

## Application Memo

# Nitric Acid and Hydrofluoric Acid in Detergent

Industry	Inorganic chemical industry
Instrument	Automatic potentiometric titrator
Measurement method	Acid-base titration
Standards	

## 1. Overview

Nitric acid and hydrogen fluoride in detergent are measured by titration of acetone added diluted sample with 0.1mol/L potassium hydroxide + 2-propanol up to the endpoints, which are the maximum inflexion points on the titration curve. The acidity of nitric acid and hydrogen fluoride is calculated from the titration volume of potassium hydroxide + 2-propanol. Since dissociation constant of both nitric acid and hydrofluoric acid is large in solution, add acetone to differentiate H<sup>+</sup> ion between nitric acid and hydrogen fluoride so that the endpoints can be detected.

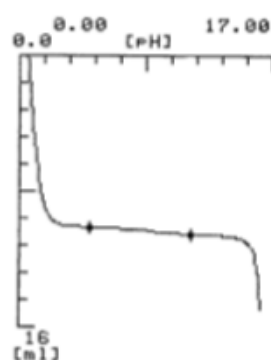
## 2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	pH Glass electrode Ceramic reference electrode Temperature compensation electrode

## 3. Reagents

Titrant	0.1mol/L potassium hydroxide + 2-propanol
Solvent	Acetone

## 4. Example



—Titration curve—

—Measurement results—

	Sample (g)	Titer EP1 (mL)	Titer EP2 (mL)	Nitric acidity (%)	HF acidity (%)
1	1.0031	10.1552	10.5783	63.790	0.8432
2	1.0031	10.1692	10.5780	63.878	0.8147
3	1.0031	10.1562	10.5716	63.796	0.8278
Average				63.821	0.8285
SD				0.049	0.0143
RSD(%)				0.077	1.72

Please feel free to contact us for any further information.  
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