Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics


# Eutectic Melting in Metal Borohydrides

*Mark Paskevicius*[1*], *Morten B. Ley*[1,2], *Drew A. Sheppard*[1], *Torben R. Jensen*[2], *Craig E. Buckley*[1]

[1] Department of Imaging and Applied Physics, Curtin University, GPO Box U1987, Perth, 6845 WA, Australia

[2] Interdisciplinary Nanoscience Center (iNANO) and Department of Chemistry, University of Aarhus, DK-800, Denmark

**Supplementary Information**

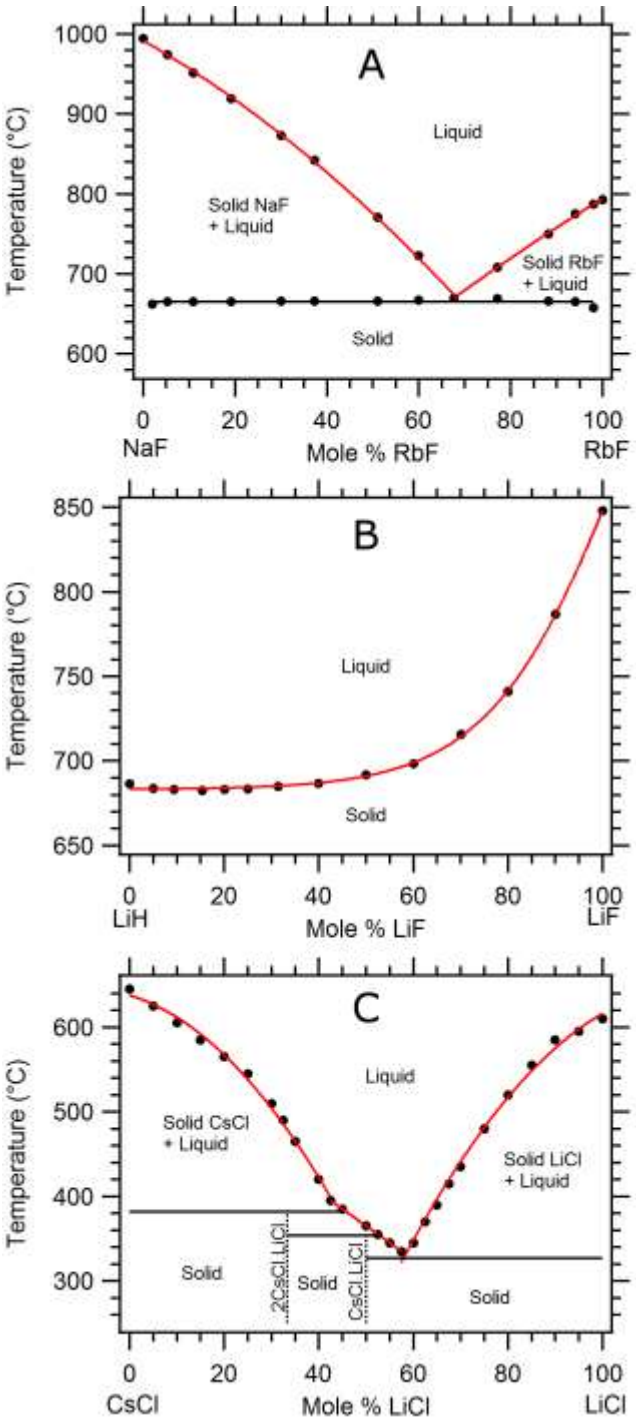


Figure S1: Phase diagrams for binary mixtures including A) the NaF-RbF eutectic system [1], B) the LiH-LiF solid solution system [2], and C) the CsCl-LiCl eutectic system affected by the presence of double salts [3].

Table S1: Physical data for relevant compounds [4-6].

| Compound | Melting Point (°C) | Viscosity (mPa.s) | Surface Tension (mN/m) |
|---|---|---|---|
| NaCl | 800.7 | 1.4 | 112.3 (827 °C) |
| $CaCl_2$ | 775 | 4.4 | 146.4 (787 °C) |
| NaCl-$CaCl_2$ (0.48:0.52) | 500 | 6.7 | 142.5 (507 °C) |
| Water | 0 | 0.9 | 72.0 (25 °C) |
| $SiCl_4$ | -68.7 | 99.4 | 18.3 (25 °C) |
| Glycerol | 18.1 | 934 | 62.5 (25 °C) |
| Hg | -38.8 | 1.5 | 485.5 (25 °C) |
| Al | 660.5 | 1.2 | 868 (m.p.) |

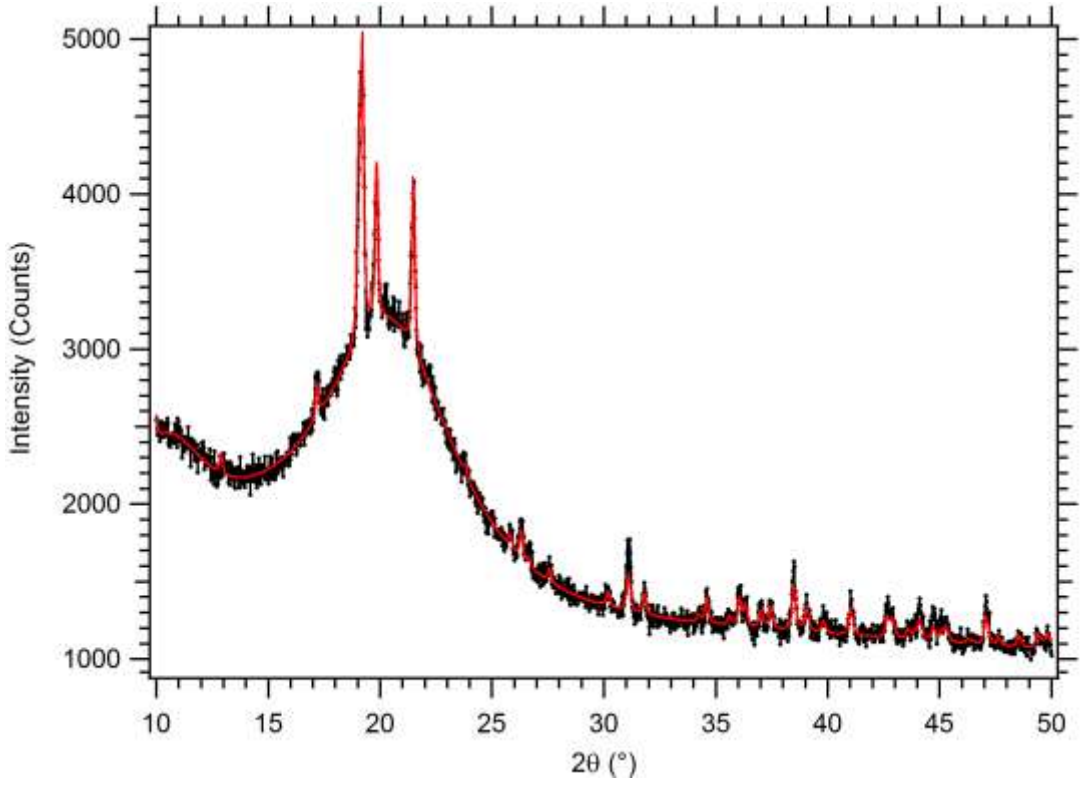


Figure S2: X-ray diffraction pattern of as-synthesised $Mn(BH_4)_2$. The red line illustrates the fit to the data and all fitted peaks are from $Mn(BH_4)_2$. The two humps in the data are from the XRD sample holder.

**References:**

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(4) Janz, G. J.; Allen, C. B.; Bansal, N. P.; Murphy, R. M.; Tomkins, R. P. T. *National Bureau of Standards* **1979**, *NSRDS-NBS 61, Part II*.
(5) *CRC Handbook of Chemistry and Physics*; 88th ed.; Lide, D. R., Ed.; CRC Press: Boca Raton, FL, 2008.
(6) Habashi, F. *Handbook of Extractive Metallurgy, Volume 2*; WILEY-VCH: Heidelberg, Germany, 1997.