

Synthesis and characterization of unusual oxidorhenium(V) cores

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Abstract: Reactions of $(\text{NBu}_4)[\text{ReOCl}_4]$ with N-(N'', N''-dialkylaminothiocarbonyl)-N'-(2-hydroxyphenyl)benzamidines (H_2L^1) give complexes of the compositions $[\text{ReOCl}(\text{L}^1)]$ (1), $\text{cis}-[\text{ReO}(\text{L}^1)(\text{OMe})]$ (2), or $\text{cis,cis}-[\{\text{ReO}(\text{L}^1)\}_2\text{O}]$ (3) depending on the conditions applied. Compound 3 contains a bridging oxygen atom in the cis position to the terminal oxido ligands of both rhenium atoms. The analogous dimeric, sulfur-bridged compound $[\{\text{ReO}(\text{L}^1)\}_2\text{S}]$ (4) was obtained by the reaction of 1 with Na_2S . Complexes with the unusual oxidorhenium(V) cores, $\text{cis}-\{\text{ReO}(\text{OR})\}^{3+}$, $\text{cis,cis}-\{\text{ORe-O-ReO}\}^{4+}$, and $\text{cis,cis}-\{\text{ORe-S-ReO}\}^{4+}$, are formed from the reaction of $[\text{ReOCl}_4]^-$ and N-(N'',N''-dialkylaminothiocarbonyl)-N'-(2-hydroxyphenyl)benzamidine ligands depending on the conditions applied. Copyright © 2011 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

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References:

- Abram, U., Rhenium (2003) Comprehensive Coordination Chemistry II, 5, p. 271. , Eds.: J. A. McCleverty, T. J. Mayer Elsevier, Amsterdam, The Netherlands
- Paulo, A., Domingos, A., Marcalo, J., Pires De Matos, A., Santos, I., (1995) Inorg. Chem., 34, p. 2113
- Braband, H., Blatt, O., Abram, U., (2006) Z. Anorg. Allg. Chem., 632, p. 2251

- Cambridge Structural Database, , version 5.31, 2009, The Cambridge Crystallographic Data Centre, Cambridge, U. K
- Paulo, A., Ascenso, J., Domingos, A., Galvao, A., Santos, I., (1989) *J. Chem. Soc., Dalton Trans.*, p. 1293
- Che, C.-M., Wang, Y.-P., Yeung, K.-S., Yin Wong, K., Ming Peng, S., (1992) *J. Chem. Soc., Dalton Trans.*, p. 2675
- Seisenbaeva, G.A., Shevelkov, A.V., Tegenfeldt, J., Kloos, L., Drobot, D.V., Kessler, V.G., (2001) *J. Chem. Soc., Dalton Trans.*, p. 2762
- Nunes, D., Domingos, A., Paulo, A., Pombeiro, A.J.L., (1998) *Inorg. Chim. Acta*, 271, p. 65. , M. F. N. N. Carvalho
- Correia, J.D.C., Domingos, A., Santos, I., Bolzati, C., Refosco, F., Tisato, F., (2001) *Inorg. Chim. Acta*, 315, p. 213
- Kessler, V.G., Seisenbaeva, G.A., Shevelkov, A.V., Khvorykh, G.V., (1995) *J. Chem. Soc., Chem. Commun.*, p. 1779
- Jacob, J., Guzei, I.A., Espenson, J.H., (1999) *Inorg. Chem.*, 38, p. 3266
- Herrmann, W.A., Jung, K.A., Herdtweck, E., (1989) *Chem. Ber.*, 122, p. 2041
- Cai, S., Hoffmann, D.M., Wierda, D.A., (1991) *Inorg. Chem.*, 30, p. 827
- Kuhn, B., Abram, U., (2008) *Z. Anorg. Allg. Chem.*, 634, p. 2982
- Hartung, J., Weber, G., Beyer, L., Szargan, R., (1985) *Z. Anorg. Allg. Chem.*, 523, p. 153
- Del Campo, R., Criado, J.J., Garcia, E., Hermosa, M.R., Jimenez-Sanchez, A., Manzano, J.L., Monte, E., Sanz, F., (2002) *J. Inorg. Biochem.*, 89, p. 74
- Hernandez, W., Spodine, E., Richter, R., Hallmeier, K.-H., Schröder, U., Beyer, L., (2003) *Z. Anorg. Allg. Chem.*, 629, p. 2559
- Schröder, U., Richter, R., Beyer, L., Angulo-Cornejo, J., Lino-Pacheco, M., Guillen, A., (2003) *Z. Anorg. Allg. Chem.*, 629, p. 1051
- Nguyen, H.H., Grewe, J., Schroer, J., Kuhn, B., Abram, U., (2008) *Inorg. Chem.*, 47, p. 5136
- Nguyen, H.H., Abram, U., (2009) *Polyhedron*, 8, p. 3945
- Nguyen, H.H., Da Maia, P.I.S., Deflon, V.M., Abram, U., (2009) *Inorg. Chem.*, 48, p. 25
- Nguyen, H.H., Deflon, V.M., Abram, U., (2009) *Eur. J. Inorg. Chem.*, 21, p. 3179
- Nguyen, H.H., Jegathesh, J.J., Da Maia, P.I.S., Deflon, V.M., Gust, R., Bergemann, S., Abram, U., (2009) *Inorg. Chem.*, 48, p. 9356
- Hansen, L., Alessio, E., Iwamoto, M., Marzilli, P.A., Marzilli, L.G., (1995) *Inorg. Chim. Acta*, 240, p. 413
- Johnson, N.P., Taha, F.I.M., Wilkinson, G., (1964) *J. Chem. Soc.*, p. 2614
- Brandenburg, K., Putz, H., DIAMOND - A Program for the Visualization of Molecular Structures, Vers. 3.2
- Abram, S., Abram, U., Schulz Lang, E., Strähle, J., (1995) *Acta Crystallogr., Sect. C*, 51, p. 1078. , references cited therein
- Alberto, R., Schibli, R., Egli, A., Schubiger, P.A., Herrmann, W.A., Artus, G., Abram, U., Kaden, T., (1995) *J. Organomet. Chem.*, 217, p. 492
- Sheldrick, G.M., (1997) SHELXS-97 and SHELXL-97, Programs for the Solution and Refinement of Crystal Structures, , University of Göttingen, Göttingen, Germany