

DETERMINATION OF THE OXIDIZING POWER OF AVAILABLE OXYGEN OF THE PEROXIDE AND THE OZONIDE OF AN OIL OR FAT.

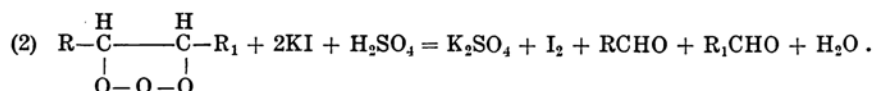
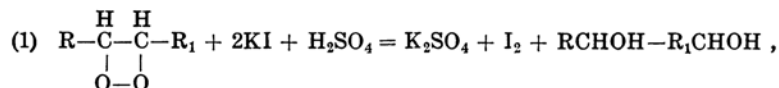
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The usual Kingzett method of determining ozone and hydrogen peroxide is not suitable for the peroxide or ozonide of an oil or fat, because the oxygenated oil or fat is insoluble in water. The method is so slow as to prohibit its employment for routine work. The method presented here was devised by the author to be applicable to oils and fats.

Exactly one cubic centimeter measured by a pipett graduated in tenths of a cubic centimeter, or more accurately, exactly one gram, of oxygenated oil or fat is placed in an Erlenmeyer flask, or a cylinder, of 250 c.c. capacity. Under constant shaking, 20 c.c. of a 10% solution of potassium iodide and 3 c.c. of a 20% solution of sulphuric acid are added, the free iodine produced is titrated with a 0.1 N solution or more accurately with a 0.01 N solution, of sodium thiosulphate, and then the flask is heated in a boiling water bath. The further developed iodine is then titrated with the thiosulphate solution using a starch solution as the indicator. This procedure is repeated until no more iodine is set free by the decomposition of the sample.

The principle of this method is based on the following chemical reactions :



The available oxygen content is calculated as in the case of hydrogen peroxide or ozone. One cubic centimeter of 0.1 N sodium thiosulphate solution is equivalent to 0.0127 gr. of iodine which is equivalent to 0.0008 gr. of oxygen. If one gram of olive oil ozonide, for example, requires 4.7 c.c. of a 0.1 N sodium thiosulphate solution for the liberated iodine, then, its oxidizing power or available oxygen content is given in per cent. by weight as follows :

$$\frac{4.7 \times 0.0008 \times 100}{1} = 0.375\%$$

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