

CONFERENCES DU VENDREDI

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Dr. Michael PARMENTIER

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BUILDING A TOOLBOX FOR CHEMISTRY USING SURFACTANT IN WATER



Abstract - The impact of solvents on the environment, in terms of overall environmental footprint has long been understood. However, until recently, limited significant changes have occurred in the low volume industries and pharmaceutical industry especially. Since more than 5 years, we focused our effort in the use of surfactant in water as sustainable alternative. During the course of this study, a straightforward and highly advantageous technology was seen in several transformations from our portfolio. Specifically, this resulted into significant benefits across our entire synthetic route, not just from an environmental standpoint but also from an economic and productivity perspective. A specific attention has been dedicated to the use of the recently discovered Iron Nanoparticles (Fe-NPs), containing low Palladium level (ca. 100 to 1000 ppm). This technology, when combined with the non-ionic designer surfactant TPGS-750-M in water as medium instead of traditional organic solvents offers a very valuable alternative to the commonly used reaction conditions. Several examples using these technology will be presented showing its practicability and the diversity of transformation at both lab and Kilo-lab scale.

Biography - Michael Parmentier graduated from the University of Nancy (France) with a Masters degree in Chemistry. He moved in 2004 for his PhD-studies to the University of Montreal (Canada) to work with Prof. Hélène LEBEL on the total synthesis of an Interleukine inhibitor and on the development of a nitrene precursor for the aziridination reaction. In 2009, He moved back to Europe and did a Post-doc at the University of Basel under the supervision of Prof. Andreas PFALTZ where he gained insights into the organometallic field. During his stay, he closely collaborated with Hoffman-La-Roche laboratories on the Hydrogen Isotope Exchange reaction and with direct application on APIs. Since 2012 he is Process chemist in NOVARTIS Pharma (Basel) in Chemical and Analytical development (CHAD). He is mainly involved in Early phase project including transfer to pilot plant and in implementation of new technologies. Beside his scientific activities, he is coordinating exchanges with academia including setup of academic collaboration and leading internship programs.