the viscous properties of the base liquid only. Since the slip layer thickness must be related to the bubble size, knowledge of the bubble size distribution is clearly vital. Preliminary measurements (which are continuing) show that the slip layer thickness is well below the average bubble size, and compares with the diameters of the smallest bubbles present in any quantity (about the 10th percentile on diameter).

Conclusions

Rheometer experiments showed that the flow of fire-fighting foam can be modelled by a modifed Bingham Plastic system, with a liquid-rich slip layer at solid surfaces. The results from this model can be used to describe the flow of the same foam through pipes.

The consistency and flow behaviour index were found to be to a large extent independent of the flow rate and expansion ratio for the particular foams tested (although they could well be different for foams produced by other methods). The yield stress varied much more strongly with both flow rate and expansion ratio. This variation, it was concluded, must arise through differences in bubble size distribution.

The thickness of the slip layer depends on the expansion ratio and flow rate (bubble size distribution) of the foam, and also on the flow conditions. Further work is in progress on the relationship between slip layer thickness and bubble size.

The slip layer thickness dominates the pipe flow behaviour over this range of shear rates.

There is a change in foam properties at expansion ratios around 5 which is probably related to the change from a spherical to a polyhedral geometry.

Acknowledgements

The work was carried out in the Mechanical Engineering Department, University of Southampton, under a grant from the Science and Engineering Research Council. The foam generator was lent by the Department of the Environment, Fire Research Station, who also supplied foam concentrate.

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CALENDAR

ASME Winter Annual Meeting: International Symposium on Pressure and Temperature Measurement	30 November–5 December 1986 San Francisco, CA, USA	Dr J. H. Kim, Electric Power Research Institute, 3412 Hillview Avenue, PO Box 10412, Palo Alto, CA 94303, USA
Modern Industrial Liquid Mixing Technology	1–4 December 1986 The Hague, The Netherlands	The Center for Professional Advancement, Palestrinastraat 1, 1071 LC Amsterdam, The Netherlands
Australian Fluid Mechanics Conference	8–12 December 1986 Auckland, New Zealand	AFMC Conference Committee, c/o Dr P. S. Jackson, Dept of Mechanical Engineering, Auckland University, Private Bag, Auckland, New Zealand
10th BPMA Technical Conference on Pumps	24–26 March 1987 Cambridge, UK	BHRA Fluid Engineering Centre, Cranfield, Bedford MK43 0AJ, UK
Large Scale Applications of Heat Pumps	25–27 March 1987 Oxford, UK	BHRA Fluid Engineering Centre, Cranfield, Bedford MK43 0AJ, UK
11th International Conference on Fluid Sealing	8–10 April 1987 Cannes, France	BHRA Fluid Engineering Centre, Cranfield, Bedford MK43 0AJ, UK
International Meeting on Heat Transfer	13–17 April 1987 Lyon, France	Professor, J. F. Sacadura, INSA de Lyon, LMFT Bat. 302-20 Ave. Albert Einstein, 69621 Villeurbanne Cedex, France
International Conference on Flow Induced Vibrations	12–14 May 1987 Bowness-on-Windermere, UK	BHRA Fluid Engineering Centre, Cranfield, Bedford MK43 0AJ, UK
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Second International Conference on Laser Anemometry	21–23 September 1987 Glasgow, Scotland, UK	Dr S. M. Fraser, LDA Conference, Mechanical and Offshore Engineering, University of Strathclyde, Glasgow G1 1XJ, UK
International Symposium on Natural Circulation	15–20 November 1987 New York, NY, USA	Dr J. H. Kim, Electric Power Research Institute, PO Box 10412, Palo Alto, California 94303, USA