



>>Entry Name: **Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]dirhodium**, 12Cl, 11Cl, 10Cl, 9Cl

Synonym(s): Bis(1,5-cyclooctadiene-μ-chlororhodium)

CAS Registry Number: 12092-47-6

As Di-μ-bromobis[(1,2,5,6-η)-1,5-cyclooctadiene]dirhodium, [GKX53-G](#) with
X = Cl

Molecular Formula: C₁₆H₂₄Cl₂Rh₂

Molecular Weight: 493.082

Accurate Mass: 491.936504

Percentage Composition: C 38.97%; H 4.91%; Cl 14.38%; Rh 41.74%

Source/Synthesis: Synth. from RhCl₃.xH₂O + Na₂CO₃.10H₂O + C₈H₁₂ in EtOH aq. (5:1) either under reflux for 18h or, without Na₂CO₃.10H₂O, in a microwave oven for 35s. Also commercially available

Use/Importance: Useful catalyst precursor for asymmetric hydrogenation of olefins (in the presence of a chiral phosphine). Catalyses the reduction of benzal acetone with CO and H₂O; catalyst for CO oxidn.; catalyst precursor for MeOH carbonylation (iodo analogue behaves similarly); co-catalyst for enantioselective hydroboration; catalyses hydrosilylation, hydrogermylation of alkynes; (enantioselective) hydroformylation of alkenes; hydrosilylation of imines; co-catalyst for asymmetric transfer hydrogenation of ketones with PrⁱOH; catalyses reductive amination of aldehydes; redn. of C=C of enones using CO/H₂O via the water gas shift reaction; catalyst for isom. of strained ring compds.; for isom. of allyl alcohols to carbonyl compds.; for butadiene polym.

Physical Description: Orange cryst. (AcOH or CH₂Cl₂/Et₂O)

Melting Point: Mp 256°

Solubility: Sol. CH₂Cl₂, CHCl₃, spar. sol. Me₂CO; insol. Et₂O, pentane

Aldrich: 22795-1

Fluka: 14692

>>Derivative: 2:1 Inclusion compd. with β-cyclodextrin

CAS Registry Number: 107015-89-4

Molecular Formula: C₁₀₀H₁₇₂Cl₂O₇₂Rh₂

Molecular Weight: 2803.132

Percentage Composition: C 42.85%; H 6.18%; Cl 2.53%; O 41.10%; Rh 7.34%

Source/Synthesis: Synth. from [Rh(cod)Cl]₂ + sat. aq. β-cyclodextrin at 40°

Physical Description: Air-stable pale yellow cryst. (H₂O)

Melting Point: Mp 275-280 dec.°

Solubility: Sol. H₂O, HOCH₂CH₂OH, DMSO, DMF

>>Derivative: 2:1 Inclusion compd. with γ-cyclodextrin

Molecular Formula: C₁₀₀H₁₇₂Cl₂O₇₂Rh₂

Molecular Weight: 2803.132

Percentage Composition: C 42.85%; H 6.18%; Cl 2.53%; O 41.10%; Rh 7.34%

Source/Synthesis: Synth. from [Rh(cod)Cl]₂ + sat. aq. γ-cyclodextrin at 40°

Physical Description: Air-stable pale yellow cryst. (H₂O)

Melting Point: Mp 260-270 dec.°

Solubility: Sol. H₂O, HOCH₂CH₂OH, DMSO, DMF

References: