



Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 375

Overview

The bromine index of a sample is the number of milligrams of bromine that will react with 100 g of sample under the condition of the test. This was determined using the first derivative titration technique with an Orion double platinum electrode, and potassium bromide/bromate solution as the titrant. The Orion 960 Autotitrator PLUS determines the endpoint and calculates the bromine index of the sample.

Industry	Petroleum and Refining
Species Measured	Bromine
Sample	Hydrocarbon solvent
Sample Size	6.0g
Typical Concentration	50mg/100g
Technique	# 6 First Derivative
Electrode	Double Platinum 977900
Solutions	Glacial acetic acid; carbon tet; methanol; conc. sulfuric acid; isopropyl alcohol; 0.025N Br/BrO ₃ ; deionized water
Sample Prep	Weigh about 6 g (9 mL) of sample into a beaker. Accurately add 50 mL of the titration solvent to another beaker. Start the sequence by titrating the blank solvent. When the system "waits", pour the titrated solvent into the beaker containing the sample and continue (press YES) the analysis. Do not rinse the electrodes or empty beaker. The sample is now ready for analysis. Because "Bromine Index" is not available as a unit on the 960, chose the unit...[W].

Statistics

# of Trials	8	Mean	51.9mg/100g	%CV	4.14
--------------------	---	-------------	-------------	------------	------

Analysis Time 7.0minute(s)

Comments Rinse the electrodes, stirrer, and dispenser probe between measurements with deionized water. By also choosing appropriate values for reaction ratio, molecular weight, and titrant molarity, the result will be printed in units of bromine index.

Method Parameters

Sample Volume/Weight	7.0 g	Timed or Stability Readings	10.0 second(s) timed
Constant Increment	0.098 mL	Number of Endpoints	1
Max Titrant Volume	2.00 mL	Desired Units	...w
Molecular weight	7990.00	Predose	0.984 mL
Prestir	30.0 second(s)	Additional Parameters	
Reaction Ratio	1.00		