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L. Gemello, C. Plais, F. Augier, A. Cloupet, D.L. Marchisio

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# Hydrodynamics and bubble size in bubble columns: effects of contaminants and spargers.

L. Gemello<sup>a,b,\*</sup>, C. Plais<sup>a</sup>, F. Augier<sup>a</sup>, A. Cloupet<sup>a</sup>, D.L. Marchisio<sup>b</sup>

<sup>a</sup>*IFP Energies nouvelles, Rond-point de l'échangeur de Solaize, 69360 Solaize (69),  
France*

<sup>b</sup>*Dipartimento di Scienza Applicata e Tecnologia, Istituto di Ingegneria Chimica,  
Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino (TO), Italy*

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## Abstract

The simulation of bubble columns operating under the heterogeneous regime is an ambitious challenge, due to the difficulty of predicting accurately hydrodynamics and bubble size distributions, that requires experimental data for model validation. Gas fraction distributions, liquid and gas velocity profiles and bubble size distributions across bubble columns are deeply interconnected in these systems and only a comprehensive study allows the links between them to be understood. This work reports experimental data obtained by measuring bubble sizes with an innovative technique based on the cross correlation between two optical probes. Particular attention is given to the role of additives and impurities with a view to suppressing bubble coalescence. Initially experiments are carried out with demineralized water; subsequently they are repeated with tap water and adding small quantities of ethanol. Results show that contaminants and alcohol addition suppress bub-

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\*Corresponding author

*Email addresses:* [luca.gemello@polito.it](mailto:luca.gemello@polito.it) (L. Gemello), [cecile.plais@ifpen.fr](mailto:cecile.plais@ifpen.fr) (C. Plais), [frederic.augier@ifpen.fr](mailto:frederic.augier@ifpen.fr) (F. Augier), [ann.forret@ifpen.fr](mailto:ann.forret@ifpen.fr) (A. Cloupet), [daniele.marchisio@polito.it](mailto:daniele.marchisio@polito.it) (D.L. Marchisio)

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