# Trioxorhenium(VII) Complexes with Imidazolin-2-iminato Ligands

Matthias Tamm, Stephan Beer, and Eberhardt Herdtweck

Lehrstuhl für Anorganische Chemie, Department Chemie der Technischen Universität München, Lichtenbergstr. 4, D-85747 Garching bei München, Germany

Reprint requests to Prof. Dr. M. Tamm. Fax: +49 (0)89-289-13473.
E-mail: matthias.tamm@ch.tum.de

Z. Naturforsch. **59b,** 1497 – 1504 (2004); received August 26, 2004

*Dedicated to Professor Hubert Schmidbaur on the occasion of his 70th birthday*

The Staudinger reaction of the *N*-heterocyclic carbenes 1,3-di-*tert*-butylimidazolin-2-ylidene (**1a**), 1,3-dimesitylimidazolin-2-ylidene (**1b**) and 1,3-diisopropyl-4,5-dimethylimidazolin-2-ylidene (**1c**) with trimethylsilyl azide in boiling toluene furnishes the corresponding 2-(trimethylsilylimino)imidazolines **2a – c**. Treatment of $Re_2O_7$ with a twofold excess of these *N*-silylated imines results in the formation of the imidazolin-2-iminato trioxorhenium(VII) complexes **3a – c** and hexamethyldisiloxane, $Me_3SiOSiMe_3$. The molecular structures of **2a**, **3a** and **3b** are reported. In addition, the X-ray crystal structure determination of complex **3c** · $H_2O$ is presented, which has formed by hydrolysis and cleavage of the metal-nitrogen bond in **3c**. **3c** · $H_2O$ consists of 2-aminoimidazolium cations and tetraoxorhenate(VII) anions, which are linked by N–H –O hydrogen bonds.

*Key words:* Carbenes, Imidazolin-2-ylidenes, Imido Ligands, Imidazolin-2-iminato Complexes, Rhenium