


Short Communication

Re-realization of the NIS National Viscosity Scale and Its Range Extension up to 250,142 mm²/s

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Abstract

A wide-range viscosity standard system has generally been realized with capillary viscometers, which are calibrated by the stepping-up method on the basis of viscosity value of distilled water at 20 °C. As per recommendation of Bureau International des Poids et Mesures (BIPM), the national primary viscosity scale must be realized every 10 years. The present work is an attempt to re-realize the existing scale and extend it to from 70,000 to 250,142 mm²/s. This would enable NIS to calibrate different types of viscometers with the highest constant. The NIS viscosity scale was first realized in 2001 [[1](#)] using glass capillary viscometers in the range from 1 to 70,000 mm²/s. From the present calibration results of the NIS viscometers, the present scale is realized with an uncertainty of about 0.07 % at low viscosities (0.9 mm²/s) rising to about 0.25 % at higher viscosities (250,142 mm²/s).

Keywords

NIS viscosity scale – Reference liquids – Viscometers