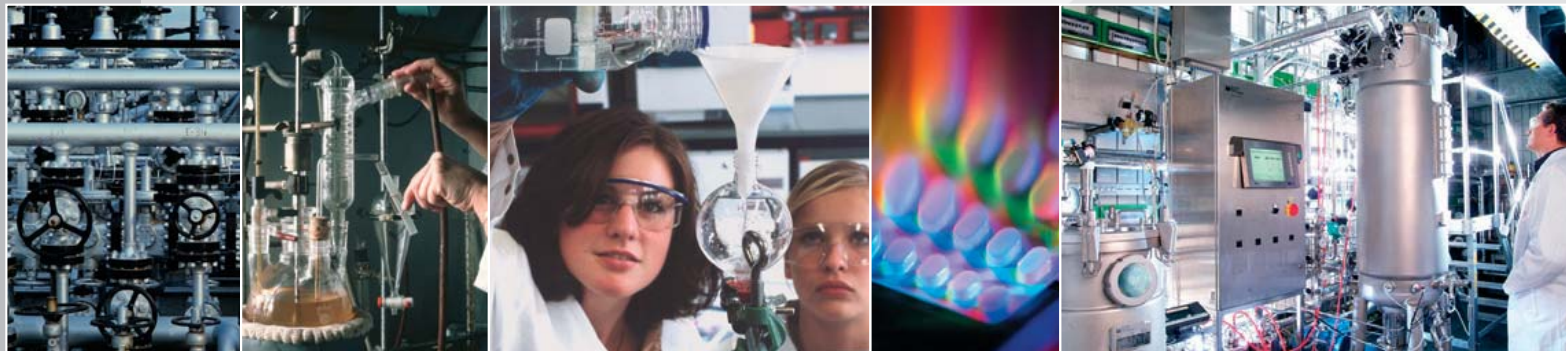


# Science of Synthesis

Houben–Weyl Methods of Molecular Transformations®

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Query: MeO2C-CH=CH-CH=CH2 + Ni(CO)2 + Ph3P

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m-Allyl complexes are commonly invoked as intermediates in the reactions of  $\eta^3$ -diene-nickel complexes. If a nickel(0) complex possesses both a conjugated diene ligand and another  $\pi$ -bound ligand, an oxidative cyclization may occur to form a  $\pi$ -allyl ligand within a nickel(II) metallacycle. Much of the [4+4]- and [4+2]-cycloaddition chemistry described for  $\eta^3$ -diene complexes probably involves the intermediacy of nickel metallacycles that possess a  $\pi$ -allyl ligand. Oxidative cyclizations of this type are also useful in the stoichiometric preparation of nickel- $\pi$ -allyl complexes. The spectator ligand properties play a significant role in determining the position of the equilibrium for oxidative cyclization-reductive cleavage processes (Scheme 15).<sup>[40]</sup>

Scheme 15 Ligand Dependence in the Formation of  $\pi$ -Allyl Complexes by Oxidative Cyclization<sup>[40]</sup>

References

[40] Buch, H. W.; Schmitt, G.; Mynst, R.; Binger, P., *J. Organomet. Chem.*, (1983) 247, C62.

Related Information in Houben-Weyl:

- Houben-Weyl, (1990), E 10-1 p. 83
- Houben-Weyl, (1990), 130b p. 195

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Feedback

the functionality of the heterocyclic product... stabilizes and chemical and physical... d, but trapped in situ (see Scheme 2)<sup>[1]</sup> the

re not known. Similarly, 1,2-dithiols and 1,2-... gues, and 1,2-dithiols are not known... phosphorus heterocycles, so many different... (rines) are known and most of them are

activated" ring carbon with respect to... (stated pyridazine)<sup>[1]</sup> and substitution of... 'S (Scheme 4, Sections 15.8.4.1, 1.2.6 and

known.  $\lambda^5$ -Phosphates have been... been obtained only as  $\eta^4$ -ligands of... phosphorus heterocycles (see Table



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  - Pyridopyrimidines

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Scheme 4 Tautomerism of Pyridazines<sup>[47-53,55,56]</sup>

4A 4B

5A 5B

6A 6B 6C

The spectroscopic properties of pyridazine and many of its derivatives are discussed in some detail in *Houben-Weyl*, Vol. E 9a, pp 559–563, and they have been extensively reviewed elsewhere.<sup>[7,8,16]</sup> <sup>1</sup>H NMR and <sup>13</sup>C NMR spectroscopic data are available for a very large number of pyridazines; the proton chemical shifts and coupling constants for a selection of simple representatives are presented in Table 2.<sup>[56]</sup> The <sup>13</sup>C NMR spectroscopic properties of the parent heterene are given in Scheme 5; chemical shifts for some 3- and 4-substituted derivatives are listed in Table 3 in order to illustrate the influence of various functional groups on the shift values of the ring carbon atoms.<sup>[56]</sup> A systematic collection of <sup>13</sup>C NMR chemical shift data for 3,6-disubstituted pyridazines has also been published.<sup>[57]</sup>

Table 2 <sup>1</sup>H NMR Data of Some Pyridazines<sup>[56]</sup>

Substituent	Chemical Shift <sup>a</sup> (δ)	Coupling Constants <sup>a</sup> (Hz)
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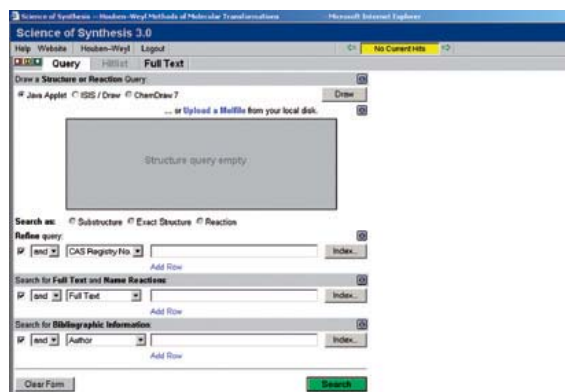
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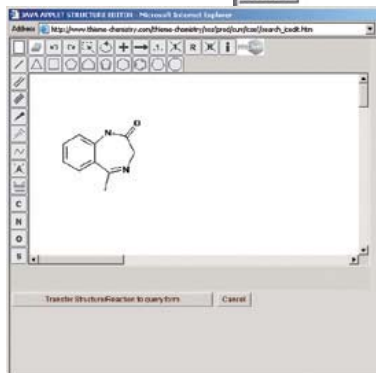
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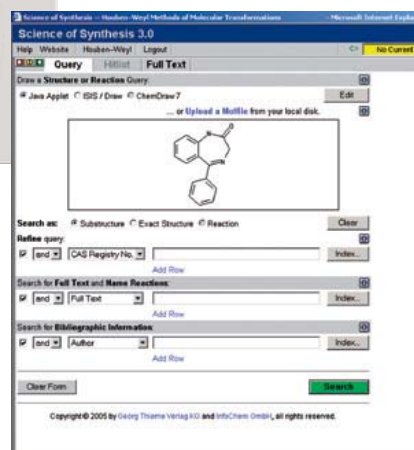
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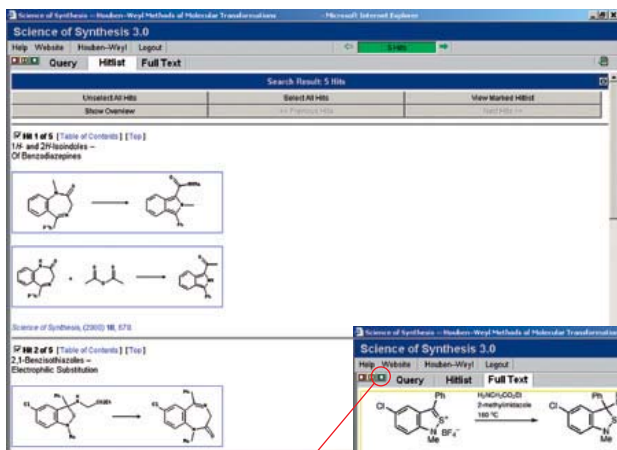
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3 Transfer the structure back to the Search interface using the transfer button and begin the search using the Search button.



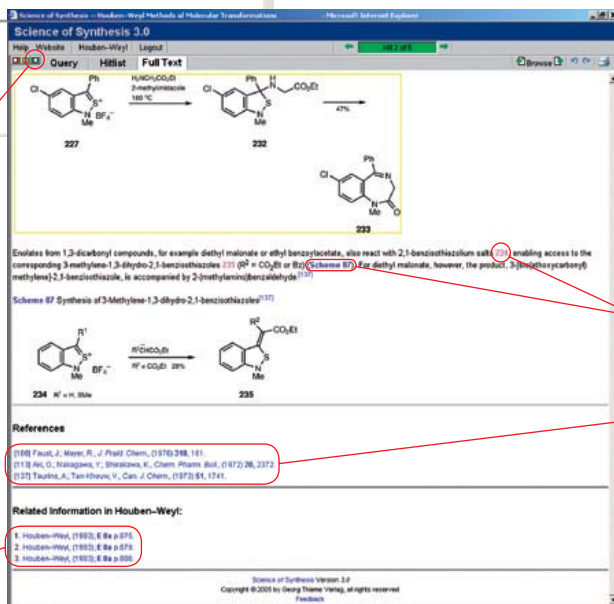
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