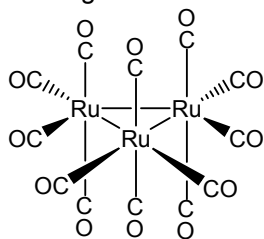


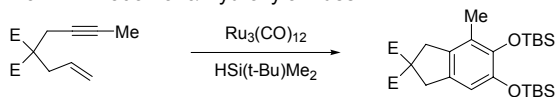
Catalog # 44-1850

Ruthenium carbonyl, 99%

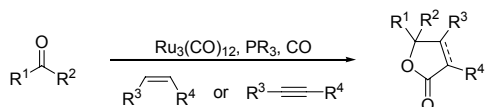


Technical Notes:

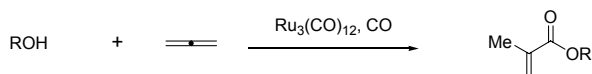
1. Catalyst for the conversion of enynes to catechol derivatives.
2. Catalyst for the intermolecular [2+2+1] cycloaddition of ketones, CO and alkenes or alkynes.
3. 3-Component couplings.
4. Reaction of  $\alpha,\beta$ -unsaturated imines with carbon monoxide and alkenes to form  $\beta,\gamma$ -unsaturated  $\gamma$ -butyroctams.
5. Ester decarboxylation.
6. Catalyst for hydroamination and C-H bond activation.
7. Used in  $sp^3$  C-H bond arylation<sup>7</sup> and carbonylation.<sup>9</sup>
8. Ru/halide catalytic system for C-C bond forming reaction between alkynes and unsaturated carbonyl compounds.
9. Amination of  $\alpha$ -hydroxy amides.



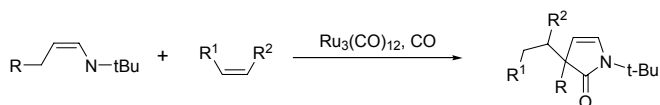
**Tech. Note (1)**  
**Ref. (1)**



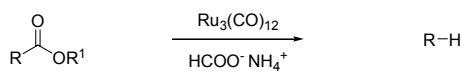
**Tech. Note (2)**  
**Ref. (2)**



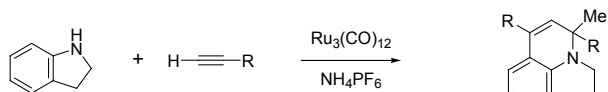
**Tech. Note (3)**  
**Ref. (3)**



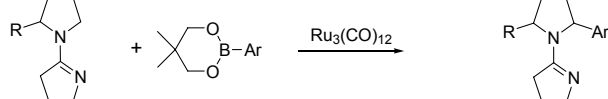
**Tech. Note (4)**  
**Ref. (4)**



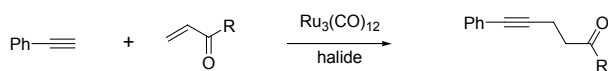
**Tech. Note (5)**  
**Ref. (5)**



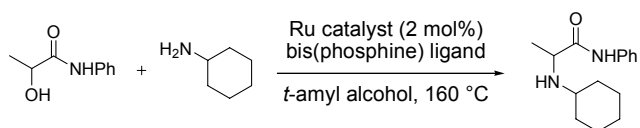
**Tech. Note (6)**  
**Ref. (6)**



**Tech. Note (7)**  
**Ref. (7)**



**Tech. Note (8)**  
**Ref. (8)**



**Tech. Note (9)**  
**Ref. (10)**

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