**A facility for the calibration of flow meters using LPG at near-boiling conditions**

**Simon Dignan1, Mark Ballico1, Salam Matalka1**

*National Measurement Institute of Australia, PO Box 264, Lindfield, NSW 2070, Australia*

[*Simon.Dignan@measurement.gov.au*](mailto:Simon.Dignan@measurement.gov.au)

Propane and Butane and transported and metered in liquid phase by ensuring a sufficiently high overpressure is maintained. However in real installations if the supply pipework passes through a higher temperature environment, the product is being dispensed into a lower pressure tank, or experiences strong turbulent flow conditions, the fluid may experience local boiling. NMI has recently developed a system for the calibration of flowmeters used for liquid Propane and Butane, under conditions of near boiling continuous flow. A simple homemade temperature controlled heat exchanger and a commercial continuous flow hot water system has been used to safely add up to 10 kW of heat to a branch of the NMI’s LPG flowmeter calibration facility, applying up to a 20°C rise to 25 L/min LPG flows. The use of the new system to perform OIML-R117 “bubble” tests is described and some preliminary results on the calibration of turbine and piston meters under low-backpressure cavitating or near-boiling conditions is presented.