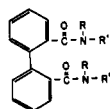


Table II. Properties and Analyses of Amides of 2,2'-Diphenic Acid



R	R'	M.P. ^a , °C.	Yield, %	N, %	
				Calcd.	Found
Hydrogen ^b	Hydrogen	209-211	41
Methyl	Hydrogen	116-116.5	90	10.44	10.40
Ethyl	Ethyl	140-141.5	55	7.90	7.93
<i>n</i> -Propyl	Hydrogen	122.5-123	83	8.63	8.68
<i>n</i> -Propyl	<i>n</i> -Propyl	93.5-94	75	6.87	6.84
<i>n</i> -Butyl	Hydrogen	76-77	33	7.94	7.94
Isobutyl	Hydrogen	112.5-113	93	7.94	8.09
<i>tert</i> -Butyl	Hydrogen	200-201	79	7.94	8.10
Phenyl ^c	Hydrogen	231-232	72
<i>p</i> -Tolyl	Hydrogen	175.5-176.5	71	6.66	6.59

^a Corrected.

^b Previously described in literature (2, 3), but these data were obtained in this laboratory.

neutralized by the addition of solid Na₂CO₃. The alcohol was removed by distillation, the residue dissolved in ether and dried over anhydrous Na₂SO₄. Further purification was either by vacuum distillation or recrystallization from petroleum ether.

METHOD 3. Silver 2,2'-diphenate (0.04 mole), prepared by reacting the sodium salt with silver nitrate, was 0.3 mole of pyridine. The pyridine hydrochloride was

precipitated by the addition of ether and the ether and alcohol removed by distillation. The residue was dissolved in ether and dried over anhydrous Na₂SO₄. The esters were recrystallized from petroleum ether.

METHOD 3. Silver 2,2'-diphenate (0.14 mole), prepared by reacting the sodium salt with silver nitrate, was suspended in 200 ml. of absolute ether. The alkyl chloride (0.45 mole) was added and refluxed for 24 hours. The mixture was filtered and the ether removed by evaporation. The crude product was recrystallized from petroleum ether.

Preparation of Amides. All of the amides were prepared by refluxing a mixture of 50 ml. of benzene, 0.04 mole of 2,2'-diphenoyl chloride and 0.10 mole of the amine for 15 minutes.

The benzene solution was washed successively with 5 ml. of water, 5 ml. of 5% HCl, 5 ml. of 5% aqueous NaOH, and again with 5 ml. of water. The benzene solution was evaporated cautiously over a water bath. The residue was dissolved in 5 ml. of hot ethanol, decolorized with Norit, and filtered. The amide was recrystallized from an ethanol-water solution until a constant melting point was reached.

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Solubility of Benzamide in *m*-Xylene

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THE SOLUBILITY of benzamide in *m*-xylene has been determined, with the results shown in Table I.

Table I. Solubilities of Benzamide in *m*-Xylene

Benzamide, Wt. % of Total Solution	Temp., °C.
0.5	57
1.0	68
5.0	95
10	105
20	108
40	110
50	112

EXPERIMENTAL

Benzamide was purified from Eastman benzamide by crystallizing from water after adjusting to pH8 with ammonia to dissolve acidic substances and decolorizing with active carbon. The purified benzamide had an acid number less than 0.05 and melted at 125-127° C.

m-Xylene from Oronite Division of California Chemical Co. contained 96% *m*-xylene. The impurities were primarily isomeric xylenes, with a trace of ethylbenzene.

Solubilities were determined by sealing weighed amounts of *m*-xylene and benzamide in glass ampoules and determining the temperatures at which complete solution occurred. Solution temperatures were repeatedly determined during both heating and cooling cycles.

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