

Book Reviews*

Organic Azides: Syntheses and Applications. Edited by Stefan Bräse and Klaus Banert. Wiley: New York. 2009. 507 + xxviii pp. €135. ISBN 978-0-470-51998-1.

Organic azides are widely used, both in the laboratory and on large scale in a variety of industries, including pharmaceuticals and explosives. It is the hazardous properties of many organic azides which inhibit chemists from using them on kilogram and tonne scale, yet many specialist companies have developed procedures for safe handling.

It is appropriate, therefore, that this comprehensive multi-author work should begin with a section on “Synthesis and Safety”. Chapter 1, written by scientists from the Fraunhofer Institut in Germany, covers lab-scale synthesis safety measures and analysis, whereas the following chapter written by Jürgen Haase from Dynamit Nobel GmbH in Leverkusen, covers large-scale preparation. The latter chapter begins with some extremely interesting facts on hydrazoic acid - that detonation of a few tenths of a milliliter of liquid HN_3 can destroy - or more precisely pulverise - a complete lab-scale production unit and also that the detonation speed approaches 8000 m/s. No wonder not many folk like to work with it. Whereas the previous chapter on lab-scale safety gives comprehensive lists of do's and do not's, the scale-up chapter was disappointing in failing to divulge the key safety and handling issues in working with azides on scale. Maybe his company prefers to keep these secrets. Having visited the

Leverkusen site recently, I am confident that Dynamit Nobel know exactly how to carry out lots of procedures on scale in a safe manner.

Excellent and comprehensive chapters on the synthesis of azides are followed by section 2 on reactions (including rearrangements and cycloadditions) and photoreactions before a section on materials. The latter begins with “Azide-containing High Energy Materials”, written by an explosives industry expert, and describes the synthesis and properties of compounds with a high nitrogen content, sometimes as high as 80–90% N.

Finally a section covering “Aza-Wittig Reactions in Natural Product Syntheses” and “Azides in Carbohydrate Chemistry” completes the book. Chapters are generally of very high standard and are very entertaining. The text should be subtitled “All You Need to Know About Azide Chemistry”.

A text such as this has been long awaited and is highly recommended to all organic chemists, particularly for the safety advice. Chapter 1 should be compulsory reading for all students before they handle any azide in the laboratory, so they become aware not of only the explosive nature of some azides but also their shock sensitivity. The high toxicity of azides should also not be forgotten.

Overall, a superb book!

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*Unsigned book reviews are by the Editor.