

Science of Synthesis, Volume 8a: Organometallics: Compounds of Group 1 (Li ... Cs); edited by M. Majewski and V. Snieckus; Georg Thieme Verlag: Stuttgart, 2005, hardcover, 862 pp, € 2200, ISBN 3-13-112221-9 (RoW) / US\$ 2640, ISBN 0-86577-947-3 (US)

After the conclusion of the 4th edition of *Houben-Weyl Methods of Organic Chemistry*, the series was succeeded by *Science of Synthesis, Houben-Weyl, Methods of Molecular Transformations* which was started in the year 2000.

Now, a two-volume issue, 8a and 8b, covering alkali-metal compounds, has appeared. Volume 8a deals not only with organolithium compounds but also includes C-nucleophilic species, such as enolates and nitronates, which are devoid of a C–Li bond. Further simple lithium salts and reagents, used in synthesis, are collected. The volume starts with a remarkable introduction by Majewski and Snieckus, highlighting more recent general trends and surprising applications in organolithium chemistry.

In the following 30 chapters, 23 authors – experts in the field – first introduce common and less-common lithiating reagents (lithium metal, lithium hydride, lithium salts, lithium hydroxide and lithium alkoxides, lithium amides, and allyllithiums) before the individual classes of organolithium reagents and intermediates are covered [alkenyllithium compounds; allyllithiums; benzyllithium compounds and heterocyclic analogues; aryllithium and hetaryllithium compounds; enolates of carboxylic acid derivatives, ketones and aldehydes; β -lithium compounds of carboxylic acids, aldehydes and ketones (homoenolates); sp^3 -hybridized α -lithio-ethers and -*O*-carbamates; α -lithiosulfoxides, α -lithio-amines; lithium nitronates; γ -lithioethers; carbamoyllithium and trihalomethylithiums; tris(organosulfanyl)methylithiums, bis(organosulfanyl)methylithiums, and the corresponding selanyl compounds; and α -lithiovinyl methyl ethers].

All chapters are written with the major view on the practical applications; theoretical or mechanistic issues are not treated, but extensive citation easily leads to the relevant literature. In most cases, typical examples of applications are presented, often including a short practical prescrip-

tion. In several cases, tables with more examples are attached. Dangerous manipulations or compounds, even trivial ones, are highlighted several or even many times, whenever these occur. This might nowadays be the price to pay when publishing a handbook on practical preparations.

It is a demanding task, covering the entire lithium chemistry on less than 1000 pages. Most of the authors did a marvelous job in respect of the tremendous amount of material. They condensed classic, well-known work to a few essentials and tables, but treated new developments (such as chiral organolithium compounds) more deeply and included literature until the end of 2004. A few chapters, such as the one on allyllithium compounds, are somewhat outdated.

As a result of the strict division into classes of compounds, a few somewhat exotic, but important reagents, such as lithiated isocyanides or lithiodiazomethane, could not be found by this interested reader, despite consultation of the broad indexes.

As a consequence of the multi-authorship, the space for some different chapters seems to be a bit unbalanced. So the very important allyllithium compounds are treated on only 14 pages (with 71 references) whereas α -lithioamines were allowed to spread over 80 pages (267 references).

Very few errors and mistakes were found, demonstrating very careful editing.

The formula schemes are spacious and well drawn, supporting rapid perception of the chemistry by the reader. Moreover, these seduce one into browsing through chapters that one did not intend to read. I am sure that every synthetic chemist will soon find facts, important for his or her work, of which he or she was not previously aware.

The volume is too expensive for purchasing a personal copy, but every synthetic chemist should have access to it in a departmental library.

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