

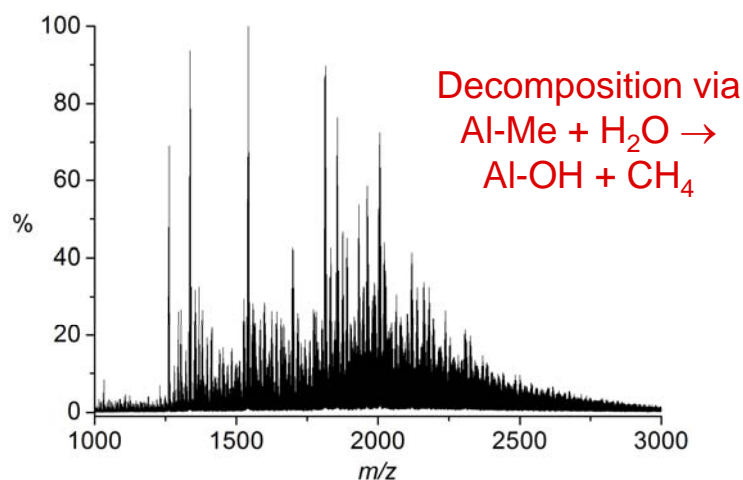


MAO speciation by electrospray ionization mass spectrometry

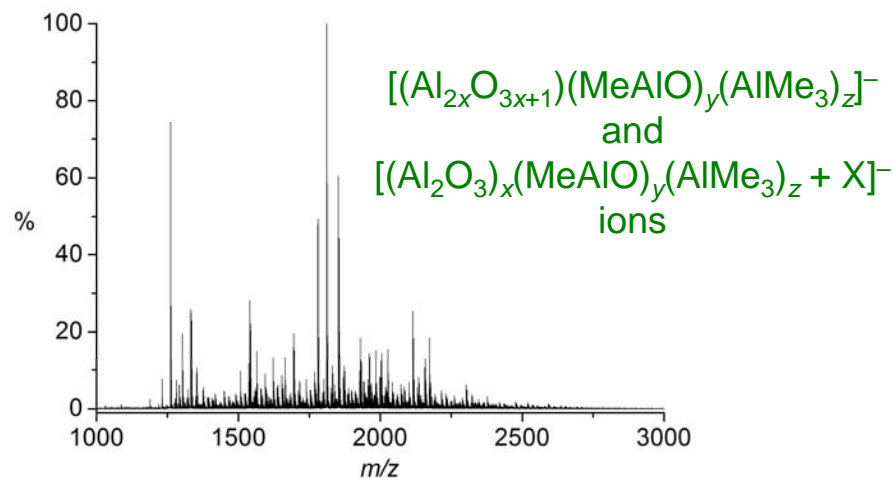
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ESI-MS analysis of methylaluminoxane (MAO, an activator for olefin polymerization catalysts) under anaerobic conditions (adjacent glovebox and custom-built pressurized source) in non-polar solvents permits the characterization of a host of charged oligomers:



Spectra are complex, intractable, much decomposition



Spectra are simple, assignable, little decomposition

Compositional information is obtained from a combination of m/z ratio, isotope pattern and chemical intuition. All ions observed by ESI-MS fall in the range $[\text{Me}_{1.27-1.59}\text{AlO}_{0.73-0.88}]_n$, consistent with previous proton NMR studies. Two general formulae for the observed ions were established, and the most common decomposition route for these species (see figures, above).

The work has given us valuable insights into the most important species in this complex mixture, and offers a new mechanism by which the preparation of new MAO-related activators can be optimized.