

VII. SOLIDIFYING POINT (TITRE) CURVES OF MIXTURES OF METHYL STEARATE AND METHYL BEHENATE: SOLIDIFYING AND MELTING POINT CURVES OF MIXTURES OF STEARIC AND BEHENIC ACIDS.

*With N. R. Damle.*

The acids used were Kahlbaum's pure stearic acid recrystallised several times from alcohol and melting at 69·8°, and a behenic acid obtained by the reduction of erucic acid and melting at 79·8°. The methyl esters were prepared from these acids by the Fischer-Speyer method and melted respectively at 52° and 38°. The values obtained are given in Tables I and II and these values are given as graphs in Figs. II and III.

TABLE I.

*Solidifying points of Mixtures of Methyl Stearate and Methyl Behenate.*

Mixture No.	Percentage of methyl behenate.	Solidifying point in degrees centigrade.
S	0·0	36·6
2S1	2·2	35·0
S1	5·7	33·7
S2	10·6	34·4
2S2	15·5	35·1
S3	20·0	36·0
2S3	25·6	36·9
S4	31·8	38·2
2S4	35·8	38·8
S5	39·5	39·6
2S5	46·9	41·0
B5	49·6	41·7
S6 <sub>2a</sub>	50·1	41·8
	51·9	42·1
2B5	55·5	42·4
B4	59·7	43·5
2B4	65·0	44·3
B3	69·9	45·3
2B3	75·8	46·3
B2 <sub>21</sub>	79·7	47·0
	82·4	47·2
2B2	85·8	47·9
B1	90·0	48·6
2B1	94·6	49·4
B	100·0	50·2

TABLE II.

*Solidifying and Melting Points of Mixtures of Stearic and Behenic Acids.*

Mixture No	Percentage of behenic acid	Solidifying point in degrees C.	Melting point in degrees C.
X	0.0	69.2	69.8
X <sub>1</sub>	8.9	65.4	67.2
Z <sub>R</sub>	13.1	64.4	65.4
X <sub>6</sub>	15.1	63.6	64.6
X <sub>3</sub>	20.3	62.8	63.4
X <sub>7</sub>	28.0	61.8	62.6
X <sub>3</sub>	30.1	62.2	63.1
X <sub>4</sub>	39.8	63.4	64.2
Z <sub>r</sub>	49.3	64.4	65.4
X <sub>5</sub>	50.0	64.4	66.4
Z <sub>0</sub>	52.9	65.8	67.4
Y <sub>5</sub>	54.0	66.3	68.8
Z <sub>6</sub>	61.7	69.0	70.3
Y <sub>4</sub>	66.1	70.7	71.5
Z <sub>4</sub>	67.8	70.9	71.8
Y <sub>9</sub>	73.4	72.7	74.0
Z <sub>8</sub>	76.1	73.1	74.0
Y <sub>0</sub>	82.4	74.8	75.6
Z <sub>2</sub>	82.8	75.1	75.7
Y <sub>6</sub>	85.5	75.7	76.5
Y <sub>1</sub>	90.8	77.2	77.7
Z <sub>1</sub>	91.4	77.0	77.5
Y	100.0	79.3	79.8

The mixtures designated with the letter Z were examined by Mr. Mirchandani using different preparations of the acids. The agreement between the two sets of values is satisfactory.

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Fig 1.  
*Refractive index of hardened mustard oil.*

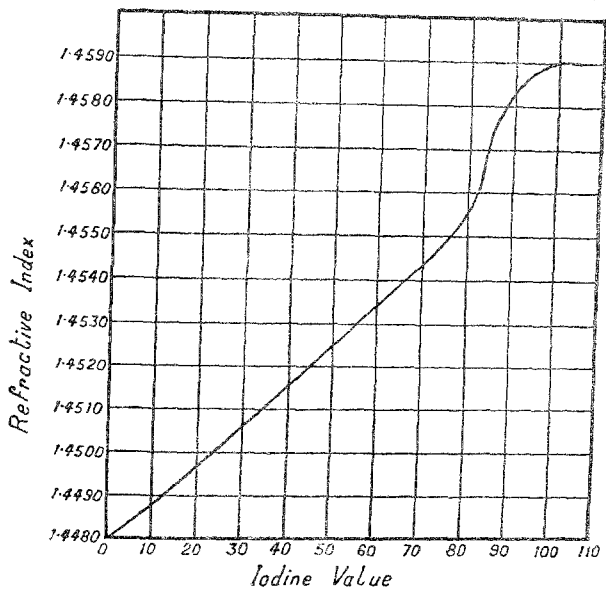


Fig. 2.

*Methyl stearate and methyl behenate*

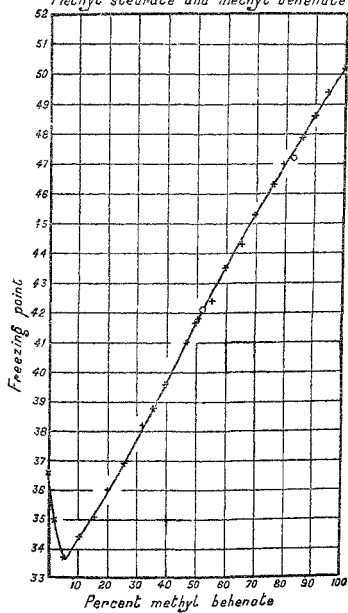


Fig. 3.

*Stearic and behenic acids*

