

This article was downloaded by:

On: 28 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



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>

The Structure of 1-(Arylthio)naphthalenes, Together with the Selenium and Oxygen Derivatives in Crystals and Solutions

War Nakanishi^a; Satoko Hayashi^a; Takahito Nakai^a

^a Department of Chemistry, Faculty of Systems Engineering, Wakayama University, Wakayama, Japan

To cite this Article Nakanishi, War , Hayashi, Satoko and Nakai, Takahito(2005) 'The Structure of 1-(Arylthio)naphthalenes, Together with the Selenium and Oxygen Derivatives in Crystals and Solutions', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 180: 5, 1431 — 1432

To link to this Article: DOI: 10.1080/10426500590912871

URL: <http://dx.doi.org/10.1080/10426500590912871>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

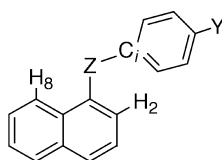
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

The Structure of 1-(Arylthio)naphthalenes, Together with the Selenium and Oxygen Derivatives in Crystals and Solutions

Warô Nakanishi
 Satoko Hayashi
 Takahito Nakai

Department of Chemistry, Faculty of Systems Engineering,
 Wakayama University, Wakayama, Japan

The structures are determined for some members of 1-(*p*-YC₆H₄Z) C₁₀H₇ (**1** (Z = S), **2** (Z = Se), and **3** (Z = O) by the X-ray crystallographic analysis if they give suitable crystals for measurements. They are type

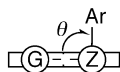


1	2	3
Z = S	Se	O

a	b	c	d	e	f	g
Y = H	OMe	Me	Cl	Br	COOEt	NO ₂

g(**m**): Y = H, OMe, and Me.

g(**n**): Y = Cl, Br, COOEt, and NO₂.



type **A**: $\theta \leq 90^\circ$



type **B**: $\theta \approx 180^\circ$

A for g(**n**) and are mainly type **B** for g(**m**).¹ The structures of **1–3** are also investigated in solutions based on the NMR data. Figure 1 shows the results for **2**, for an example.¹ The results demonstrate that type **A** is predominant in the CDCl₃ solution for **2g** with Y = NO₂. The fraction

Received July 9, 2004; accepted October 5, 2004.

Address correspondence to Warô Nakanishi, Department of Chemistry, Faculty of Systems Engineering, Wakayama University, 930 Sakaedani, Wakayama 640-8510, Japan.
 E-mail: nakanishi@sys.wakayama-u.ac.jp

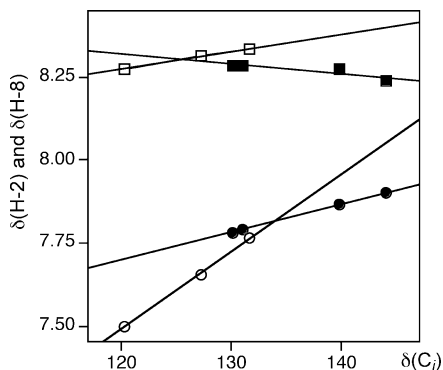


FIGURE 1 Plots of $\delta(H-2)$ and $\delta(H-8)$ versus $\delta(C_i)$ in **2**: ○, ●, □, and ■ stand for $g(m)$ of $\delta(H-2)$, $g(n)$ of $\delta(H-2)$, $g(m)$ of $\delta(H-8)$, and $g(n)$ of $\delta(H-8)$, respectively.

of type **B** gradually increases when **2g** goes to **2b** of $Y = OMe$ via $Y = COOEt$, Br, Cl, H, and/or Me. Similar results are obtained for **1** and **3**.

Dedicated to Prof. Michinori Ōki on occasion of his 77th birthday.

REFERENCE

- [1] W. Nakanishi, S. Hayashi, and T. Uehara, *Eur. J. Org. Chem.*, 3933–3943 (2001). See also W. Nakanishi, S. Hayashi, and T. Nakai, ISOCS-XXI, Madrid, Spain, July 4–9, 2004, Abstracts, p. 119.