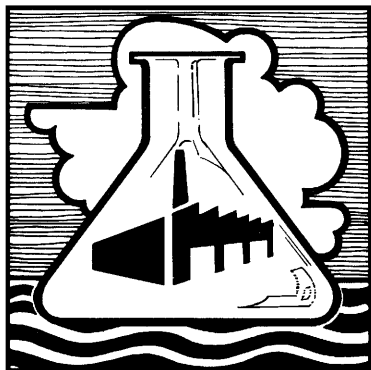


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Selenium Strategy

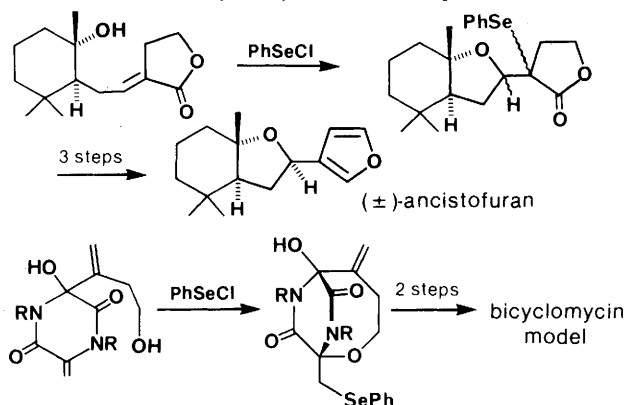
Since the appearance of organoselenium reagents in 1973, the role played by selenium in organic synthetic strategy has expanded rapidly.¹ Aldrich offers many synthetically useful organoselenium reagents, some of which are listed below with selected applications from the recent literature.

Phenylselenenyl Chloride

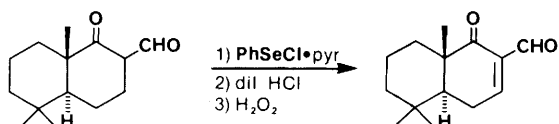
18,334-2

10g \$35.70; 50g \$129.00

The pioneering work of Clive² (cyclofunctionalization) and Nicolaou³ (phenylselenolactonization) on the use of phenylselenenyl chloride as a cyclization reagent has been extended to the pivotal steps in the syntheses of (±)-ancistofuran⁴ and a bicyclomycin model compound.⁵



Liotta⁶ has recently reported a mild and highly efficient preparation of unsaturated β -dicarbonyl compounds employing phenylselenenyl chloride as a 1:1 complex with pyridine. A similar transformation using metallic selenium as an electrophile has also been reported by this author.⁷

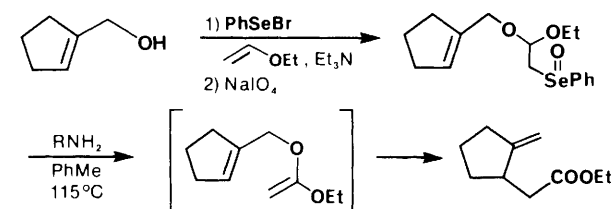


Phenylselenenyl Bromide

24,396-5

5g \$18.75; 25g \$62.50

This reagent has been used to prepare allyl ethyl ketene acetals which readily undergo a Claisen rearrangement to γ,δ -unsaturated esters.⁸

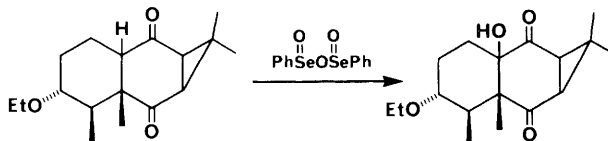


Benzeneseleninic Anhydride

21,301-2

5g \$27.35; 25g \$91.10

Benzeneseleninic anhydride has been utilized for the angular hydroxylation of polycyclic ketones.⁹



Barton has extended the utility of this reagent to the conversion of thiocarbonyls¹⁰ and thioacetals¹¹ to the corresponding oxo derivatives.

Diphenyl Diselenide

18,062-9

5g \$16.50; 25g \$46.90; 100g \$130.00

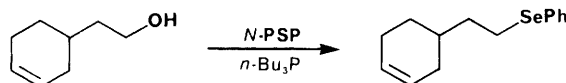
A one-step electrochemical preparation of allylic alcohols from isoprenoids employs diphenyl diselenide in catalytic quantities;¹² the method effects deselenenylation in the absence of peroxides.

N-Phenylselenophthalimide (N-PSP)

25,461-4

1g \$18.00; 5g \$60.00

N-PSP enables the conversion of alcohols to phenyl selenides, and also carboxylic acids to phenylselenol esters.¹³



References:

- 1) Clive, D.L.J. *Aldrichim. Acta* 1978, 11, 43; *Idem Tetrahedron* 1978, 34, 1049.
- 2) *Idem Tetrahedron* 1980, 36, 1399 and references cited therein.
- 3) Nicolaou, K.C.; Lysenko, Z. *Tetrahedron Lett.* 1977, 1257.
- 4) Hoye, T.R.; Caruso, A.J. *J. Org. Chem.* 1981, 46, 1198.
- 5) Fukuyama, T. *et al. Tetrahedron Lett.* 1981, 22, 4155.
- 6) Liotta, D. *et al. J. Org. Chem.* 1981, 46, 2920.
- 7) Liotta, D. *et al. Tetrahedron Lett.* 1981, 22, 3043.
- 8) Pitteloud, R.; Petrzilka, M. *Helv. Chim. Acta* 1979, 62, 1319.
- 9) Yamakawa, K. *et al. Chem. Lett.* 1979, 763.
- 10) Barton, D.H.R. *et al. J. Chem. Soc., Perkin Trans. 1* 1980, 1650.
- 11) *Idem ibid.* 1980, 1654.
- 12) Torii, S. *et al. J. Am. Chem. Soc.* 1981, 103, 4606.
- 13) Grieco, P.A. *et al. J. Org. Chem.* 1981, 46, 1215.

Other selenium reagents offered by Aldrich are:

- 20,965-1 Selenium, powder, 99.5+%, 50g \$16.80, 250g \$62.00
- 23,049-9 Selenourea, 99.9+%, GOLD LABEL, 1g \$19.00; 10g \$105.00
- 21,300-4 Benzeneseleninic acid, 99%, 5g \$20.50, 25g \$68.25
- M3,060-4 2-Methylbenzselenazole, 99%, 10g \$48.05
- 18,850-6 2,5-Dimethylbenzselenazole, 98%, 1g \$14.15, 5g \$46.80
- M1,520-6 5-Methoxy-2-methylbenzselenazole, 99+%, 5g \$23.40



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