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Prediction of dew point temperature of natural gas using a radial basis function neural network

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When the temperature in a gas transporting pipeline drops below dew point temperature liquid starts to condense in pipelines resulting multiphase flow problems such as Impingement, Splashing, Cavitation & Flashing Erosion. For this reason, it's very important to be able to determine dew point temperature of gas accurately. Artificial Neural Networks have gained great interest of researchers in the area of gas properties prediction in the recent years. In the present study an intelligent radial basis function (RFB) network was used to predict the dew

point temperature of flowing gas inside pipelines. Results of proposed RFB network were compared with that of Equation of State (EOS) and empirical correlations. The recommended model has an average relative deviation of 1.06% and average absolute deviation of 2.78% for testing data points. Findings show that predicted dew point temperatures using RFB network model are more accurate than existing empirical correlations and EOS.

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