to nucleophilic attack of the hypothetical active intermediate (I), analogous to the isolatable intermediates formed when ethoxyacetylene is used³. This may well be due to the presence of the basic 6-amino group on the adenosine nucleus.

Experiments are in progress using deoxyadenylic acid in which the 6-amino group has been benzoyleated. This should provide some further evidence to explain the predominance of thymidylic acid residues in the polymers.

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Liquid-solid Phase Diagram of (+) and (−) 5-Decanolide

To determine the liquid-solid T_x -diagram of optically active 5-decanolide (δ -decalactone) the melting curves of (+) and (−) 5-decanolide¹ were measured from -60° to 0° C by means of differential thermal analysis², the rate of heating up being 2.14° C/min (Fig. 1). The

Fig. 1. Differential thermal analysis heating-up curve (2.14° C/min) of 5-decanolide

Fig. 2 (a) Liquid-solid T_x -diagram for 5-decanolide determined experimentally.
(b) liquid-solid T_x -diagram for 5-decanolide after correction

accuracy of the melting points found was within 0.5° C. The samples were prepared by starting from the (+) and (−) components to which ($\pm$) 5-decanolide was added.

From the results obtained (Fig. 2a) it appears that the starting products were not completely pure although no impurities were detectable by gas chromatography. To approximate the phase diagram of the pure substances as closely as possible the following corrections were applied: (1) The curve representing the initial melting points was raised to such a degree that the melting points of the pure substances and eutectics coincided with the final melting points; (2) the part between 100 and 60 per cent (−) 5-decanolide was made symmetrical with the part extending from 100 to 60 per cent (+) 5-decanolide.

Fig. 2b shows the phase diagram after correction. From this diagram it appears that the eutectics lie at about 60 per cent (+) and 60 per cent (−) 5-decanolide with a continuous series of mixed crystals on both sides.

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Effect of the Constituents of Insulating Oils on their Gassing Properties and Breakdown Strength

PREVIOUS work on the gassing properties of insulating liquids revealed the beneficial effects of certain organic additives on the gassing rate of these liquids^{1,2}. More recently it has been shown that the chemical composition of oil has a considerable effect on its gassing rate³ and that certain organic additives would also affect conduction currents in transformer oil⁴. An investigation is being carried out at present which has shown that a correlation exists between the gassing tendencies and the breakdown strength of insulating oils.

A Pirelli gassing cell, similar to that developed at the Thornton Research Centre⁵ (Fig. 1), was used to study the gassing properties of different oils of commercial purity under a.c. voltages. This consisted of a concentric electrode system of 1.5 mm inner and 14.3 mm outer electrode diameter. Throughout the experiments the oil surface was exposed to an atmosphere of nitrogen and the apparatus was partially immersed in a thermostatically controlled oil bath the temperature of which was

kept constant at 50° C. The test liquids, supplied by Gulf Oil (Gt. Britain) Ltd., included a number of oils of varying aromatic contents and also B.30 normal transformer oil to which different amounts of *p*-benzoquinone (quinone) were added. Infra-red spectroscopic analyses were carried out to study the effect, if any, of voltage application on the different constituents of the transformer oil.

As an illustration of the results obtained, Fig. 1 shows the rate of gas evolution (gassing coefficient) for oil samples having different amounts of aromatic constituents, measured at applied voltages of 10 and 15 kV (r.m.s.). British standard breakdown tests (13 mm diam. Cu spheres at a gap spacing of 4 mm, B.S. 148; 1959) were also performed and the corresponding breakdown strengths are given in the same graph. It can be seen that increasing the aromatic content results in an increase in breakdown voltage and a corresponding reduction in gassing coefficient. A linear relation seems to hold between gassing