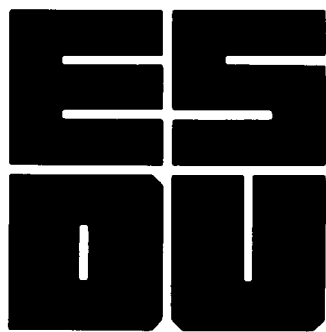


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Engineering Sciences Data
Item Number

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Normal melting points, boiling points and critical points of monobasic alkanoic acids

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ENGINEERING SCIENCES DATA ITEM NO.72006

Chemical Engineering Series

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Mr N.Thompson — Head of Fluid Mechanics and Physical Properties Group
Mr J.Walton — Fluid Mechanics and Physical Properties Group.

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In order to assist the preparation of new work and particularly to assist the periodic review and revision of work already issued, users are encouraged to make known their experience in using the information and procedures and to notify the Unit of any additional information they can provide or to which reference can be made. Prepaid reply service cards are available for this purpose. Whenever an Item is revised, users who have a Standing Order automatically have their Items updated. Those who do not have a Standing Order are advised to consult the current edition of the Engineering Sciences Data Index to ensure that they hold the latest issue of the Data Items.

(Continued on inside back cover)

NORMAL MELTING POINTS, BOILING POINTS AND CRITICAL POINTS OF MONOBASIC ALKANOIC ACIDS

1. INTRODUCTION

The liquids for which data are presented in this Item are listed below:

- (a) n-alkanoic acids, Table I,
- (b) isoalkanoic acids, Table II.

The names given in the first column of the Tables are those recommended by the BSI in Reference 1. The other names are in general the most widely used of other synonyms.

The Tables also give the molecular weights and the empirical and structural formulae. The molecular weights have been calculated from the atomic weights given in Item No.68043.

Experimental values of normal melting and normal boiling points are available for most of the compounds considered but only a few determinations of the critical temperatures and critical pressures have been made. The method of correlating these data and estimating the values given in the Tables is outlined in Section 4. Values in italics denote that no experimental data were available. It should be noted that for some compounds the normal boiling point and/or critical temperature so derived may be above the decomposition temperature. However, hypothetical values at these temperatures are sometimes necessary for calculating the properties of solutions.

Section 5 refers to three recommended methods which may be used to estimate boiling points at any particular pressure and which require data from this Item only.

2. NOTATION

P_{br}	reduced pressure of normal boiling point, i.e. $1/P'_c$	
P_c	critical pressure	10^5 N/m^2
P'_c	critical pressure, $(0.9869 P_c)$	atm
T	temperature	K
T_b	normal boiling point, $(t_b + 273.15)$	K
T_{br}	reduced temperature of normal boiling point, i.e. $\frac{T_b}{T_c}$	
T_c	critical temperature, $(t_c + 273.15)$	K
t	temperature	$^{\circ}\text{C}$
t_b	normal boiling point	$^{\circ}\text{C}$
t_c	critical temperature	$^{\circ}\text{C}$