



>>Entry Name: Di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]dirhodium, 10Cl, 9Cl

CAS Registry Number: 12354-85-7

Extra CAS Registry Numbers(s): 83377-35-9

As Di-μ-bromodibromobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]dirhodium, GKF77-E with
X = Cl

Molecular Formula: C₂₀H₃₀Cl₄Rh₂

Molecular Weight: 618.079

Accurate Mass: 615.921158

Percentage Composition: C 38.87%; H 4.89%; Cl 22.94%; Rh 33.30%

General Statement: Chloride ligands readily undergo metathesis with anionic ligands e.g. Br⁽⁻⁾, I⁽⁻⁾

Source/Synthesis: Synth. from RhCl₃.xH₂O + C₅Me₅H in MeOH under reflux for 48h

Use/Importance: Catalyst for hydrogenation of alkenes, alkynes, dienes, arenes, ArNO₂, for the hydrosilylation of alkenes; catalyses Cannizzaro reaction of aldehydes, and oxidn. of THF to butyrolactone. Starting material for pentamethylcyclopentadienylrhodium compds.

Physical Description: Air-stable red cryst. (CHCl₃/hexane)

Melting Point: Mp 300°

Solubility: Sol. chlorinated solvs.; mod. sol. H₂O; spar. sol. Me₂CO, MeOH

NMR Spectra: Pmr 1.60 (C₅Me₅) ppm (in CDCl₃)

Aldrich: 33837-0

References:

- Aldrich Library of 13C and 1H FT NMR Spectra*, 1992, **3**, 776B, (nmr)
Kang, J.W. *et al.*, *J.A.C.S.*, 1969, **91**, 5970-5977, (synth, pmr)
Booth, B.L. *et al.*, *J.C.S.(A)*, 1969, 1299-1303, (synth, ms, uv, ir, pmr)
White, C. *et al.*, *J.C.S. Dalton*, 1973, 1901-1907, (use, hydrogenation of alkenes)
Russell, M.J. *et al.*, *Chem. Comm.*, 1977, 427-428, (use, hydrogenation of arenes)
Churchill, M.R. *et al.*, *Inorg. Chem.*, 1977, **16**, 1137-1141, (cryst struct)
Maitlis, P.M., *Acc. Chem. Res.*, 1978, **11**, 301-307, (use, hydrogenation of alkenes)
Gill, D.S. *et al.*, *J.C.S. Dalton*, 1978, 617-626, (use, hydrogenation)
Maitlis, P.M., *Adv. Chem. Ser.*, 1979, **173**, 31, (use, hydrogenation of arenes)
Gill, D.S. *et al.*, *J. Magn. Reson.*, 1979, **35**, 459-461, (Rh-103 nmr)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1980, **8**, 152, (use)
Millan, A. *et al.*, *Chem. Comm.*, 1981, 673-674, (use, hydrosilylation of alkenes)
Maitlis, P.M. *et al.*, *Chem. Soc. Rev.*, 1981, **10**, 1-48, (rev)
Hirai, K. *et al.*, *J. Mol. Catal.*, 1981, **10**, 203-211, (use, oxidn of THF)
Cook, J. *et al.*, *J.C.S. Dalton*, 1981, 2342-2352, (use, Cannizzaro reaction)
Dickson, R.S., *Homogeneous Catalysis with Compounds of Rhodium and Iridium*, Kluwer, 1985, (use, hydrosilylation of alkenes)
Cloke, F.G.N. *et al.*, *J. Organomet. Chem.*, 1989, **372**, 231-249, (ms)
Inorg. Synth., 1992, **29**, 228-234, (synth, pmr, props)
Bailey, P.J. *et al.*, *J.C.S. Dalton*, 1996, 2839-2841, (monomer formn)
Synthetic Methods of Organometallic and Inorganic Chemistry, (ed. Hermann, W.A.), Thieme, 1996, **1**, 148-149, (synth, ir, pmr)
Davenport, A.J. *et al.*, *Chem. Comm.*, 1997, 2347-2348, (monomer formn)