PCM-Screening: database development and screening of eutectics for high temperature applications

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The PCM-Screening project aims at identifying suitable energy storage materials by exploring the enhanced heat storage potential of Phase Change Materials. Last year we presented a feasible model (non-ideal associates) for the liquid-aqueous phase that allowed identification of low temperature binary eutectic transitions (below 100°C) with FactSage. At this GTT Users' Meeting of 2019, we report on the development of the water-free Na^+, K^+, Ca^{2+} // NO^{3-}, Cl^- salt system for high temperature applications. Moreover, we show a quick and efficient method for screening of eutectics in multicomponent systems with the help of the ChemApp thermochemical library. Preliminary results show eutectic transitions at a wide temperature range, between 100 and 800°C (Fig. 1).

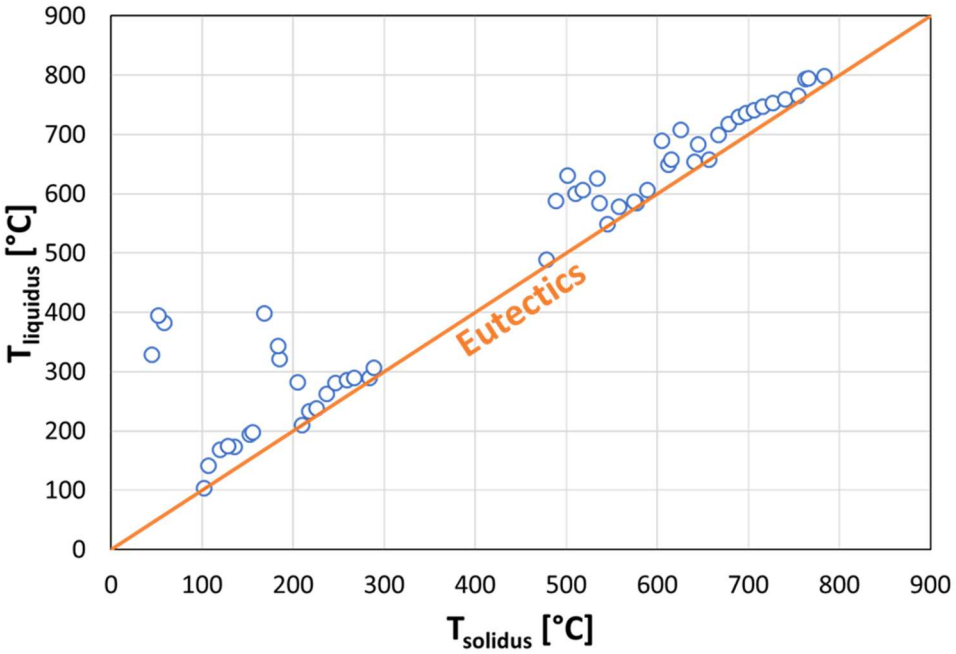

Fig. 1 Preliminary screening of eutectics in the multicomponent Na^+, K^+, Ca^{2+} // NO^{3-}, Cl^- salt system.

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