

**Conversion of Cyclo-octa-1,5-diene into 2,6-Diacetoxycyclo[3,3,0]octane
by Palladium(II) Chloride–Lead Tetra-Acetate in Acetic Acid; X-Ray
Determination of the Structure of the Product**

By PATRICK M. HENRY,* MURIEL DAVIES, GEORGE FERGUSON, SUSAN PHILLIPS and ROD RESTIVO
(Department of Chemistry, University of Guelph, Guelph, Ontario, N1G 2W1, Canada)

Summary Oxidation of cyclo-octa-1,5-diene by PdCl₂–Pb(OAc)₄ in acetic acid gave as main product a 2,6-diacetoxycyclo[3,3,0]octane which X-ray crystal analysis showed to be exclusively the di-*endo*-isomer.

PALLADIUM(II) salts alone in acetic acid oxidize monoolefins to vinyl or allylic acetates.¹ However, addition of certain oxidants to the reaction mixture changes the products to saturated diacetates.² We have now found that a

mixture of PdCl₂ and Pb(OAc)₄ in HOAc converts cyclo-octa-1,5-diene into the 2,6-diacetoxycyclo[3,3,0]octane. Further, only one of six possible isomers are formed.

Cyclo-octa-1,5-diene was treated for 24 h with catalytic amounts of PdCl₂ (0.04 mol. equiv.) in the presence of Pb(OAc)₄ (1 M) in acetic acid at 25°. The main product (*ca.* 70%) was a solid, m.p. 36°. Its n.m.r. spectrum was consistent with a bicyclic saturated diacetate. The ester was hydrolysed and the alcohol converted into its diphenyl-

