

Surface Tension of the System NaF–AlF₃–Al₂O₃ and Surface Adsorption of Al₂O₃

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Z. Naturforsch. **61a**, 389 – 398 (2006); received May 9, 2006

Part of the molten system NaF–AlF₃–Al₂O₃ was studied by surface tension measurements, which were performed at cryolite ratios (*CR*) between 1.5 and 3 [*CR* = *n*(NaF)/*n*(AlF₃)]. The maximal bubble pressure method was applied. The surface adsorption of alumina (Al₂O₃) was also calculated. The obtained results were discussed in terms of the anionic composition of the melt. The addition of AlF₃ to melt with *CR* = 3 decreases the surface tension, as AlF₃ is surface-active in molten Na₃AlF₆. The concentration dependence of the surface tension and the surface adsorption of alumina in the title system are influenced by the formation of surface-active oxofluoroaluminates. An increase of the difference between the surface tension of NaF–AlF₃ mixtures and the surface tension of pure alumina was observed with decreasing cryolite ratio.

Key words: Maximal Bubble Pressure Method; Surface Activity; Ionic Entities; Cryolite Melts; Alumina.