

## Referências Bibliográficas

- [1] GRANDA, M., SANTAMARIA, R., MENÉNDEZ, R. Coal-tar pitch: composition and pyrolysis behaviour. *Chemistry and Physics of Carbon*, v. 28, p. 263-330, 2003.
- [2] PÉREZ, M., GRANDA, M., GARCIA, R., SANTAMARÍA, R., ROMERO, E., MENÉNDEZ, R. Pyrolysis behavior of petroleum pitches prepared at different conditions. *Journal of Analytical and Applied Pyrolysis*, v. 63, p. 223-239, 2002.
- [3] MCHENRY, E. R. Coal-tar/petro industrial pitches. *Light Metals*, p. 543- 548, 1997.
- [4] ACUÑA, C., MARZIN. R., PERRUCHOUD, R., C. Petroleum pitch, a real alternative to coal tar pitch as binder material for anode production. *Light Metals*, p.549-554, 1997.
- [5] MANNWEILER, U., PERRUCHOUD, R., MARZIN, R., ACUÑA, C. Reduction of polycyclic aromatic hydrocarbons by using petroleum Pitch as Binder Material. *Light Metals*, p.555-558, 1997.
- [6] RAND B., WEST S.C., ELLIS B., TURPIN, M. Effect of composition on the glass transition and rheological properties of pitch. *American Carbon Society*, p. 198-199, 1995.
- [7] CHEUNG T., TURPIN M., RAND B. Controlled Stress, oscillatory rheometry of mesophase-pitches. *Carbon*, v. 33, p.1673-1679, 1995.
- [8] MOCHIDA, I.; YOON, S. H.; QIAO, W. M. Catalysts in Syntheses of Carbon and Carbon Precursors. *Journal of the Brazilian Chemical Society*, v. 17, p. 1059-1073, 2006.
- [9] Li, X., Li Q. Rheological properties and carbonization of coal tar pitch. *Fuel*, v. 75, p. 3-7, 1996.
- [10] LIMA, L.P., REY A.D. Linear viscoelasticity of textured carbonaceous mesophases, *Journal of the Brazilian Chemical Society*, v. 17, p. 1109-1116, 2006.

- [11] OBERLIN, A. High-resolution TEM studies of carbonization and graphitization. *Chemistry and Physics of Carbon*, v. 22, p. 1-143, 1989.
- [12] MARSH, H., MENENDEZ, R. Mechanisms of formation of isotropic and anisotropic carbons. *Introduction to Carbon Science*, London, Butterworth, 1989.
- [13] CATO A., EDIE D. Flow behavior of mesophase pitch. *Carbon*, v. 41, p. 1411-1417, 2003.
- [14] BURCHELL, T. D. *Carbon materials for advanced technologies*. Oxford: Pergamon, 1999.
- [15] HURT, R. H., HU, Y. Thermodynamics of Carbonaceous Mesophase. *Carbon*, v. 37, p. 281-292, 1999.
- [16] BROOKS, J. D.; TAYLOR, G. H. The formation of some graphitizing carbons. *Chemistry and physics of carbon*, v. 4, p. 243-286, 1968.
- [17] COLLIN, G., ZANDER, M. A review of the significance of polycyclic aromatic chemistry for pitch science. *Fuel*, v. 72, p. 1281-1298, 1993.
- [18] GREINKE, R. A. Early Stages of Petroleum Pitch Carbonization, Kinetics and Mechanisms. *Chemistry and Physics of Carbon*, v. 24, p. 1-43, 1994.
- [19] BROOKS, A., TAYLOR, A. The formation of graphitizing carbons from the liquid phase. *Carbon*, v. 3, p. 185-193, 1965.
- [20] MARTÍN, Y., GARCÍA, R., KEATING, P., SNAPE, C. E. AND MOINELO, S. R. A study of the polymerization and condensation reactions during the heat treatment of pitches under gas-blowing conditions. *Energy & Fuels*, v. 14, p. 380-392, 2000.
- [21] MORIYAMA, R., HAYASHI, J., SUZUKI, K., HIROSHIMA, T., CHIBA, T. Analysis and modeling of mesophase sphere generation, growth and coalescence upon heating of coal tar pitch. *Carbon*, v. 40, p. 53-64, 2002.
- [22] OBERLIN, A., BONNAMY, S., ROUXHET, P. G. Colloidal and supramolecular aspects of carbon. *Chemistry and Physics of Carbon*, v. 26, p. 1-148, 1999.

- [23] MARSH, H., WALKER, P.L. The formation of graphitizable carbons via mesophase: chemical e kinetic considerations. *Chemistry and Physics of Carbon*, v. 15, p. 229-282, 1979.
- [24] LEWIS, I.C. Thermotropic Mesophase Pitch. *Carbon*, v. 16, p. 503, 1978.
- [25] MARSH, H., CORNFORD, C. Mesophase: the precursor to graphitizable carbon. *Petroleum Derived Carbons*, v. 21, p. 266-281, 1976.
- [26] MOCHIDA, I. Chemistry in production and use of needle coke. *Chemistry and Physics of Carbon*, v. 24, p.111-212, 1994.
- [27] BONNAMY, S., Carbonization of various precursors. Effect of heating rate. Part I: optical microscopy studies. *Carbon*, v. 37, p. 1691-1705, 1999.
- [28] RODRÍGUEZ-REINOSO, F., MARTÍNEZ-ESCANELL, M., TORREGROSA, P., MARSH, H., GÓMEZ DE SALAZAR, C., ROMERO-PALAZÓN E. Pyrolysis of petroleum residues III. Kinetics of pyrolysis. *Carbon*, v. 39, p. 61-71, 2001.
- [29] CASTRO L.D.; Anisotropy and mesophase formation towards carbon fibre production from coal tar and petroleum pitches - A review. *Journal of the Brazilian Chemical Society*, v.17; p. 1096-1108, 2006.
- [30] DELHAÈS, P. Graphite and precursors. Gordon and Breach Science Publishers, p. 297, 2001.
- [31] VILAPLANA-ORTEGO, E.; ALCAÑIZ-MONGE, J.; CAZORLA-AMORÓS, D.; LINARES-SOLANO, A. Stabilisation of low softening point petroleum pitch fibres by HNO<sub>3</sub>. *Carbon*, v. 41, p. 1001-1007, 2003.
- [32] PETROVA, B.; BUDINOVA, T.; PETROV, N.; YARDIM, M. F.; EKINCI, E.; RAZVIGOROVA, M. Effect of different oxidation treatments on the chemical structure and properties of commercial coal tar pitch. *Carbon*, v. 43, p. 261-267, 2005.
- [33] VIEIRA, F. R.; DUTRA, C. H. M. C.; CASTRO, L. D. Determining the anisotropic content in a petroleum pitch – Comparison of centrifugation and optical microscopy techniques. *Fuel*, v. 90, 908-911, 2011.

- [34] HARVEY, T. G.; WEST, G. W. Determination of mesophase contents in blends of mesophase and isotropic pitches by  $^1\text{H}$  NMR. *Carbon*, v. 34, p. 275-276, 1996.
- [35] EL AKRAMI, H. A.; YARDIM, M. F.; EKINCI, E. Preparation and characterization of Raman-Dincer crude oil derived pitches for production of stabilized fibers. *Fuel*, v. 79, p. 497-504, 2000.
- [36] MORIYAMA, R.; KUMAGAI, H.; HAYASHI, J.; YAMAGUCHI, C.; MONDORI, J.; MATSUI, H.; CHIBA, T. Formation of mesophase spheres from a coal tar pitch upon heating and subsequent cooling observed by an in situ  $^1\text{H}$ -NMR. *Carbon*, v. 38, p. 749-758, 2000.
- [37] EDWARDS, W. F; JIN, L. E.; THIES, M. C. MALDI-TOF mass spectrometry: obtaining reliable mass spectra for insoluble carbonaceous pitches. *Carbon*, v. 41, p. 2761-2768, 2003.
- [38] CRISTADORO, A.; KULKARNI, S. U.; BURGESS, W. A.; CERVO, E. G., RÄDER, H. J.; MÜLLEN, K.; BRUCE, D. A.; THIES, M. C. Structural characterization of the oligomeric constituents of petroleum pitches. *Carbon*, v. 47, p. 2358-2370, 2009.
- [39] RAND, B. Pitch precursors for advanced carbon materials – rheological aspects. *Fuel*, v. 66, p. 1491-1503, 1987.
- [40] MORRISON, F.A. *Understanding Rheology*, Oxford University Press, 2001.
- [41] LARSON, R. G. *The Structure and Rheology of Complex Fluids*, Oxford University Press, 1999.
- [42] MACHADO, J. C. *Reologia e escoamento de fluidos – Ênfase na Indústria do petróleo*. Interciênciac, 2002.
- [43] SCHRAMM, G. *Reologia e Reometria. Fundamentos teóricos e práticos*. Artliber, 2006.
- [44] MEWIS, J.; WAGNER, N. J. Thixotropy. *Advances in Colloid and Interface Science*, p. 214-227, 2009.
- [45] BRETAS, R. E; D'AVILA, M. A. *Reologia de polímeros fundidos*. UFSCar, 2000.

- [46] MACOSKO, C. W. *Rheology: Principles, Measurements and Applications.* Wiley-VCH, 1994.
- [47] BLANCO C., MENÉNDEZ R., SANTAMARIA R., BERMEJO J. EDIE D. Contribution of the isotropic phase to the rheology of partially anisotropic coal-tar pitches. *Carbon*, v. 37, p. 1059-1064, 1999.
- [48] NAZEM, F. F. Flow of molten mesophase pitch. *Carbon*, v. 20, p. 345–354, 1982.
- [49] MENÉNDEZ R., FIGUEIRAS A., BERMEJO J., FLEUROT O., EDIE D. The influence of thermal treatment on the rheology of coal tar pitches. 23rd Biennial Carbon Conference, p. 416, 1997.
- [50] BRAGA, C. P.; DUTRA, C. H. M. C.; CASTRO, L. D.; ANDRADE, C. T. Influence of heat and pressure treatment on the rheological behavior of petroleum pitches. *Fuel*, v. 88, p. 853-860, 2009.
- [51] DUMONT, M.; DOURGES, M.A.; PAILLER, R.; BOURRAT, X. Mesophase pitches for 3D-carbon fibre preform densification: rheology and processability. *Fuel*, v. 82, p.1523-1529, 2003.
- [52] FLEUROT O., EDIE D., Steady and transient rheological behavior of mesophase pitches, *J. Rheol.*, v. 42, p. 781-793, 1998.
- [53] KHANDARE P., ZONDLO J., STANSBERRY P., STILLER A., Rheological investigations of pitch material. Part I: Design and development of a high-temperature high-pressure (HTHP) rheometer, *Carbon*, v. 38, p. 881-887, 2000.
- [54] KHANDARE P., ZONDLO J., STANSBERRY P., STILLER A., Rheological investigations of pitch material. Part II: viscosity measurement of A240 and ARA-24 pitches using a high-temperature high-pressure rheometer, *Carbon*, v. 38, p. 889-897, 2000.
- [55] KUNDU S., OGALE A. Rheostructural studies on a synthetic mesophase pitch during transient shear flow, *Carbon*, v. 44, p. 2224-2235, 2006.
- [56] COLLETT, G. W.; RAND, B. Thixotropic changes occurring on reheating a coal tar pitch containing mesophase. *Carbon*, v. 16, p. 477-479, 1978.

- [57] WEISHAUPTOVÁ, Z.; MEDEK, J.; RADA, M. Relation between texture and rheological properties of mesophase pitch. *Fuel*, v. 73, p. 177-182, 1994.
- [58] FITZER, E.; KOMPALIK, D.; YUDATE, K. Rheological characteristics of coal-tar pitches. *Fuel*, v. 66, p. 1504-1511, 1987.
- [59] SAKAI, M.; INAGAKI, M. Determination of Viscoelastic properties of pitches by torsional creep, *Carbon*, v. 19, p. 37-41, 1981.
- [60] DAJI, J.; RAND, B.; TURPIN, M. Viscoelastic behaviour of a treated isotropic pitch. *Carbon*, v. 36, p. 1406-1409, 1998.
- [61] PY, X.; DAGUERRE, E.; GUILLOT, A.; SPINNER, B. Alpha-relaxation an isotropic petroleum pitch: a controlled stress and strain oscillatory rheometry study. *Carbon*, v. 35, p. 1013-1021, 1997.
- [62] KUNDU, S.; OGALE, A. Microstructural effects on the dynamic rheology of a discotic mesophase pitch. *Rheologica Acta*, v. 46, p. 1211-1222, 2007.
- [63] KUNDU, S.; OGALE, A. Rheostructural studies of a discotic mesophase pitch at processing flow conditions. *Rheologica Acta*, v. 49, p. 845-854, 2010.
- [64] EDIE D. D. The Effect of processing on the structure and properties of carbon fibers. *Carbon*, v. 36, p. 345-362, 1998.
- [65] AMERICAN SOCIETY FOR TESTING AND MATERIALS. ASTM D4312 – 95A: Standard test method for toluene-insoluble (TI) content of tar and pitch (short method). West Conshohocken, 2005.
- [66] FREITAS, L. C.; CASTRO, L. D. Correlations between quinoline and 1-methyl-2-pyrrolidinone insolubles in petroleum pitches. *Fuel*, v. 87, p. 2842-2845, 2008.
- [67] AMERICAN SOCIETY FOR TESTING AND MATERIALS. ASTM D2416 –84: Standard test method for coking value of tar and pitch. West Conshohocken, 2009.
- [68] PEREIRA, M. H. G.; CASTRO, L.; MICHEL, R. Investigating molecular masses formed during the heat treatment of petroleum pitches by mass spectrometry. *Chemistry & Chemical Technology*, v. 7, p. 131-139, 2013.

- [69] PRYZBILLA, L.; BRAND, J. D.; YOSHIMURA, K.; RADER, H. J.; MULLEN, K. MALDI-TOF Mass Spectrometry of Insoluble Giant Polycyclic Aromatic Hydrocarbons by a New Method of Sample Preparation. *Analytical Chemistry*, v. 72, p. 4591-4597, 2000.
- [70] CHWASTIAK, S.; LEWIS, R. T.; RUGGIERO, J.D. Quantitative determination of mesophase content in pitch. *Carbon*, v. 19, p. 357-363, 1981.
- [71] PEREIRA, M. H. G. Caracterização de Piches Precursores de Fibras de Carbono Obtidos a Partir de Óleos Pesados de Petróleo. Tese (Doutorado em Ciência e Tecnologia de Polímeros) – Instituto de Macromoléculas Professora Eloisa Mano, Universidade Federal do Rio de Janeiro, Rio de Janeiro, p. 246, 2013. Orientadores: Ricardo Cunha Michel e Luiz Depine de Castro.
- [72] PEREIRA, M. H. G. Análise Cromatográfica de Óleos Pesados de Petróleo. Dissertação (Mestrado em Ciência e Tecnologia de Polímeros) – Instituto de Macromoléculas Professora Eloisa Mano, Universidade Federal do Rio de Janeiro, Rio de Janeiro, p. 151, 2008. Orientadores: Ricardo Cunha Michel e Luiz Depine de Castro.