SYRACUSE UNIVERSITY

TECHNOLOGY TRANSFER AND INDUSTRIAL DEVELOPMENT

New MOCVD Precursors Avoid Low Volatility, Oligomerization

Novel compounds vaporize at low pressure, temperatures

Metal-organic chemical vapor deposition using earth and rare earth metal precursors often results in oligomerization, leading to low volatility. This can have detrimental effects on the properties of the CVD product.

A new generation of such precursors, created in the Ruhlandt-Senge lab, addresses this problem with novel monometallic alkaline earths (Ae) and lanthanides (Ln) as well as hetero-bimetallics that contain Ae, Ln and alkali metals. The resulting complexes show improved volatility and vaporize at relatively low temperature and atmospheric pressure.

Other advantages include minimal solid residue, improved thermal stability and ease of handling. The complexes are also non-pyrophoric and require significantly less energy in the CVD process. These can be important benefits in some commercial applications.

Applications for this new technology are anticipated in semiconductors, microprocessors, superconductors, photodetectors, ferroelectric data storage and lasers. The research is funded in part by a National Science Foundation special creativity award.

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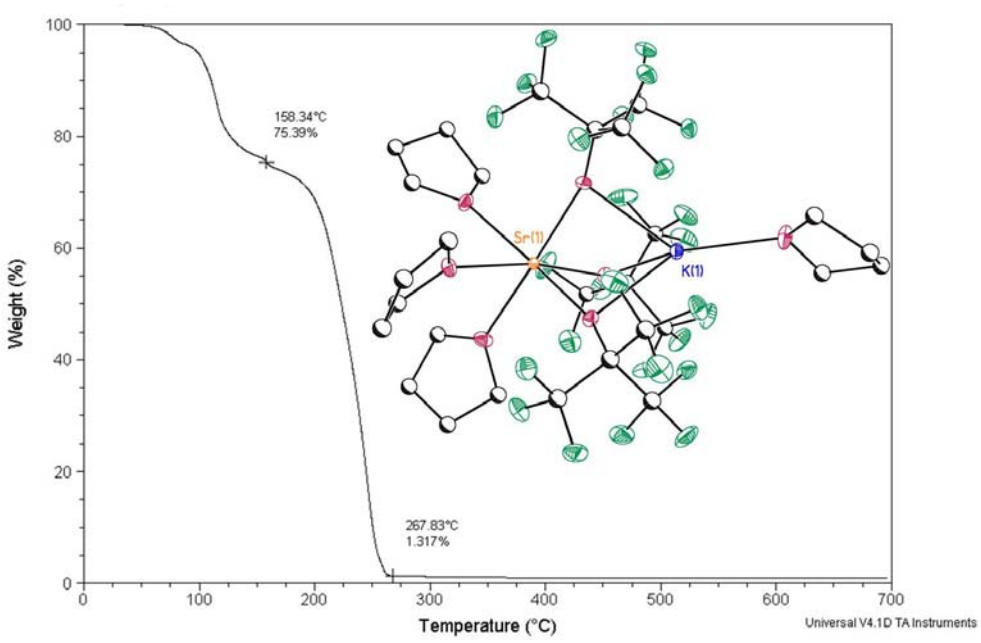

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