The correction due to temperature influence for hydrocarbon turbine meter in calibration

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The hydrocarbon primary standard at NIM is introduced including the structure of facility, test medium, flow range and the accuracy of temperature control. At the beginning the meter calibration module is analysed and the existing results suggest the change of temperature influence the calibration results. On the base of principle of turbine meter the density and viscosity due to the change of temperature is considered to influence the calibration result. To evaluate and correct the influence above the measurement method of density and viscosity depending on temperature is established off line. The measurement results of density and viscosity is recorded as database to be applied during calibration process. The calibration result of turbine meter in different temperature is processed by least square method with both corrected and uncorrected results. By comparing the different results above the temperature influence on hydrocarbon is determined. The uncertainty evaluation suggests that the method in this paper is helpful to improve the uncertainty of calibration result for hydrocarbon turbine meter.