

Application Memo

Iodine Value of Oleic Acid

Industry	Fat and oil
Instrument	Automatic potentiometric titrator
Measurement method	Redox titration
Standards	JIS K 0070, ISO 3961, The JOCS Standard methods for the Analysis of Fats, Oils and Related Materials

1. Overview

Iodine value is expressed as the mass of iodine in grams, is amount of halogen consumed by 100 grams of a chemical substance and is used to determine the amount of unsaturation in fatty acids. Iodine value of oleic acid which is a typical fatty acid of plant and animal fats and oils, is measured by Wijs Method.

The oleic acid test sample is first dissolved in cyclohexane, added excess Wijs reagent (iodine monochloride solution), left in a dark room for 30 minutes reaction, then potassium iodide is added. The excess iodine monochloride is titrated with the 0.1mol/L sodium thiosulfate solution up to the endpoint. The endpoint is determined by the highest inflexion point. The iodine value of oleic acid is calculated from the titration volume of the sodium thiosulfate solution.

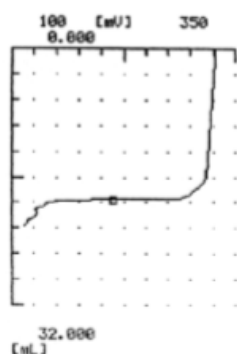
2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	Combined platinum electrode

3. Reagents

Titrant	0.1mol/L sodium thiosulfate
Additive	Cyclohexane Wijs reagent (Iodine trichloride 7.9g and iodine 8.9g each dissolved in acetic acid, then, mixed together to make it total 1L) 100g/L potassium iodide solution

4. Example



—Titration curve—

—Measurement results—			
	Sample (g)	Titer (mL)	Iodine value
1	0.3220	18.8575	24.04
2	0.3171	19.0676	23.58
3	0.3086	19.1544	23.87
Average			23.83
SD			0.23
RSD(%)			0.98

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