IAPWS Certified Research Need
ICRN #13

Surface Tension of Aqueous Solutions

ICRN Issue Date: September 1998 (F.Sigon, F.Gabrielli)
extended to July 2005

Closing Statement

Background

The primary objective of this ICRN was to study the surface tension of a concentrated ammonia-water mixture that would be used as a binary fluid in a power plant cycle (Kalina cycle). At the time that this ICRN was proposed, industrial research and development work on the Kalina cycle had already begun with respect to thermodynamic properties, materials requirements, corrosion potential, etc. Surface tension of these mixtures was an important parameter to quantify but not as critical as other parameters as for example heat capacity to the design development of this power cycle. By the time that some resources could be devoted to pursuing the study of this parameter, the active development (and funding) by industrial organizations of the Kalina power plant cycle was for all practical purposes terminated since it did not prove to be cost effective when compared to the water/steam cycle.

Conclusion

As a consequence, this ICRN is no longer of significant interest.

References

1. I.A. McLure, A.Yu. Petrov, D.H. Gordon, M. Ball and R.B. Dooley. “Interfacial Behavior at Above-Ambient Temperatures of Ionic and Non-ionic Aqueous Solutions Important in Boiler Water Chemical Conditioning”.
   Sixth International Conference on Fossil Plant Cycle Chemistry. Columbus, Ohio. June 2000.
   Also published in Power Plant Chemistry, 2003, 4(3), pp139-146.

2. IAPWS Certified Research Need ICRN #22. "Steam Chemistry in the Turbine Phase-Transition Zone"

Frank Gabrielli
August 2011.