Thermal Decomposition of Ti Precursors in Gas Phase - J.S. Heo, Y.S. Cho, J.C. Kim, and S.H. Moon (Seoul National University)

The gas-phase thermal decomposition of Ti compounds, used as precursors for Ba-Sr-Ti oxide films, was investigated using infrared spectroscopy. Ti precursors studied were $Ti(O\text{-}iPr)_2(dpm)_2$ (dpm = 2,2,6,6-tetramethyl-3,5-heptanedionate), $Ti(mpd)(dpm)_2$ (mpd = 2-methyl-2,4-pentanedioxy) and $Ti(2meip)_2$ (2meip = 4(2-methylethoxy)imino-2-pentanoate). During the vaporization of the precursors, tert-butyl groups of the dpm ligand were dissociated, the dpm ligand ring of $Ti(O\text{-}iPr)_2(dpm)_2$ and $Ti(mpd)(dpm)_2$ was opened, and alkoxy groups of $Ti(2meip)_2$ were dissociated. In Ar atmosphere, the dpm ligand was decomposed following the decomposition of other ligands such as isopropoxide, mpd, and alkoxy group.