

# Determination of Bromate in Wheat Flour by Ion Chromatography



## *Application industry*

Food industry, Quality inspection

## *Key words*

Bromate, Wheat flour, Conductivity detector, Ion chromatography

## *Sample*

Sample 1 : wheat flour

Sample 2 : wheat flour with 1mg/kg Bromate

Sample 3 : wheat flour with 20mg/kg Bromate

## *Equipment and Instruments*



CIC-D120 Ion Chromatograph, includes :

- SH-AC-4/Shodex 52-4E column
- High pressure pump
- Six-way injection valve
- Anion Self-Regeneration Suppressor
- Conductivity Detector

Ultrasonic cleaner

Oscillator

Centrifuge

## *Analysis condition*

Eluent : 3.6 mM Na<sub>2</sub>CO<sub>3</sub> ;

Injection volume : 100 μL ;

Flow speed : 0.7 mL/min ;

Column temperature : 45 °C ;

Conductivity detector temperature : 45°C

Suppressor current : 75mA

## *Reagent*

Ultra-pure water:18.2MΩ·cm

Bromate standard solution:100mg/L

Petroleum(purify high fat content samples) : AR,

boiling range (30-60) °C

## *Pretreatment*

Weigh about 10g wheat flour and add 100 mL ultra-pure water;

Ultrasound for 20 minutes and stand for 30 minutes;

Centrifugation of upper liquid at 3000 r/min for 30 minutes ;

After centrifugation, the supernatant is passed through



Ag/H column and 0.22 um filter membrane;  
 Ultrafiltration at 3000 r/min for 60 minutes in 10,000 Da ultrafiltration cup to remove the soluble macromolecule;  
 The ultrafiltration fluid is analyzed by IC.

The pretreated samples were analyzed according to the chromatographic conditions shown above and quantified by external standard method. The standard mixed solution separation chromatogram is shown in Fig. 1. The separation chromatograms of wheat flour sample and adding 1mg/kg and 20mg/kg bromate samples are shown in Fig. 2-4.

**Determination**

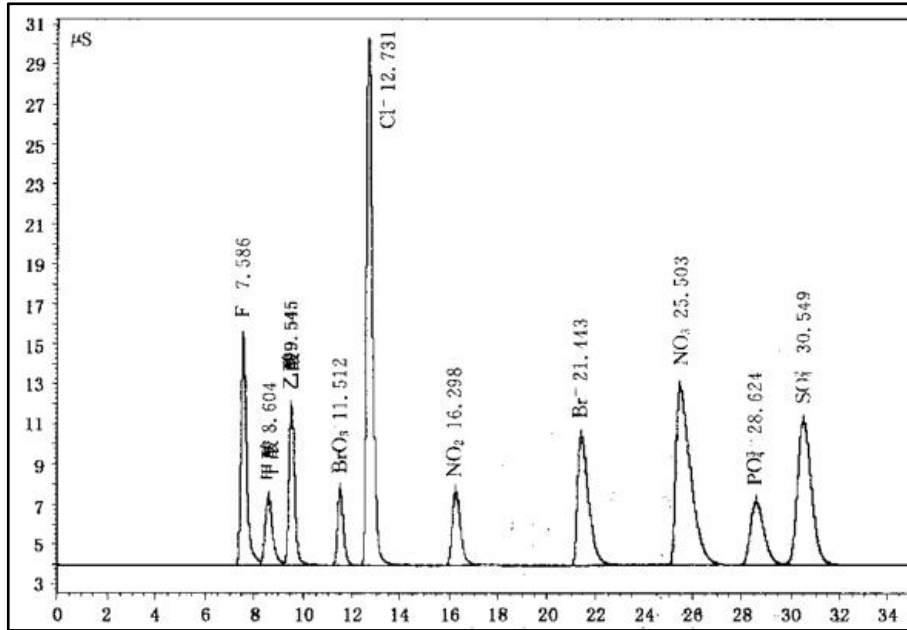


Fig. 1 The separation chromatogram of mixed standard solution

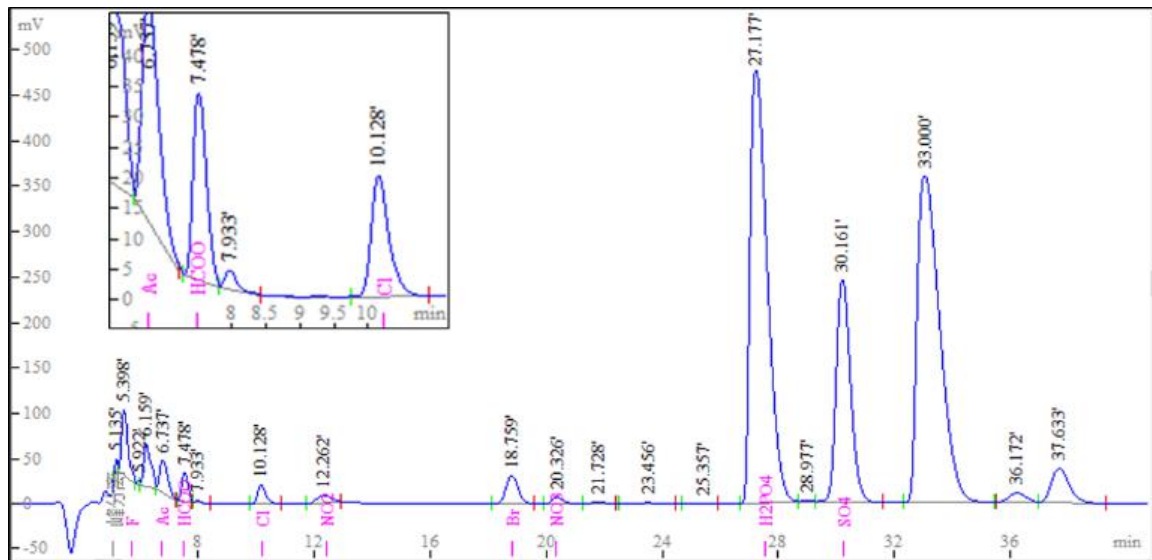


Fig. 2 The separation chromatograms of wheat flour sample



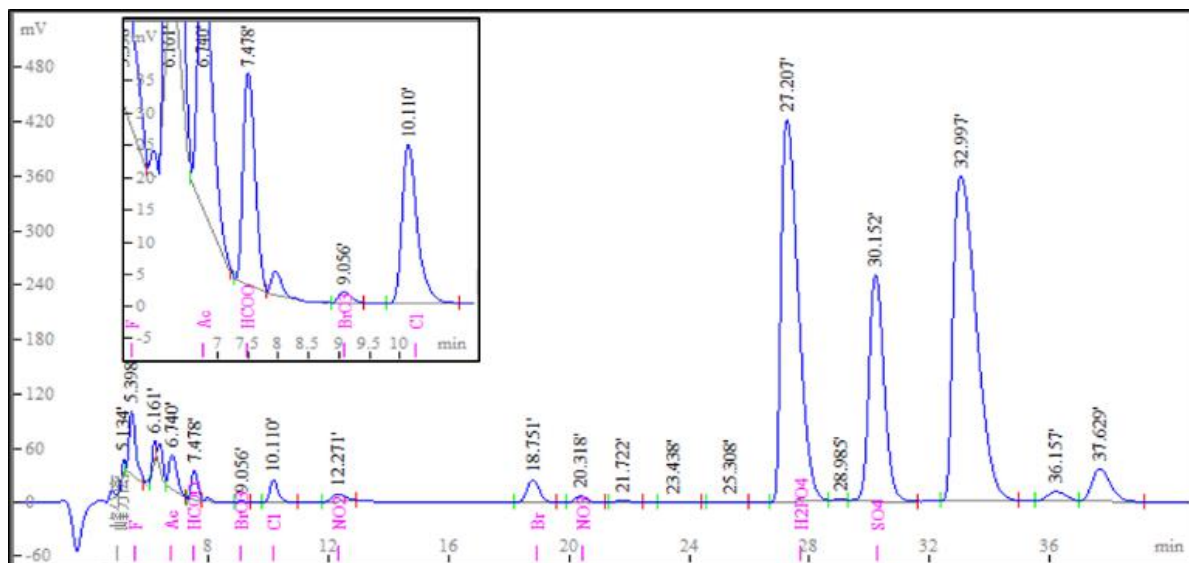


Fig. 3 The separation chromatograms of wheat flour with 1mg/kg bromate

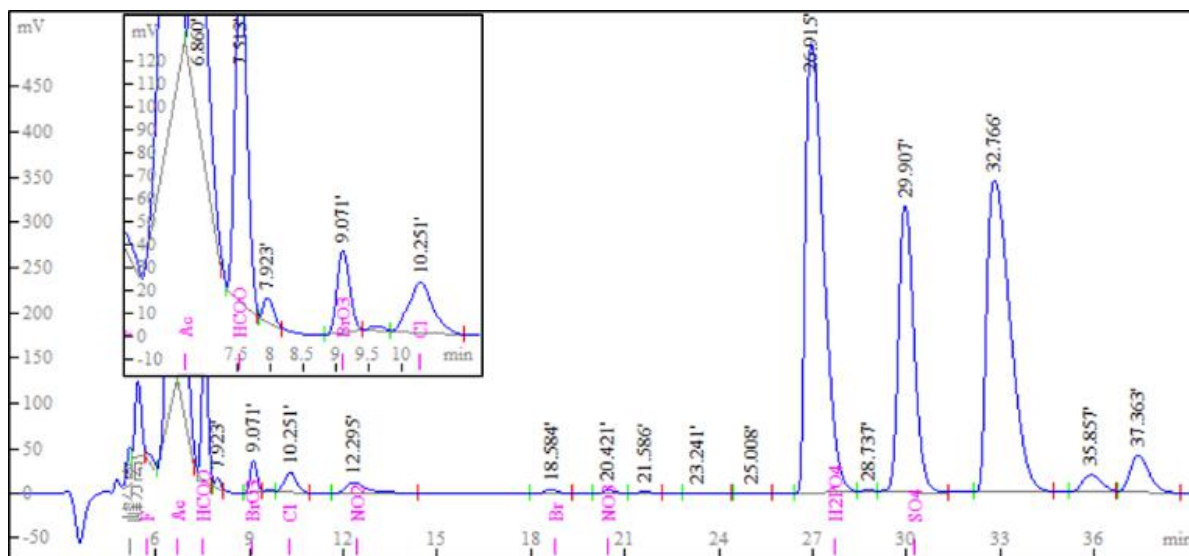


Fig. 4 The separation chromatograms of wheat flour with 20mg/kg bromate

