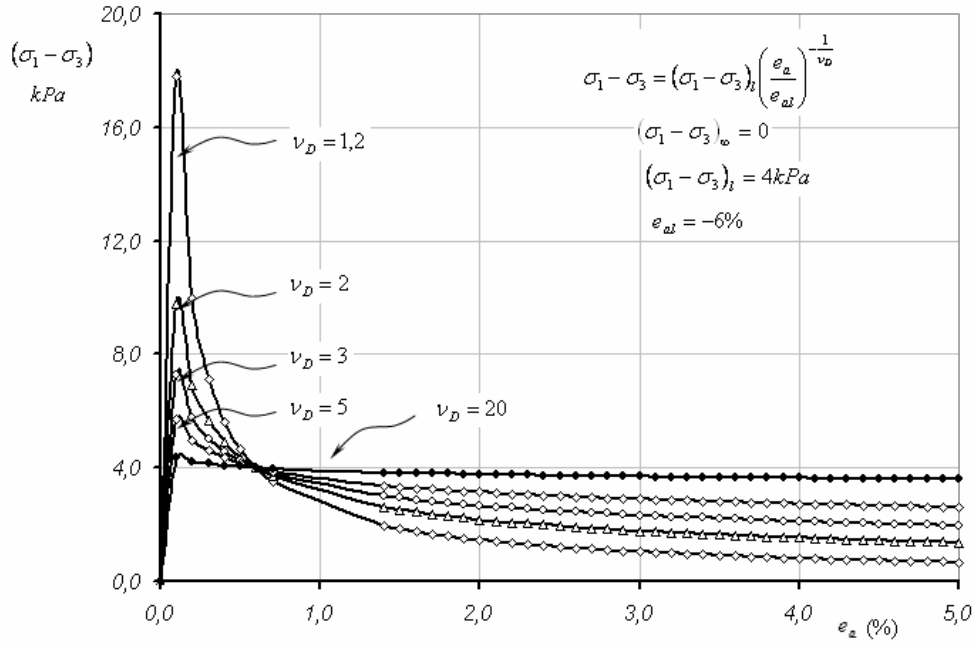


Figura A19 Influência do ν na curva $\varepsilon_a : q$ da função de utilidade ($(\sigma_1 - \sigma_3)_\infty = 0$).

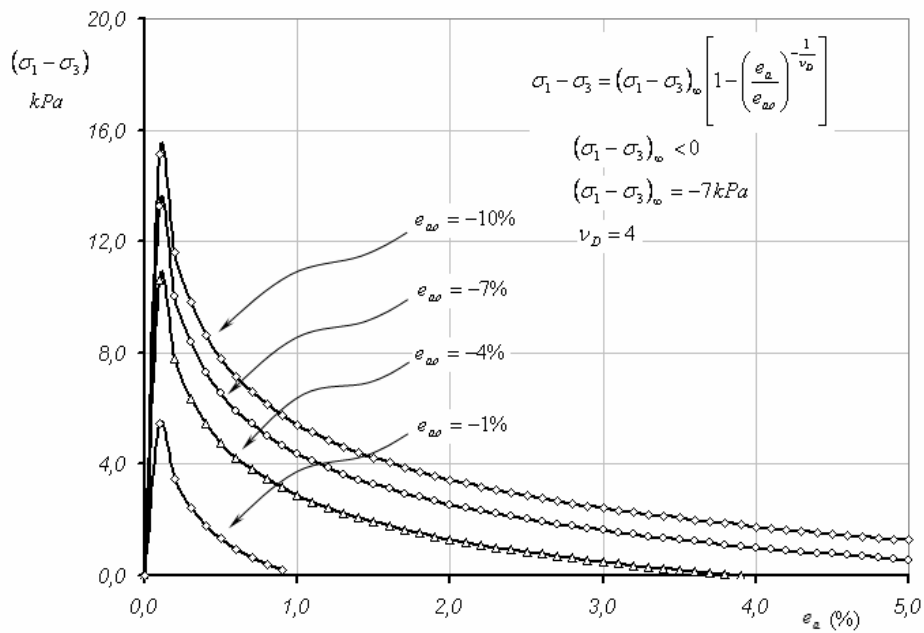


Figura A20 Influência do ε_a^* na curva $\varepsilon_a : q$ da função de utilidade ($(\sigma_1 - \sigma_3)_\infty < 0$).

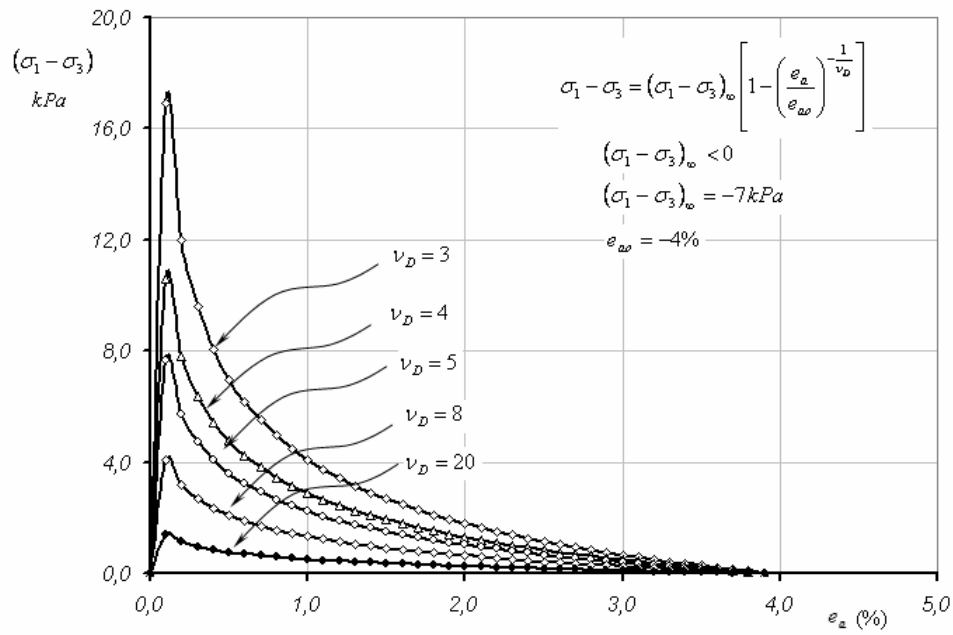


Figura A21 Influência do ν na curva $\varepsilon_a : q$ da função de utilidade $((\sigma_1 - \sigma_3)_\infty < 0)$.

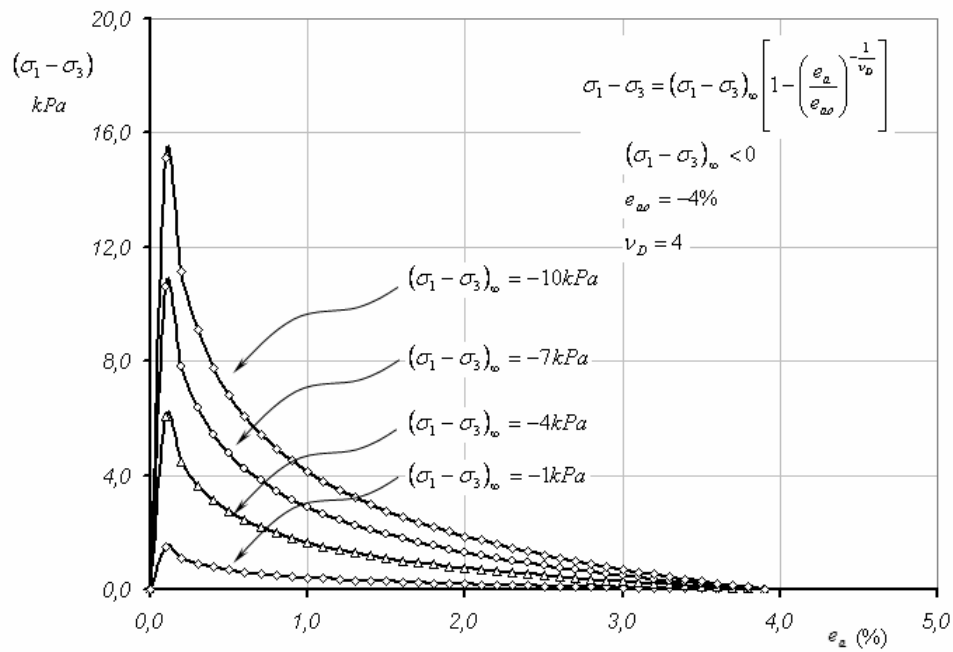


Figura A22 Influência do $(\sigma_1 - \sigma_3)_\infty$ na curva $\varepsilon_a : q$ da função de utilidade $((\sigma_1 - \sigma_3)_\infty < 0)$.

Apêndice B: Figuras da análise de sensibilidade dos parâmetros do Modelo de Gutierrez e Verdugo

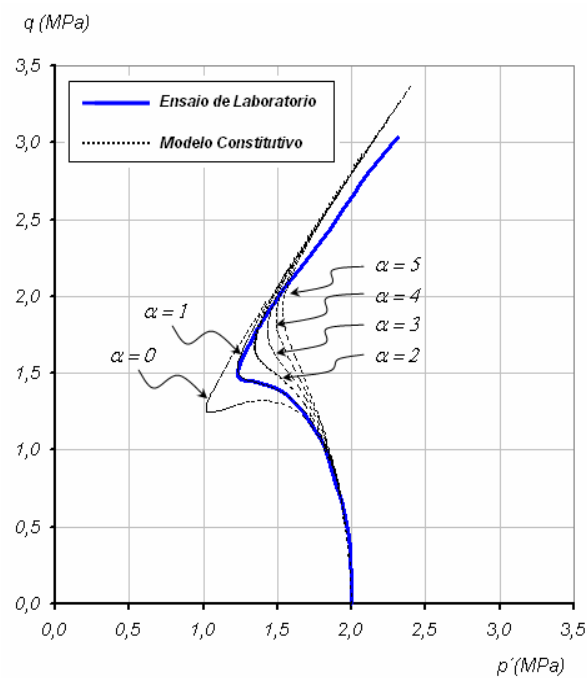


Figura B1 Influência do parâmetro α na trajetória de tensões efetivas.

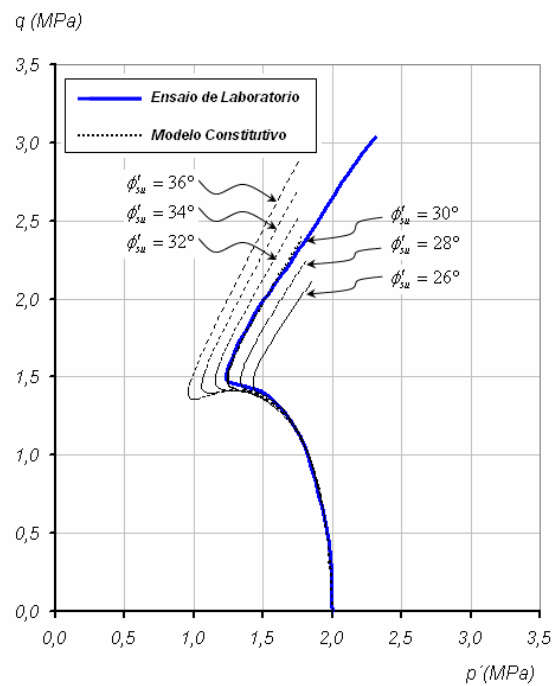


Figura B2 Influência do ϕ'_{cr} na trajetória de tensões efetivas.

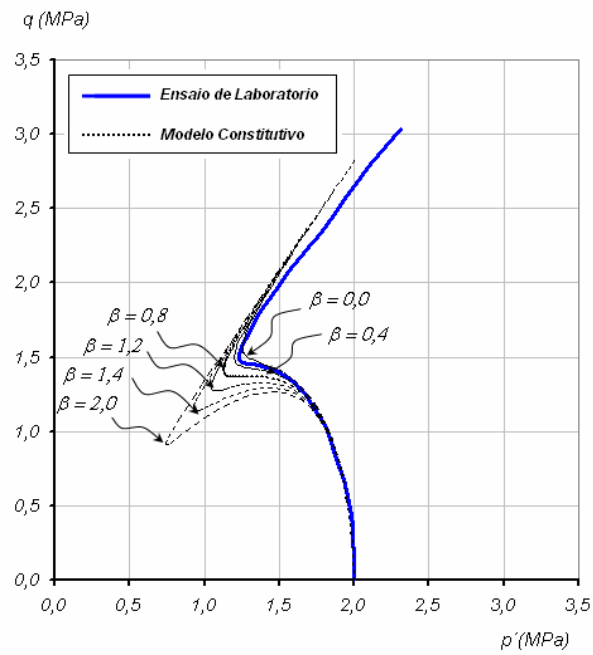


Figura B3 Influência do parâmetro β na trajetória de tensões efetivas.

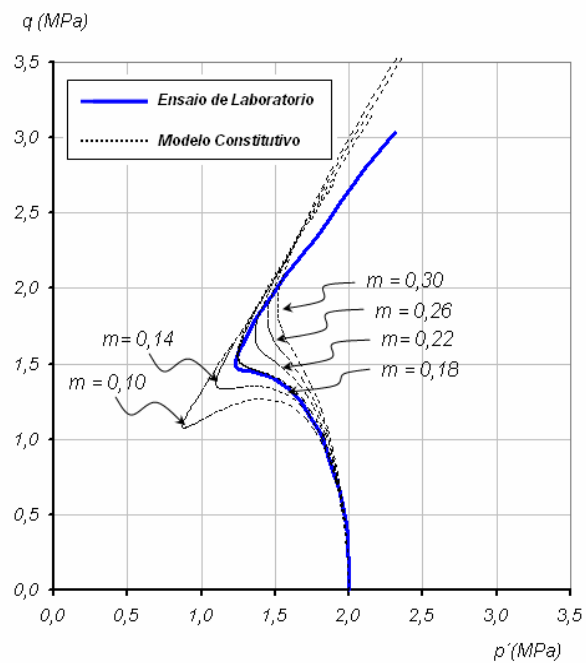


Figura B4 Influência do parâmetro m na trajetória de tensões efetivas.

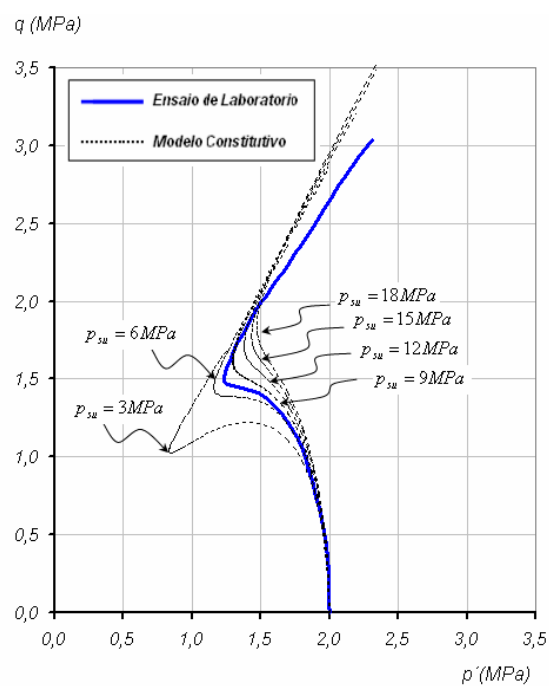


Figura B5 Influência do p_{cr} na trajetória de tensões efetivas.

Apêndice C: Diagrama de Blocos para a implementação do Modelo de Gutierrez e Verdugo Modificado.

