

## Self-diffusivity of a homologous series of ethylene glycols: Experimental measurements, relation with viscosity, correlation and prediction methods

José R. Ascenso<sup>1</sup>, Maria C. M. Sequeira<sup>1</sup>, Helena M. N. T. Avelino<sup>1,2</sup>, **Fernando J. P. Caetano**<sup>1,3\*</sup>, João M. N. A. Fareleira<sup>1</sup>

<sup>1</sup>Centro de Química Estrutural, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal

<sup>2</sup>Área Departamental de Engenharia Química, Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Lisboa, Portugal

<sup>3</sup>Departamento de Ciências e Tecnologia, Universidade Aberta, Lisboa, Portugal

\*fernando.caetano@uab.pt

This work reports the self-diffusivity measurements of liquid diethylene, triethylene and tetraethylene glycols from 293 K to 343 K by the PGSE-NMR technique. The dependence of the diffusion coefficients with both the temperature and the molecular mass of the oligomers for the interpretation of their local structure was studied.

The diffusivity results are interpreted by means of a Stokes-Einstein-Sutherland-type equation. The hydrodynamic radius, obtained directly from the self-diffusion coefficients, is compared with the van der Waals and the hard sphere radii [1].

The viscosity and density data needed for the radii calculation were recently published by this group [2]. This study is part of a programme of measurements of thermophysical properties, namely, viscosity, self-diffusivity and density, aiming to study the correlation of the transport properties of ethylene glycols [3]. Ultimately the work will involve the prediction of thermophysical properties of liquid PEGs.

### References

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