22. GASES, LIQUIDS AND AMORPHOUS COMPOUNDS

22.4-1 SMALL ANGLE X-RAY SCATTERING FROM COAL. By M.H. Reich, I.K. Snook and H.K. Wagenfeld, Department of Applied Physics, Royal Melbourne Institute of Technology, Melbourne, Victoria, Australia.

X-ray scattering from coal samples exhibit curvature when plotted on Guinier and Porod plots. This can be attributed to the polydispersity of the size and shape of the pores in the coal sample. Because of this, the determination of pore parameters cannot be undertaken using a Guinier or Porod analysis. The approach we have pursued is to model the size distribution of the pores using a Maxwellian distribution and best fit the data using three "extreme shapes" (spheres, ellipsoids of zero and infinite eccentricity). Along with knowledge of the absolute intensity of the scattering, these best fit distributions can be used to determine the approximate volume and surface area of the pores and as well as indicate the sensitivity of these values to assumptions about the pore shape.

22.4-2 SMALL-ANGLE SCATTERING OF POLY(SODIUM ASPARTATE) SOLUTIONS. By J. Plestil, Yu. Ostanevich, D. HlavatÁE, V. Saudek, Joint Institute for Nuclear Research, Dubna, USSR and Institute of Macromolecular Chemistry, Czechoslovak Academy of Sci., Prague 6, Czechoslovakia.

Aqueous solutions of poly(sodium aspartate) (concentration = 0.01-0.15 g/cm³) were studied by means of small-angle X-ray scattering. Scattering curves have a maximum, the position of which moves towards larger values of momentum transfer (q = (4n/A) sinθ/2) with increasing concentration. For the polyelectrolyte studied, the dependence of the maximum q on the concentration was found to be quadratic. The size of the scattering partner is about 3-4 nm, which is consistent with the results of other measurements. The scattering curves show a pronounced peak at small angles, which is attributed to the presence of a large number of small scattering objects. The peak is broadened, and its position is shifted to larger values of q as the concentration increases.

22.4-3 SAXS STUDY OF STRUCTURE OF SOME SNAKE TOXINS. By J.R. Beltran, A.F. Craievich, Y.P. Mascarenhas, Instituto de Física e Química, C.P. 369, 13580, São Carlos, S.P., Brazil and C.J. Laure, Faculdade de Medicina de Ribeirão Preto, 14010, Ribeirão Preto, S.P., Brazil.

Crotamine and crotoxin are neurotoxins isolated from the Brazilian snake Crotalus durissus terrificus. Crotamine is a polypeptide toxin, strongly basic (pH=10.3), with molecular weight of 3870 daltons. It is composed of 42 residues of 15 common amino acids including six half-cystines. It has a very high lysine (9 residues) and low arginine (2 residues) content. The N-terminal is tyrosine and the C-terminal glycine.

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