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Recent advances in organonickel chemistry

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Nickel-catalyzed multi-component connection reaction of isoprene, aldimines (lactamines), and diphenylzinc

pp 7512-7520

Keisuke Kojima, Masanari Kimura, Satoshi Ueda and Yoshinao Tamaru*

Ni(acac)₂ catalyzes the three-component connection reaction of Ph₂Zn, isoprene, and lactamines, prepared in situ from lactols and aromatic amines, and furnishes homoallylamino alcohols $\mathbf{1}$ (n=1 and 2) in good yields with excellent E-stereoselectivity.

An efficient Negishi cross-coupling reaction catalyzed by nickel(II) and diethyl phosphite

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Andrei Gavryushin, Christiane Kofink, Georg Manolikakes and Paul Knochel*

Formal hydrochromination of alkynes under nickel catalysis. Regioselective reductive coupling of alkynes and aldehydes leading to allylic alcohols

pp 7534–7539

Kazuhiko Takai,* Shuji Sakamoto, Takahiko Isshiki and Tatsuya Kokumai

$$R^{1} - \equiv + R^{2}CHO \xrightarrow{CrCl_{2}, cat. \ NiCl_{2}, cat. \ PPh_{3}, \ H_{2}O} R^{1} \xrightarrow{R^{2}} R^{2}$$

Two-carbon ring expansion of cyclobutanone skeletons by nickel-catalyzed intermolecular alkyne insertion

pp 7540-7546

Masahiro Murakami,* Shinji Ashida and Takanori Matsuda

Ni(cod)₂-P(c-Hex)₃ or Ni(cod)₂-IPr

$$R^1$$
 R^2
 R^2
 R^3
 R^4
 R^4

Nickel(0)-mediated [2+2+1] cyclization reaction of chromium carbene complexes and internal alkynes

pp 7547-7551

José Barluenga,* Pablo Barrio, Lorena Riesgo, Luis A. López and Miguel Tomás

$$(CO)_5Cr$$
 $\stackrel{OMe}{=}$ $+$ R^3 $\stackrel{=}{=}$ R^2 $\stackrel{[Ni(cod)_2]}{=}$ R^3 R^3 R^1 R^3 R^3 R^3 R^4 R^3 R^3 R^3 R^3 R^4 R^3 R^4 R^3 R^4 R^4 R^3 R^4 R

A nickel(0) catalyzed cycloaddition of alkynes and isocyanates that affords pyrimidine-diones Hung A. Duong and Janis Louie*

pp 7552-7559

$$\begin{array}{c} 5 \text{ mol}\% \text{ Ni(COD)}_2 \\ R_1 & = R_2 \\ + \\ \textbf{2} \text{ R-NCO} \end{array}$$



Alkyne hydrosilylation catalyzed by nickel complexes of N-heterocyclic carbenes Mani Raj Chaulagain, Gireesh M. Mahandru and John Montgomery*

pp 7560-7566

$$R^{1}$$
 + R^{3} ₃SiH $Ni(COD)_{2}$ R^{2} R^{2} R^{2}

Arylcyanation of alkynes catalyzed by nickel

pp 7567-7576

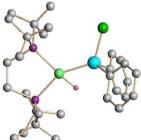
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Yoshiaki Nakao,* Shinichi Oda, Akira Yada and Tamejiro Hiyama*

Snapshots of the oxidative-addition process of silanes to nickel(0)

Vlad M. Iluc and Gregory L. Hillhouse*





Reaction of $(\eta^2$ -arylaldehyde)nickel(0) complexes with Me₃SiX (X=OTf, Cl). Application to catalytic pp 7583–7588 reductive homocoupling reaction of arylaldehyde

Sensuke Ogoshi,* Hirohumi Kamada and Hideo Kurosawa

Arylaldehydes reacts with nickel(0) and Me_3SiCl to give η^1 : η^1 -siloxybenzylnickel complex. In the presence of zinc dust, the reductive homocoupling reaction of arylaldehyde proceeded catalytically to form pinacol derivatives.



Nickel-mediated cyclization of enynes under an atmosphere of carbon dioxide

Masanori Takimoto, Takashi Mizuno, Miwako Mori* and Yoshihiro Sato*

pp 7589–7597

EWG
$$+ CO_2$$
 (1 atm) $= R$ $+ CO_2$ (1 atm) $= R$ $+ CO_2$ (1 atm) $= R$ $= R$ $+ CO_2$ (1 atm) $= R$ $= R$



Directing effects of tethered alkenes in nickel-catalyzed coupling reactions of 1,6-enynes and aldehydes pp 7598–7610 Ryan M. Moslin, Karen M. Miller and Timothy F. Jamison*

Nickel-catalyzed reductive coupling reactions of aldehydes and 1,6-enynes proceed in excellent regioselectivity in the absence of a phosphine, and the use of a monodentate phosphine additive leads to the formation of the opposite regioisomer with equally high selectivity. Both products are the result of the same fundamental mechanism, with the inversion of regioselectivity being the result of stereospecific ligand substitution at the metal center.

OTHER CONTENT

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*Corresponding author

(1) Supplementary data available via ScienceDirect

COVER

The cover graphic depicts one molecule from each of the thirteen articles this issue, in the order of appearance (top left to bottom right). The red bonds indicate those that were constructed in a nickel-mediated transformation.

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