REACTION OF THIONAPHTHENE 1,1-DIOXIDES WITH AROMATIC SULFONYL AND SULFENYL CHLORIDES

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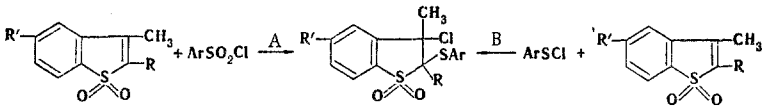
UDC 547.735

In an investigation of the reaction of thionaphthene 1,1-dioxides with some arenesulfonyl chlorides, we found that the reaction proceeds most readily at 120–130° under catalysis with a mixture of cuprous chloride and triethylamine hydrochloride. However, instead of the expected arylsulfonylchloro-1-thiaindane 1,1-dioxides, we obtained 3-chloro-2-arylthio-1-thiaindane 1,1-dioxides (Table 1), as in the case of the reaction with 2-sulfolene [1].



To confirm the structure of the products, we worked out a method for their alternative synthesis by the addition of arenesulfonyl chlorides to thionaphthene 1,1-dioxides at 80° in acetic acid.

TABLE 1. 3-Chloro-2-arylthio-1-thiaindane 1,1-Dioxides

R	R′	Ar	mp, °C	Empirical formula	Found, %				Calc., %				Yield, %*
					C	H	S	Cl	C	H	S	Cl	
H	H	C_6H_5	153—154	$C_{15}H_{13}ClO_2S_2$	55,3	3,9	19,5	11,1	55,5	4,0	19,7	10,9	62
H	H	p-$CH_3C_6H_4$	156—157	$C_{16}H_{15}ClO_2S_2$	56,6	4,4	18,8	10,6	56,7	4,4	18,9	10,5	58
H	CH_3	C_6H_5	164—165	$C_{16}H_{15}ClO_2S_2$	56,6	4,3	18,8	10,7	56,7	4,4	18,9	10,5	60
CH_3	H	C_6H_5	172,5	$C_{16}H_{15}ClO_2S_2$	50,7	4.4	18,8	10,4	56,7	4,4	18,9	10,5	50
H	CH_3	p-$CH_3C_6H_4$	176,5—177	$C_{17}H_{17}ClO_2S_2$	57,9	4,7	18,1	9,9	57,9	4,8	18,2	10,0	42

* The yields given are for reaction A; the yields for reaction B are 73, 62, 69, 59, and 53%, respectively.

LITERATURE CITED

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Institute of Chemistry, Academy of Sciences of the Tadzhik SSR, Dushanbe. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 3, pp. 425-426, March, 1973. Original article submitted August 7, 1972.