NOTES ON THICKENED OR BLOWN OIL.

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BLOWN or thickened oils are prepared from the various seed oils, by heating the oil in a suitable tank to 70°C ., and then blowing air into them through a perforated pipe; the temperature of the oil at once commences to rise, and irritating fumes are given off. The temperature is not allowed to rise beyond 75°C ., otherwise the oil becomes of a dark colour. Acetic and acrylic acids are present in the fumes. The blowing is continued from sixteen to thirty hours, or until the desired specific gravity is reached. The changes which take place in the oil during this process are most interesting; from their ordinary fluidity they become of a syrupy consistency; their specific gravity increases up to $\cdot990$; their insoluble fatty acids decrease to as low as $84\cdot12$ per cent. The glycerin, determined by the permanganate process, appears to increase about one per cent., except thickened linseed oil, which gives an increase of $2\frac{1}{2}$ per cent.; this increase in the glycerin may be due to some soluble oxidation products of the oil, which become reduced to oxalic acid by the permanganate.

No great quantity of free acid is present in these thickened oils; the amount calculated into terms of oleic acid, in a number of samples, varied from 2 to 5 per cent. On saponification with alcoholic potash the soap is very dark.

The following are mean results obtained from thickened linseed, rape, and cotton oils:

Linseed:—

	Per cent.
Insoluble fatty acids	87·67
Glycerin	12·85
Free fatty acids	2·73

The insoluble fatty acids, titrated with standard potash, gave $258\cdot4$ as the equivalent weight of the acid.

Cotton:—

	Per cent.
Insoluble fatty acids	85·50
Glycerin	11·68
Free fatty acids	5·35

The insoluble fatty acids, titrated with standard potash, gave $196\cdot0$ as the equivalent value of the acid. From the Ba salt, soluble in alcohol, we obtained an equivalent of $188\cdot0$.

Rape:—

	Per cent.
Insoluble fatty acids	84·70
Glycerin	11·32
Free fatty acids	3·70

Titrated with standard potash the insoluble fatty acids gave an equivalent of 186.0.

The equivalent 186.0, if the insoluble fatty acids were normal, would give the formula $C_{11}H_{22}O_2$. From the results of a combustion analysis, using fused chromate of lead, a large excess of oxygen was found, so that it would appear that the insoluble fatty acids are oxy-acids of the acrylic series.