

COLLOQUIUM ANNOUNCEMENT

FRIDAY, 29.11.2013

14.30 UHR S.T. IN NC 02/99

Prof. Dr. Robin D. Rogers

*Center for Green Manufacturing and Department of Chemistry
The University of Alabama, Tuscaloosa, Alabama 35487, USA*

"Liquid Engineering to Crystal Engineering: How Ionic Liquids Can Help Us Master the Pharmaceutical Solid State"

Abstract: The pharmaceutical industry relies mainly on the solid forms of active pharmaceutical ingredients (APIs) for drug delivery, which has resulting in increasing instances of problems such as polymorphic conversion, low solubility, and low bioavailability which are associated with solid compounds. This has led to a major effort to create marketable new drugs by improving the properties of already known APIs by designing new solid forms through strategies such as salt formation, co-crystallization, and polymorph screening, but these approaches have brought new challenges such as the regulatory classification of multicomponent solids which are neither completely ionic nor completely neutral. However, the strategy of avoiding the solid state entirely through the use of low melting salts (ionic liquids, or ILs) has received less attention. ILs are highly tunable liquids which have been applied to drug delivery through strategies ranging from solvating and dispersing agents for poorly soluble drugs to bypassing the solid state altogether by making API salts into compounds that form neat liquids at low temperatures.

It is time for the pharma sector to learn more about the potential impact of ILs in virtually every phase of drug discovery, manufacture, and delivery. A more fundamental, systems view of ILs is needed to overcome hesitation in using them by obtaining an appreciation of the true power of IL design to purpose. ILs have utility in the manufacture of APIs, delivery of APIs, and even as APIs. IL APIs even have a role in expanding the understanding of crystal engineering as they offer a dynamic liquid environment in which to study the effects of ionicity on the physicochemical properties of a neat API compound as a complement to the solid state. In this presentation, several aspects of the IL form of matter will be discussed to illustrate the broad utility of these materials in the pharma industries which can be realized by adopting an 'Ionic Liquid' way of thinking.

All interested are cordially invited.