



SOME FACTORS AFFECTING THE TEMPERATURE
COEFFICIENT OF ZINC SULPHIDE TYPE PHOSPHORS

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SUMMARY

It is shown in a brief discussion that current theories do not explain the observed variation in the log of the intensity (B) with temperature for zinc sulphide type phosphors continuously excited with ultra-violet radiation.

The way in which the temperature coefficient of the phosphors depends on the silver and nickel concentrations is discussed. It is also shown that the temperature coefficient depends on the nature of the base matrix. This is changed by the addition of cadmium sulphide and by varying the conditions under which the phosphors are prepared.

It is found that the curves of log B v's $1/T$ can be normalized in a simple manner. In the process of the normalization a relationship is developed between the superlinearity of the phosphors to ultra-violet excitation and their temperature coefficient. An empirical equation, $B/I = 1/ [C_1' \exp(-P_1'/T) + C_2' \exp(-P_2'/T) + C_3]$, is fitted to the log B v's $1/T$ curve.

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