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EDITORIAL

Fascination Fluorine

Fluorine is a fascinating element. It occurs naturally as a mono-isotope ^{19}F and is quite a common element. About 0.07% of the earth crust is comprised of fluorine, mostly as the minerals fluorapatite and fluorite (CaF_2). Fluorine was first identified by Karl W. Scheele in 1771 and first isolated in 1886 by the French chemist F. Henri Moissan. Since its isolation fluorine has become a powerful foundation for chemical exploration, discovery, and innovation. Today, fluorochemicals affect daily the lives of millions of people in positive ways, especially in quality-of-life products, health care, and crop protection. Some prominent examples are: the inorganic fluorides used in drinking water and dental products; synthetic blood substitutes; fluorocarbons used in inhalation drug delivery systems, refrigeration, and air conditioning; fluoropolymers and fluoroelastomers used in homes, buildings, automobiles, and aerospace applications; fluorinated chemicals as pharmaceutical drugs and crop protection agents, and many other important uses (for more details, see Nance K. Dicciani, *C & EN,* September 8, **2003,** p. 48).

Fluorine has quite unique properties: Its electronegativity is the largest among all elements and its ionisation potential is also the largest with the exception of helium and neon. Consequently, fluoro-organic chemistry is quite different from the chemistry of the other halogens. In recent years major advances have been achieved in fluoro-organic chemistry. New synthetic methods and fluorinated reagents have been developed that facilitate the introduction of fluorine or fluoro-containing units into small building blocks, designer compounds, and materials of new and often surprising properties. However, in spite of all these advances, we are still lacking sufficient insight into the fundamental aspects of fluoro-organic chemistry, particularly in the areas of structural, chemical, physicochemical, and biological properties of fluorine-containing compounds.

To gather state-of-the-art knowledge on fluoro-organic chemistry the first International Symposium on 'Fluorine in the Life Sciences' was organised by Karl-Heinz Altmann (ETH Zürich), Peter Maienfisch (Syngenta, Basel), Klaus Müller (Hofmann-La Roche, Basel), and Manfred Schlosser (EPF Lausanne) and held on the Bürgenstock from 6th to 9th July, 2003. The Symposium encompassed ten plenary lectures, workshops on 'Industrial Perspectives in Organofluorine Chemistry', 'Structure and Properties of Fluorine Containing Compounds', 'Fluorine Effects on Chemical Reactivity', and 'Fluorine Effects on Bioactivity' as well as three poster sessions (for a detailed report see A. Togni, *Chimia* **2003,** *57*, 570–572).

This issue of CHIMIA contains a collection of papers presented by representatives of companies active in the life science area at the International Symposium on 'Fluorine in the Life Sciences'. The first seven papers are based on contributions presented in the workshop on 'Industrial Perspectives in Organofluorine Chemistry'. All the other contributions were selected from the poster presentations. These papers provide an update of technologies for making fluorinated building blocks accessible and highlight the pivotal role of fluorine in terms of biological activity, chemical and metabolic stability and physicochemical properties in different areas of the crop protection and pharmaceutical industry.

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