Synthesis of Pyrazolo[3,4-*c*][1,2]thiazin-4(3*H*)-one 2,2-Dioxides, New Heterocycles

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The reaction of substituted ethyl 5-aminopyrazole-4-carboxylates with two equivalents of methanesulfonyl chloride gave the substituted ethyl 5-[bis(methylsufonyl)amino]-1*H*-pyrazole-4-carboxylates **II**. Removal of one of the methanesulfonyl groups, followed by alkylation of the ethyl 5-[(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **III** with methyl iodide produced the substituted ethyl 5-[methyl(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **IV**. Treatment of **IV** with sodium hydride gave the 7-substituted 1,7-dihydro-1-methylpyrazolo[3,4-*c*][1,2]thiazin-4(3*H*)-one 2,2-dioxides **V**.

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Our interest in the synthesis of heterocyclic compounds for biological evaluation and the need for bicyclic heterocycles that contain active methylene groups led us to ponder the preparation of fused 2*H*-1,2-thiazin-5(6*H*)-one 1,1-dioxides. A search of the literature and of commercial data bases indicated that a few 1*H*-pyrido[2,3-*c*][1,2]thiazin-4(3*H*)-one 2,2-dioxides [1-3] and 1*H*-2,1-benzothiazin-4(3*H*)-one 2,2-dioxides [4-6] have been prepared, and that Maybridge Chemical Company Ltd., sells a few 1*H*-thieno[2,3-*c*][1,2]thiazin-4(3*H*)one 2,2-dioxides and 1*H*-thieno[3,2-*c*]-[1,2]thiazin-4(3*H*)-one 2,2-dioxides. The aforementioned facts led us to prepare examples of the pyrazolo[3,4-*c*][1,2]thiazine ring system from readily available intermediates.

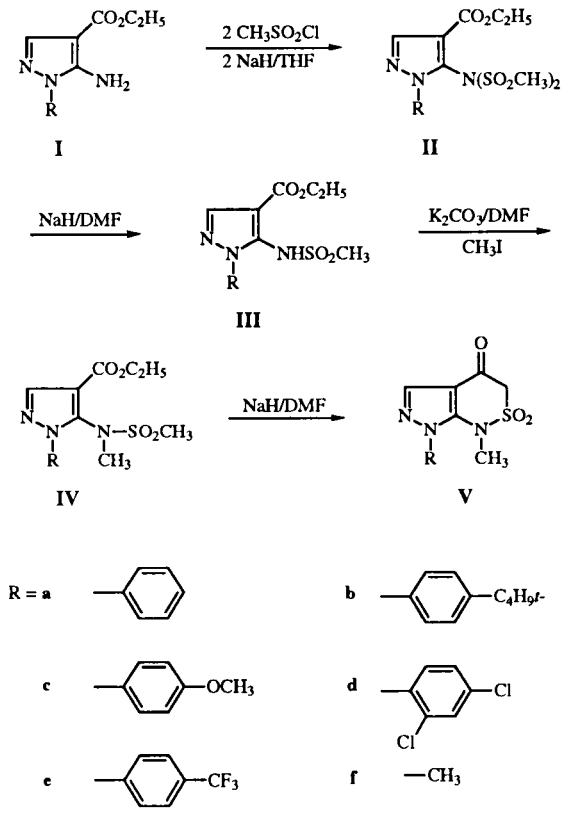
Our synthesis of the pyrazolo[3,4-*c*][1,2]thiazin-4(3*H*)-one 2,2-dioxides **V** utilized several substituted ethyl 5-aminopyrazole-4-carboxylates **I** which were available commercially or readily prepared by heating under reflux a solution of ethyl (ethoxymethylene)-cyanoacetate and the substituted phenylhydrazines [7,8] in ethanol.

Table 1

Compound	mp (°C) Crystallization solvent	Formula Anal. Calcd. (Found) C	H	N	^{1}H NMR (deuteriochloroform) δ, J (Hz)	Yield (%)
IIa	158-159	$C_{14}H_{17}N_3O_6S_2$			1.39 (t, J = 7.1 Hz, 3H), 3.12 (s,	45
		43.40	4.42	10.85	6H), 4.37 (q, J = 7.1 Hz, 2H), 7.53-	
	1-chlorobutane	(43.61	4.28	10.66)	7.71 (m, 5H), 8.15 (s, 1H)	
IIb	152-153	$C_{18}H_{25}N_3O_6S_2$			1.35 (s, 9H), 1.39 (t, J = 7.1 Hz,	41
		48.74	*5.68*	9.47	*3H), 3.11 (s, 6H), 4.36 (q,* J =	
	ethyl acetate	(49.11	5.64	9.40)	7.1 Hz, 2H), 7.58 (AA'BB'q, $\Delta\nu_{AB}$ =	
					$\Delta\nu_{A'B'}$ = 9.8 Hz, $J_{AB} = J_{A'B'}$ =	
					9.0 Hz, 4H), 8.14 (1H)	
IIc	140-141	$C_{15}H_{19}N_3O_7S_2$			1.39 (t, J = 7.1 Hz, 3H), 3.16 (s,	37
		43.16	4.59	10.07	6H), 3.87 (s, 3H), 4.36 (q, J =	
	1-chlorobutane/ ethyl acetate (2:1)	(43.31	4.31	9.99)	7.1 Hz, 2H), 7.04 (d, J = 9.0 Hz, 2H), 7.59 (d, J = 9.0 Hz, 2H), 8.12 (s, 1H)	
IId	123-124	$C_{14}H_{15}Cl_2N_3O_6S_2$			1.39 (t, J = 7.1 Hz, 3H), 3.03 (br	45
		36.85	3.31	9.21	s, 3H), 3.54 (br s, 3H), 4.38 (q,	
	1-chlorobutane	(37.04	3.18	8.97)	J = 7.1 Hz, 2H), 7.46 (dd, J = 2.3, 8.6 Hz, 1H), 7.60 (d, J = 2.3 Hz, 1H), 7.81 (d, J = 8.6 Hz, 1H), 8.21 (s, 1H).	
IIe	161-162	$C_{15}H_{16}F_3N_3O_6S_2$			1.40 (t, J = 7.0 Hz, 3H), 3.17 (s,	44
		39.56	3.54	9.23	6H), 4.38 (q, J = 7.0 Hz, 2H),	
	acetonitrile	(39.56	3.44	9.09)	7.86 (AA'BBq, $\Delta\nu_{AB} = \Delta\nu_{A'B'}$ = 6.8 Hz, $J_{AB} = J_{A'B'}$ = 9.25 Hz, 4H), 8.19, (s, 1H)	
IIf	145-146	$C_9H_{15}N_3O_6S_2$			1.36 (t, J = 7.1 Hz, 3H), 3.51 (s,	35
		33.22	4.65	12.92	6H), 3.92 (s, 3H), 4.34 (q,	
	1-chlorobutane	(33.55	4.63	12.83)	J = 7.1, 2H), 7.97 (s, 1H)	

Table 2

Compound	mp (°C) Crystallization solvent	Formula Anal. Calcd. (Found) C	H	N	^{1}H NMR (deuteriochloroform) δ, J (Hz)	Yield (%)
IIIa	95-96	$C_{13}H_{15}N_3O_4S$			1.40 (t, J = 7.1 Hz, 3H), 2.78 (s,	71
		50.47	4.89	13.58	3H), 4.37 (q, J = 7.1 Hz, 2H),	
	1-chlorobutane/ ethyl acetate (5:1)	(50.44	4.76	13.22)	7.41-7.71 (s+m, 6H), 8.03 (s, 1H)	
IIIb	oil	$C_{17}H_{23}N_3O_4S$			1.35 (s, 9H), 1.39 (t, J = 7.1 Hz,	88
		55.87	6.35	11.50	3H), 2.74 (s, 3H), 4.37 (q, J =	
		(55.83	6.18	11.43)	7.1 Hz, 2H), 7.44 (s, 1H), 7.51 (s, 4H), 8.04 (s, 1H)	
IIIc	121-123	$C_{14}H_{17}N_3O_5S$			1.39 (t, J = 7.1 Hz, 3H), 2.78 (s,	86
		49.55	5.05	12.38	3H), 3.85 (s, 3H), 4.36 (q, J =	
	1-chlorobutane/ ethyl acetate (2:1)	(49.63	4.96	12.13)	7.1 Hz, 2H), 6.99 (d, J = 9.0 Hz, 2H), 7.44 (s, 1H), 7.50 (d, J = 9.0 Hz, 2H), 8.00 (s, 1H)	
IIId	oil	$C_{13}H_{13}Cl_2N_3O_4S$			1.40 (t, J = 7.1 Hz, 3H), 2.89 (s,	51
		41.28	3.46	11.11	3H), 4.37 (q, J = 7.1 Hz, 2H),	
		(41.42	3.45	10.71)	7.41 (dd, J = 2.3, 8.6 Hz, 1H), 7.44 (s, 1H), 7.49 (d, J = 8.6 Hz, 1H), 7.55 (d, J = 2.3 Hz, 1H), 8.07 (s, 1H)	
IIIe	133-134	$C_{14}H_{14}F_3N_3O_4S$			1.41 (t, J = 7.1 Hz, 3H), 2.93 (s	98
		44.56	3.74	11.14	3H), 4.38 (q, J = 7.1 Hz, 2H),	
	1-chlorobutane	(44.84	3.83	11.00)	7.53 (s, 1H), 7.80 (AA'BB'q, $\Delta\nu_{AB} = \Delta\nu_{A'B'} = 12.3$ Hz, $J_{AB} = J_{A'B'} = 8.6$ Hz, 4H), 8.07 (s, 1H)	
IIIf	121-122	$C_8H_{13}N_3O_4S$			1.37 (t, J =7.1 Hz, 3H), 3.03 (s,	71
		38.86	5.30	16.99	3H), 3.97 (s, 3H), 4.32 (q, J =7.1,	
	1-chlorobutane	(39.11	5.16	16.87)	2H), 7.18 (s, 1H), 7.86 (s, 1H)	



As expected, the reaction of equimolar amounts of methanesulfonyl chloride, a substituted ethyl 5-aminopyrazole-4-carboxylate **I** and sodium hydride gave a mixture of the unreacted substituted ethyl 5-aminopyrazole-4-carboxylate **I** and the substituted ethyl 5-[bis(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylate **II**. On the other hand, the reaction of two equivalents of methanesulfonyl chloride and of sodium hydride with one equivalent of a substituted ethyl 5-aminopyrazole-4-carboxylate **I** gave a mixture of the expected substituted ethyl 5-[bis(methylsulfonyl)-amino]-1*H*-pyrazole-4-carboxylate **II** and of the substituted ethyl 5-[(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylate **III**. Treatment of the substituted ethyl 5-[bis(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **II** with two equivalents of sodium hydride in dimethylformamide led to the loss of one of the methanesulfonyl groups and the formation of the sodium salt of the substituted ethyl 5-[(methylsulfonyl)-amino]-1*H*-pyrazole-4-carboxylates **III**. Alkylation of **III** with methyl iodide in the presence of potassium carbonate produced the substituted ethyl 5-[methyl(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **IV**. The sodium hydride mediated intramolecular cyclization of **IV** gave the 7-substituted 1,7-dihydro-1-methylpyrazolo[3,4-*c*][1,2]thiazin-4(3*H*)-one 2,2-dioxides **V**.

Table 3

Compound	mp (°C) Crystallization solvent	Formula Anal. Calcd (Found) C	H	N	^{1}H NMR (deuteriochloroform) δ, J (Hz)	Yield (%)
IVa	106-107	$C_{14}H_{17}N_3O_4S$			1.39 (t, J = 7.1 Hz, 3H), 2.97 (s, 3H), 3.33 (s, 3H), 4.31-4.38 (m, 2H), 7.43-7.55 (m, 5H), 8.08 (s, 1H)	85
	1-chlorobutane	52.00 (52.11	5.30 5.22	13.00 12.81)		
IVb	145-146	$C_{18}H_{25}N_3O_4S$			1.35 (s, 9H), 1.39 (t, J = 7.1 Hz, 3H), 2.96 (s, 3H), 3.32 (s, 3H), 4.30-4.38 (m, 2H), 7.49 (AA' BB'q, $\Delta\nu_{AB} = \Delta\nu_{A'B'} = 12.3$ Hz, $J_{AB} = J_{A'B'} = 8.9$ Hz, 4H), 8.07 (s, 1H)	76
	1-chlorobutane	56.97 (57.16	6.64 6.58	11.07 11.00)		
IVc	99-100	$C_{15}H_{19}N_3O_5S$			1.39 (t, J =7.1 Hz, 3H), 2.98 (s, 3H), 3.29 (s, 3H), 3.85 (s, 3H), 4.31-4.37 (m, 2H), 6.99 (d, J = 9.0 Hz, 2H), 7.44 (d, J = 9.0 Hz, 2H), 8.05 (s, 1H)	92
	1-chlorobutane	50.98 (51.02	5.42 5.35	11.89 11.84)		
IVd	116-117	$C_{14}H_{15}Cl_2N_3O_4S$			1.40 (t, J = 7.1 Hz, 3H), 3.02 (s, 3H), 3.31 (s, 3H), 4.31-4.35 (m, 2H), 7.40 (dd, J = 2.3, 8.6 Hz, 1H), 7.54 (s, 1H), 7.55 (d, J = 8.6 Hz, 1H), 8.13 (s, 1H)	78
	1-chlorobutane/ hexane (1:1)	42.87 (42.67	3.85 3.89	10.71 10.57)		
IVe	124-125	$C_{15}H_{15}F_3N_3O_4S$			1.40 (t, J = 7.1 Hz, 3H), 3.04 (s, 3H), 3.38 (s, 3H), 4.32-4.39 (m, 2H), 7.75 (AA'BB'q, $\Delta\nu_{AB} = \Delta\nu_{A'B'} = 16.72$ Hz, $J_{AB} = J_{A'B'} = 8.6$ Hz, 4H), 8.11 (s, 1H)	76
	acetonitrile	46.03 (45.84	4.12 4.09	10.74 10.69)		
IVf	65-66	$C_9H_{15}N_3O_4S$			1.37 (t, J = 7.1 Hz, 3H), 3.06 (s, 3H), 3.35 (s, 3H), 3.89 (s, 3H), 4.26-4.33 (m, 2H), 7.90 (s, 1H)	70
	1-chlorobutane/ hexane (1:1)	41.37 (41.44	5.79 5.75	16.08 16.08)		

The methylene groups of all the compounds in Table 3 appear as two overlapping quartets, accordingly we reported them as multiplets.

Table 4

Compound	mp (°C) Crystallization solvent	Formula Anal. Calcd. (Found) C	H	N	^{1}H NMR (deuteriochloroform) δ, J (Hz)	Yield (%)
Va	145-146	$C_{12}H_{11}N_3O_3S$			3.02 (s, 3H), 4.10 (s, 2H), 7.47-7.73 (m, 5H), 8.14 (s, 1H)	72
	1-chlorobutane	51.97 (52.08	4.00 3.95	15.15 14.92)		
Vb	154-155	$C_{16}H_{19}N_3O_3S$			1.37 (s, 9H), 3.03 (s, 3H), 4.09 (s, 2H), 7.58 (AA'BB'q, $\Delta\nu_{AB} =$ ΔνA'B' = 14.9 Hz, $J_{AB} = J_{A'B'} = 9.0$ Hz, 4H), 8.12 (s, 1H)	49
	1-chlorobutane	57.64 (57.69	5.74 5.63	12.60 12.75)		
Vc	224-225	$C_{13}H_{13}N_3O_4S$			3.01 (s, 3H), 3.89 (s, 3H), 4.08 (s, 2H), 7.05 (d, J = 9.0 Hz, 2H), 7.59 (d, J = 9.0 Hz, 2H), 8.11 (s, 1H)	27
	ethyl acetate	50.81 (50.99	4.26 4.30	13.67 13.27)		
Vd	165-166	$C_{12}H_9Cl_2N_3O_3S$			3.00 (s, 3H), 4.11 (s, 2H), 7.47 (m, 2H), 7.66 (t, J = 1.1 Hz, 1H), 8.16 (s, 1H)	69
	1-chlorobutane	41.63 (42.02	2.62 2.70	12.14 11.93)		
Ve	188-189	$C_{13}H_{10}F_3N_3O_3S$			3.07 (s, 3H), 4.12 (s, 2H), 7.88 (AA'BB'q, $\Delta\nu_{AB} = \Delta\nu_{A'B'} = 22.6$ Hz, $J_{AB} = J_{A'B'} = 8.9$ Hz, 4H), 8.18 (s, 1H)	62
	1-chlorobutane	45.22 (45.33	2.92 2.84	12.17 12.04)		
Vf	150-151	$C_7H_9N_3O_3S$			3.35 (s, 3H), 3.91 (s, 3H), 4.05 (s, 2H), 7.96 (s, 1H)	44
	1-chlorobutane	39.06 (39.31	4.22 4.18	19.52 19.32)		

EXPERIMENTAL

Melting points were determined with a Thomas Hoover capillary melting point apparatus and are reported uncorrected. The ^{1}H nmr spectra were recorded using a Varian Unity Plus 300 or Varian VXRS 400. Chemical shift values are reported in parts per million on the δ scale. The nmr spin multiplicities are indicated by the symbols: s (singlet), d (doublet), t (triplet), q (quartet) and m (multiplet). Elemental analyses were performed by Quantitative Technologies Inc., Whitehouse, New Jersey, U.S.A. The ethyl 5-amino-1-methylpyrazole-4-carboxylate used in this investigation was purchased from Maybridge Chemical Company Ltd., and the ethyl 5-amino-1-phenylpyrazole-4-carboxylate was purchased from Aldrich Chemical Company. We used a 60% suspension of sodium hydride in mineral oil in this investigation.

Synthesis of Substituted Ethyl 5-aminopyrazole-4-carboxylates I. General Procedure.

Under a nitrogen atmosphere, ethyl (ethoxymethylene)cyanoacetate (0.08 mole) was added to the substituted phenylhydrazine (0.08 mole) or to the hydrochloride salt of the substituted phenylhydrazine (0.08 mole) and triethylamine (0.09 mole) in 125 ml of ethanol. The reaction mixture was stirred and heated under reflux for seven hours and then cooled to ambient temperature. Most of the ethanol was removed under vacuum and then water (150 ml) was added to the residue. The solid product was removed by filtration, washed with water and crystallized from a suitable solvent.

Ethyl 5-Amino-1-(4-*tert*-butylphenyl)pyrazole-4-carboxylate **Ib**.

This compound was prepared from 4-*tert*-butylphenylhydrazine hydrochloride, triethylamine and ethyl (ethoxymethylene)cyanoacetate, yield 87% with crystallization from 1-chlorobutane, mp 159-160°; ^{1}H nmr (deuteriochloroform): 1.35 (s, 9H), 1.36 (t, J = 7.1 Hz, 3H), 4.30 (q, J = 7.1 Hz, 2H), 5.27 (br s, 2H), 7.48 (AA'BB'q, $\Delta\nu_{AB} = \Delta\nu_{AB} = 21.2$, Hz, $J_{AB} = J_{A'B'} = 8.6$ Hz, 4H), 7.72 (s, 1H).

Anal. Calcd. for $C_{16}H_{21}N_3O_2$: C, 66.87; H, 7.37; N, 14.62. Found: C, 67.18; H, 7.16; N, 14.60.

Ethyl 5-Amino-1-[(4-trifluoromethyl)phenyl]pyrazole-4-carboxylate **Ie**.

This compound was prepared from 4-(trifluoromethyl)phenylhydrazine and ethyl (ethoxymethylene)cyanoacetate, yield 70% with crystallization from 1-chlorobutane, mp 124-125°; ^{1}H nmr (deuteriochloroform): 1.37 (t, J = 7.1 Hz, 3H), 4.32 (q, J = 7.1 Hz, 2H), 5.39 (brs, 2H), 7.76 (AA'BB'q, $\Delta\nu_{AB} = \Delta\nu_{A'B'} = 15.9$ Hz, $J_{AB} = J_{A'B'} = 8.6$ Hz, 4H), 7.82 (s, 1H).

Anal. Calcd. for $C_{13}H_{12}F_3N_3O_2$: C, 52.17; H, 4.04; N, 14.04. Found: C, 52.21; H, 3.96; N, 14.04.

Ethyl 5-Amino-1-(4-methoxyphenyl)pyrazole-4-carboxylate **Ic** and Ethyl 5-Amino-1-(2,4-dichlorophenyl)pyrazole-4-carboxylate **Id** are known compounds [7,8] and were prepared as described above.

Synthesis of Substituted Ethyl 5-[bis(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **II**. General Procedure.

Under a nitrogen atmosphere, the substituted ethyl 5-aminopyrazole-4-carboxylate (0.48 mole) was added in small portions over 20 minutes to a stirred suspension of sodium hydride (4.2 g, 0.105 mole) in 150-200 ml of tetrahydrofuran. The temperature was kept at *ca.* 10° during the addition and then allowed to rise to room temperature. After 2 hours at ambient temperature, the reaction mixture was cooled to 0° and methanesulfonyl chloride (11.5 g, 0.1 mole) was added dropwise over 20 minutes to the sodium salt of **I**. The temperature was kept below 10° during the addition and then the reaction mixture was stirred at ambient temperature overnight. A few milliliters of ethanol (to quench excess sodium hydride) were added, most of the solvent was removed under vacuum and 0.2 *N* hydrochloric acid was added until the reaction mixture was acidic. If the product crystallized out, it was removed by filtration, washed with water, dried and crystallized from a suitable solvent. In the cases where the product did not crystallize out from the aqueous medium, the reaction mixture was extracted with ethyl acetate, and the combined ethyl acetate extracts were washed with water and dried over magnesium sulfate. Removal of the magnesium sulfate by filtration and concentration of the filtrate gave the crude products which were purified by column chromatography eluting with 2/1 hexane:ethyl acetate. The isolated oils solidified and were crystallized from a suitable solvent. Compounds **IIe** and **IIf** were isolated by filtration.

Compounds **IIa**, **IIb**, **IIc** and **IId** were isolated by extraction. Data for the compounds prepared are listed in Table 1.

Synthesis of Substituted Ethyl 5-[(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **III**. General Procedure.

Under a nitrogen atmosphere, a substituted ethyl 5-[bis(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylate **II** (0.039 mole) was added in small portions to a stirred suspension of sodium hydride (3.2 g, 0.078 mole) in 15 ml of dimethylformamide. The temperature was kept at 10° during the addition, and then the reaction mixture was stirred at ambient temperature overnight. A few milliliters of ethanol were added, followed by 0.2 *N* hydrochloric acid until the reaction mixture was acidic. If a solid formed, it was removed by filtration, washed with water, dried and crystallized. In the cases where the product did not crystallize out from the aqueous medium, the same product isolation procedure described under the method for the preparation of substituted ethyl 5-[bis(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylates **II** was used to obtain the products. Compounds **IIIc** and **IIIe** were isolated by filtration. Compounds **IIIa**, **IIIb**, **IIId** and **IIIf** were isolated by extraction. Data for the compounds prepared are listed in Table 2.

Synthesis of Substituted Ethyl 5-[methyl(methylsulfonyl)-amino]-1*H*-pyrazole-4-carboxylate **IV**. General Procedure.

Under a nitrogen atmosphere, methyl iodide (4.46 g, 0.032 mole) was added to a stirred solution of a substituted ethyl 5-[(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylate **III** (0.026 mole) in 15 ml of dimethylformamide in the presence of potassium carbonate (7.0 g, 0.051 mole). The reaction mixture was stirred at room temperature overnight, and then water (approximately 50 ml) was added. The precipitated solid was removed by filtration, washed with water, dried and crystallized from a suitable solvent. If the product did not precipitate when the reaction mixture was diluted with water, the reaction mixture was extracted with ethyl acetate (3 x 50 ml), and the ethyl acetate extracts were combined, washed with water, and dried over magnesium sulfate. Removal of the magnesium sulfate by filtration and concentration of the filtrate gave the crude product which was purified by column chromatography eluting with 2/1

hexane:ethyl acetate. The isolated products solidified and were crystallized from a suitable solvent. Compounds **IVa, IVb, IVc** and **IVe** were isolated by filtration. Compounds **IVd** and **IVf** were isolated by extraction. Data for the compounds prepared are listed in Table 3.

Synthesis of 7-Substituted 1,7-Dihydro-1-methylpyrazolo[3,4-*c*]-1,2-thiazin-4(3*H*)-one 2, 2- Dioxides **V**. General Procedure.

Under a nitrogen atmosphere, sodium hydride (1.5 g, 0.0375 mole) was added to a cold (5°) solution of the substituted ethyl 5-[methyl(methylsulfonyl)amino]-1*H*-pyrazole-4-carboxylate **IV** (0.0186 mole) in 15 ml of dimethylformamide. The reaction mixture was stirred and the temperature was allowed to rise slowly to ambient temperature. After five hours at ambient temperature, approximately 1 ml of ethanol was added (to quench the excess sodium hydride), and then 1 *N* hydrochloric acid was added until the reaction mixture was acidic. The precipitated solid was removed by filtration, washed with water, dried and crystallized from a suitable solvent. In the cases where the product did not crystallize out from the acidic medium, the reaction mixture was extracted with ethyl acetate, and the combined ethyl acetate extracts were washed with water, and dried over magnesium sulfate. Removal of the magnesium sulfate by filtration and concentration of the filtrate gave the crude products which were purified by column chromatography eluting with 1/1 hexane:ethyl acetate. The isolated products solidified and were crystallized from a suitable solvent. Compounds **Va** and **Ve** were isolated by filtration. Compounds **Vb, Vc, Vd** and **Vf** were isolated by extraction. Data for the compounds prepared are listed in Table 4.

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