

^{27}Al NMR Spectra of the $\text{RECl}_3\text{--AlCl}_3$ (RE = Y, La) Glasses and Melts

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^{27}Al NMR spectra of pure crystalline and molten AlCl_3 and of $\text{RECl}_3\text{--AlCl}_3$ (RE = Y, La) glass forming binary mixtures have been obtained. Compositions corresponding mainly to $\text{YCl}_3/\text{AlCl}_3 = 1/3$ and $\text{LaCl}_3/\text{AlCl}_3 = 1/3.7$ have been studied from the glassy and crystalline state up to the melt. The ^{27}Al spectra can be unambiguously assigned to four-coordinated Al-species, such as Al_2Cl_6 , ' AlCl_4 ', and ' Al_2Cl_7 '. The chemical shifts lie between 95 and 110 ppm, very well separated with the -1.6 ppm given by the ' AlCl_6 ' coordination in solid AlCl_3 . From the temperature evolution of the ^{27}Al NMR spectra, a description for the dynamic behaviour of these systems is proposed.

Key words: ^{27}Al MAS NMR; $\text{RECl}_3\text{--AlCl}_3$; Glass Forming Melts; Structure; Dynamics.