

## Abstracts

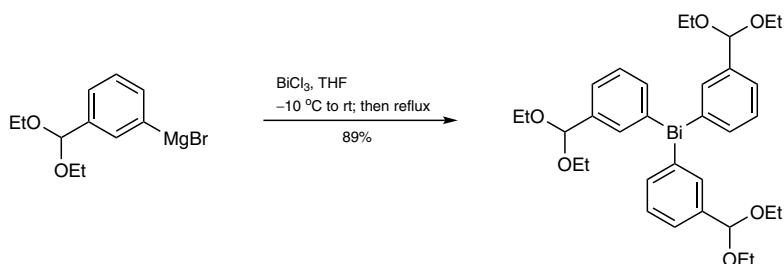
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## 4.3.15 Bismuth Compounds

A. Gagnon, E. Benoit, and A. Le Roch

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for the synthesis of organobismuth compounds and their use in organic synthesis. Organobismuth compounds are organometallic species that contain a carbon–bismuth bond. These species have been used as catalysts and reagents in various reactions that lead to the formation of carbon–carbon, carbon–nitrogen, carbon–oxygen, carbon–sulfur, and carbon–selenium bonds.



**Keywords:** arylation · bismuth compounds · carbon–metal bonds · copper catalysts · cross-coupling reactions · heterocycles · organometallic reagents · palladium catalysts · transition metals

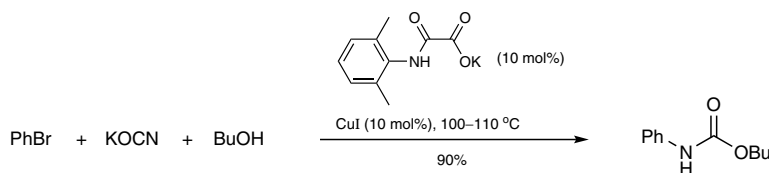
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## 18.6.12 Acyclic and Cyclic Carbamic Acids and Esters, and Their Sulfur, Selenium, Tellurium, and Phosphorus Analogues

J. Podlech

This chapter is an update to the earlier *Science of Synthesis* contribution on the preparation of acyclic and cyclic carbamates, thiocarbamates, selenocarbamates, tellurocarbamates, and phosphinecarboxylates, as well on their applications in organic synthesis. It focuses on the literature published in the period 2013–2017.



**Keywords:** carbamates · isocyanates · isothiocyanates · oxazinones · oxazolidinones · phosphorus compounds · selenium compounds · tellurium compounds · thiazines · thiazolidines · thiocarbamates

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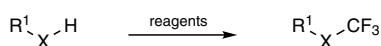
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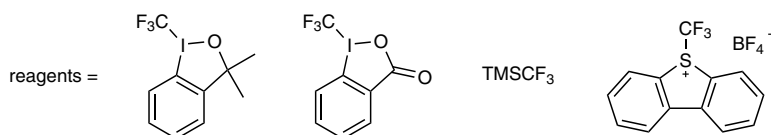
18.15.8 **Tetraheterosubstituted Methanes with a Carbon–Halogen Bond**

M. Kleoff, K. Omoregbee, and R. Zimmer

In this chapter, recent methods for the preparation and elaboration of various substituted halomethanes are summarized. In addition to updates on classical methods, recently developed procedures employing new fluorinating agents, such as Togni's reagents, are also presented. These methods are also put in the context of the synthesis of biologically active compounds.



X = O, S, Se, Te, N, P



**Keywords:** trifluoromethylation · trifluoromethylsulfanylation · Togni's reagents · Selectfluor · tetrahalomethanes · Umemoto's reagent · Ruppert–Prakash reagent · PhenoFluor · trifluoromethylselenylation

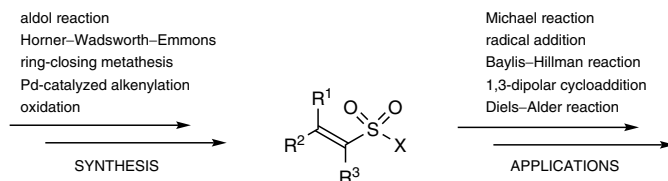
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33.1.1.2 **Alk-1-enesulfonic Acids and Derivatives**

R. Kawęcki

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for the preparation of alk-1-enesulfonic acids and derivatives and their application in synthesis. This update focuses on methods published since 2004.

X = OR<sup>4</sup>, NR<sup>4</sup><sub>2</sub>, halogen

**Keywords:** sulfonic esters · sulfonates · sulfonic acid amides · sulfonamides · sulfonic acid chlorides · sulfonyl chlorides · vinyl compounds

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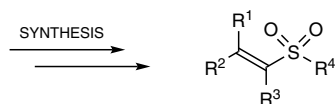
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33.1.2.2 **Alk-1-enyl Sulfones**

R. Kawęcki

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for the preparation of alk-1-enyl sulfones. This update focuses on methods published since 2004.



**Keywords:** sulfones · sulfonyl compounds · allenyl compounds · vinyl compounds · sulfonylation · sulfonyl carbanions · oxidation

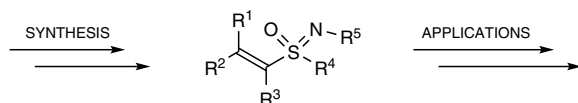
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33.1.3.2 **S-Alk-1-enylsulfoximides**

R. Kawęcki

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for the preparation of alk-1-enylsulfoximides. This update focuses on methods published since 2004. It also covers the application of alk-1-enylsulfoximides in organic synthesis.



**Keywords:** sulfoximides · vinyl compounds · imination · Michael addition · furans

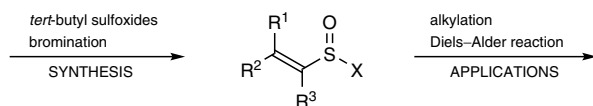
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33.1.4.2 **Alk-1-enesulfinic Acids and Derivatives**

R. Kawęcki

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for the preparation of alk-1-enesulfonates and alk-1-enesulfinamides and their applications in organic synthesis. This update focuses on methods published since 2004.

X = OR<sup>4</sup>, NR<sub>2</sub><sup>4</sup>

**Keywords:** sulfonates · sulfinic acid amides · sulfinamides · sulfinyl compounds · vinyl compounds · sulfoxides · sulfones

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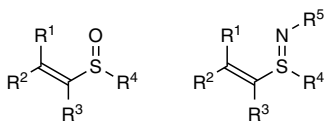
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33.1.5.2 **Alk-1-enyl Sulfoxides, Sulfimides, and Related Compounds**

R. Kawęcki

This chapter is an update to the earlier *Science of Synthesis* contribution describing methods for preparation of alk-1-enyl sulfoxides and sulfimides. It focuses on methods published since 2004.



**Keywords:** sulfoxides · sulfimides · vinyl compounds · sulfonylation · Heck reaction · kinetic resolution · asymmetric synthesis · oxidation

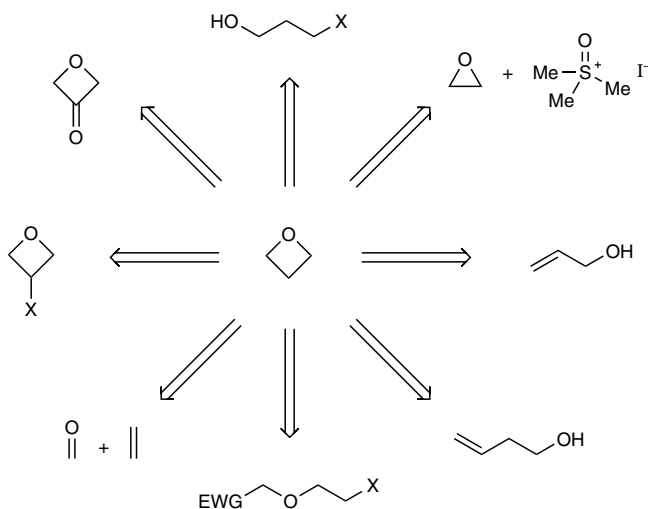
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37.3 **Oxetanes and Oxetan-3-ones**

R. A. Croft and J. A. Bull

This is a completely revised chapter on the synthesis of oxetanes and oxetan-3-ones, covering the literature up to early 2018. The last 10 years has seen many new approaches to the synthesis of oxetanes, prompted by increased interest in the use of oxetane derivatives in medicinal chemistry. Developments include cyclization methods for ring formation, as well as functionalization of oxetane-containing building blocks.



**Keywords:** oxetanes · oxetanones · oxygen heterocycles · cyclization · Williamson ether synthesis · Paternò-Büchi photocycloaddition · carbon–oxygen bonds · four-membered rings · carbon–oxygen bond formation · carbon–carbon bond formation

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