

## The Solubility Curve for the System Adipic acid—*p*-Dioxane

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A figure for the solubility of adipic acid in *p*-dioxane was required for the preparation of tritium labelled dioctyl-adipate. The determination was performed in a 100 ml test tube with a thermometer (graduated to 1/10°C) and a stirrer inserted through the cork. 50 ml *p*-dioxane (m. p. 11.3°C,

Table 1. Phase separation temperature for adipic acid — *p*-dioxane mixtures.

Amount of adipic acid per 50 ml (= 50.18 g) <i>p</i> -dioxane	Temperature for phase separation (mean of three determinations)
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<i>g</i>	mole %	°C
0.00	0.00	11.3
1.00	1.18	10.7
2.21	2.48	9.9
3.39	3.91	11.5
4.63	5.27	25.3
6.13	6.85	34.7
10.30	11.01	53.5
12.47	13.03	61.0
14.53	14.86	67.4
20.62	19.92	77.6
26.69	24.27	88.5
33.42	28.65	96.5

b. p. 100–101.5°C) was pipetted into the tube and the adipic acid (m. p. 151–153°C) subsequently added in small portions. The tube was heated in a water bath until the acid had completely dissolved. It was then cooled and the temperature, at which the first inhomogeneities

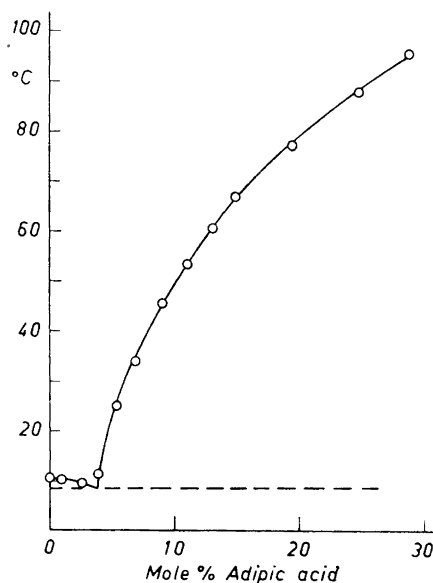


Fig. 1. Solubility curve for the system adipic acid — *p*-dioxane.

were observed, was recorded. The cooling was performed in a water-filled Dewar vessel kept at a temperature about 5°C below the expected temperature for the phase separation. Three readings were taken for each concentration.

The results show that the system behaves like an ordinary binary mixture. At 2.9 mole % adipic acid, the curve has a eutectic point, the extrapolated temperature of which is 9.5°C. The readings at high temperatures do not agree exactly with those at low temperatures. This was probably due to the fact that some dioxane evaporated at the high temperatures, causing the actual concentrations of adipic acid to be higher than the calculated ones.

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