

Implementation of Standards for the Reporting of Measurement Uncertainty for the Worldwide Thermodynamics Community

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In 2008, the Editorial Boards of the *Journal of Chemical and Engineering Data*, *Fluid Phase Equilibria*, *The Journal of Chemical Thermodynamics*, *International Journal of Thermophysics*, and *Thermochimica Acta* agreed to implement simultaneously a process for handling of manuscripts that, for the first time, allowed detailed checking and validation of experimental thermophysical and thermochemical property data in advance of publication. These procedures are centered at the NIST Thermodynamics Research Center, where thousands of articles are considered each year, with very large numbers of problems detected and resolved. A key aspect of this work has been the development and implementation of practical and effective reporting standards for the field that promote clear and complete data representations that are in accord with international standards for uncertainty assessment and representation (i.e., with the "GUM"). Successes and challenges in the implementation of uncertainty standards will be discussed within the context of the thousands of articles considered in the NIST-Journal cooperation, together with new tools and recommendations for further improvement.