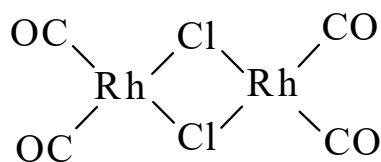




>>Entry Name: Tetracarbonyldi-μ-chlorodirhodium, 12Cl, 11Cl, 10Cl, 9Cl
Synonym(s): Bis(chlorodicarbonylrhodium). Dicarbonylchlororhodium dimer



CAS Registry Number: 14523-22-9

BA0275 BA0290 BA0440 BA0360 BA0295 BA0340 BA0330

Molecular Formula: C₄Cl₂O₄Rh₂

Molecular Weight: 388.758

Accurate Mass: 387.728364

Percentage Composition: C 12.36%; Cl 18.24%; O 16.46%; Rh 52.94%

Source/Synthesis: Synth. from RhCl₃·xH₂O with CO at 100° or adsorbed onto SiO₂ under CO for 24h

Use/Importance: Catalyst for strained hydrocarbon rearrangements and alkene hydroformylation. Starting material for Rh^I carbonyl compds. Carbonylates 2-aryl azirines to isocyanates under mild conditions. Catalyses carbonylation of small, strained rings; cyclopropenes → α-pyrones, phenols; aziridines → β-lactams; cyclopropane → cyclobutanone and dipropyl ketone; catalyses carbonylation of organomercury compds., RHgX to symmetric ketones R₂CO; catalyses carbonylation of amines to give formamides and ureas, with added PMe₃ the formamide is the major product; catalyst for carbonylation of nitrosoarenes/2-aryl azirines to isocyanates, PhNO₂ → PhNCO; catalyses carbonylation of alcohols, MeOH → AcOH. Reacts with arene oxides to give mixt. of arenes and phenols, depending on solv.; arene oxides which cannot be converted to phenols are deoxygenated completely. Catalyst for homocoupling of aryl, vinyl mercury compds. Catalyst for isom. of secondary allyl alcohols (→ ketones), allyl amines and allyl aromatics under phase transfer conditions. Catalyst for isom. rearrangement of strained/small ring compds., especially cyclopropanes; catalyses isom. of bicyclo[2.1.0]pentane to cyclopentene, also bicyclobutanes, quadricyclane. Catalyses acetalisation of α,β-unsatd. aldehydes. Catalyses isom. of epoxides and rearrangement of vinyl epoxides. In HOAc/HCl/NaI, catalyses water gas shift reaction; catalyst for polym. of alkenes, polym./oligomerisation of allenes. Catalyst precursor, with PPh₃, for alkene hydroformylation; catalyst for alkene hydrosilylation; for alkyne hydrogenation with some selectivity for *cis*-alkenes; for redn. of the terminal double bond of 1,3-dienes; for redn. of ArNO₂ to ArNH₂ under biphasic conditions. In presence of R₃N/CO, catalyst for redn. of α,β-unsaturated aldehydes to allylic alcohols. Effects catalytic decarbonylation of aldehydes at high temp.

Physical Description: Red needles (hexane). Stable in dry air but moisture-sensitive. Solns. dec. slowly in air

Melting Point: Mp 126.5-127° (124-125°)

Boiling Point: Subl._{0.1} 80°

Solubility: V. sol. org. solv.

Aldrich: 20903-1

Fluka: 36095

References: