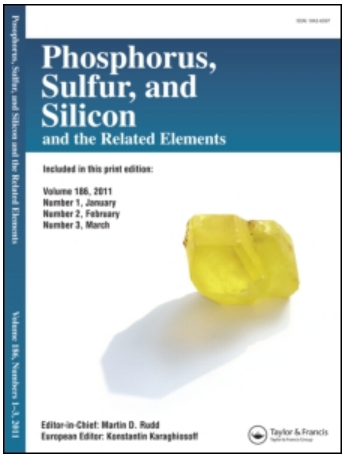

Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

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Online publication date: 12 August 2010

Phosphorus, Sulfur, and Silicon, 179:983–984, 2004

ISSN: 1042-6507 print / 1563-5325 online
DOI: 10.1080/10426500490429789

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(Received August 17, 2003; accepted October 3, 2003)

RESULTS AND DISCUSSION

There are a number of ways we have developed for the incorporation of sulfimide units into ring systems. Simple coordination of Ph_2SNH to a metal followed by hydrogen-bonding to anions and solvates can generate ring structures. Thus a honeycomb arrangement is seen in $[Cu(Ph_2SNH)_2(\eta_2\text{-}CO_2)\cdot H_2O]$, thanks to interactions between the carbonate and sulfimide ligands and the waters.[1] Hydrogen bonding also plays a strong part in the three-fold topological variation noted for $[Cu_3(Ph_2SNH)_6(trimesate)_2]_x$—crystallized in the presence of cyclohexane, pyridine, or water the resulting 48-membered ring units show hexagonal, brickwall or herringbone arrangements respectively. A key feature of two of these structures is the presence of a "framework interallogon" effect, allowing two different copper geometries (though with identical ligand sets and bonding modes) within the ring.[2]

Derivatization of Ph_2SNH is an effective route to ring systems; this can take place during the reaction. Thus metal-assisted addition of the sulfimide to a nitrile, which takes place in the presence of a platinum center (most effectively Pt(IV)), generates a hybrid sulfimide/nitrile. This may either be liberated or, upon reduction to Pt(II), incorporated into a metallocycle.[3] Derivatization of the sulfimide prior to reaction can be achieved either by adding other, nonsulfimide coordinating units to the structure or by generating *bis*-sulfimides.[4] An example of the former ligand comes with **1a**, which can act as a bidentate N,S ligand (Figure 1).

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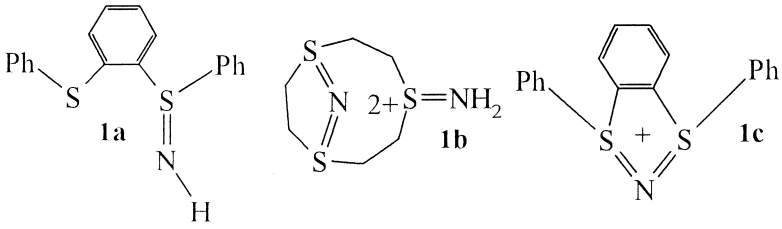

FIGURE 1 The structure of compounds **1a–c**.

Finally, reaction within metal-free sulfimide systems also can generate ring arrangements. Thus while treatment of [9-ane]S_3 with 3 equivalents of the aminating agent MSH results in the bridged crown **1b**,[5] reaction of **1a** with *n*-bromosuccinamide leads to **1c** (Figure 1).[6]

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