

## Quantitative analysis of halides in polymer samples



# Principle

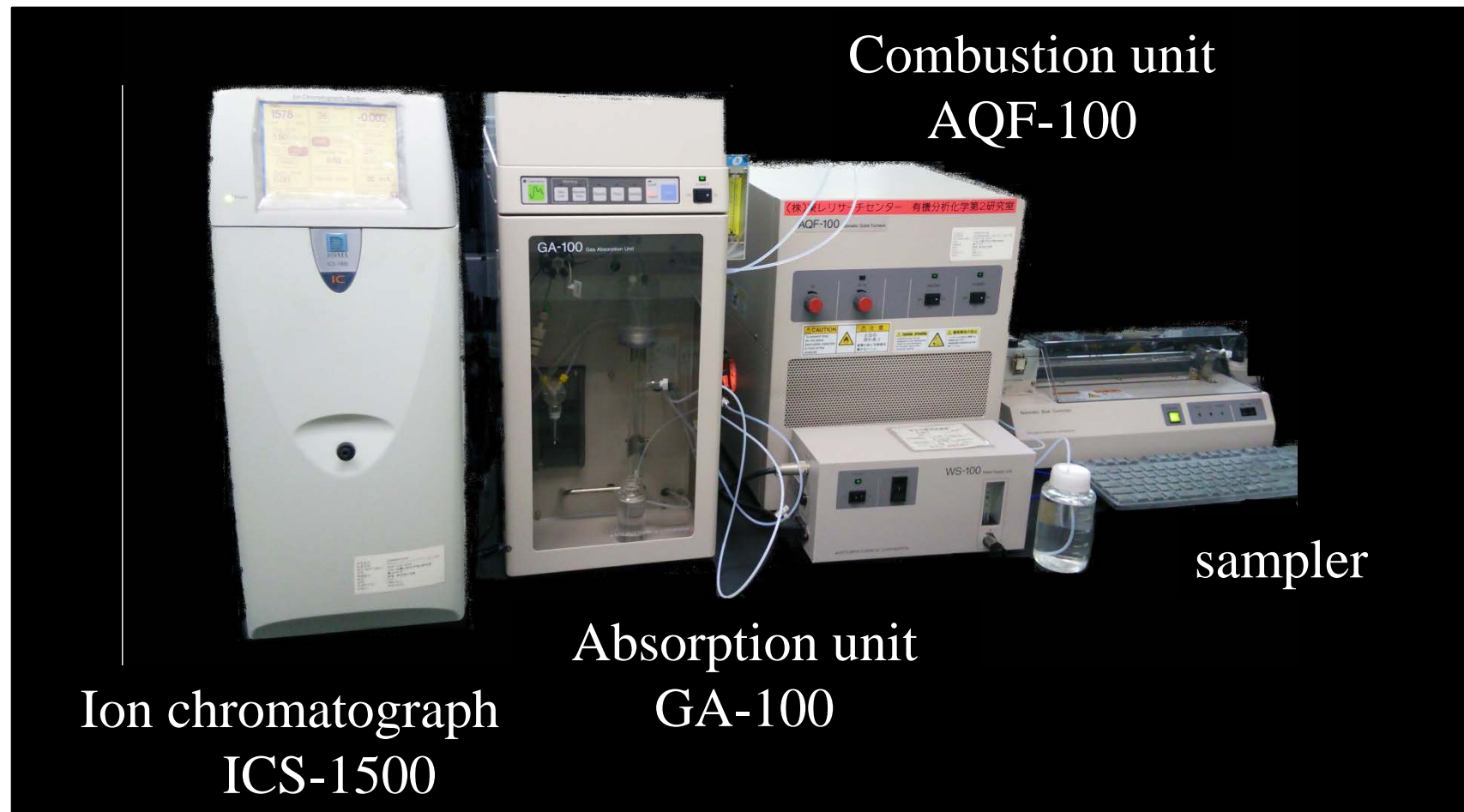
**Sample is weighed and burned in a quartz tubular furnace. Halide in the combustion gas is absorbed to aqueous solution of hydrogen peroxide. Halide ion is measured using ion chromatography.**

[elemental]	[combustion]	[absorbed sol. ]
<b>X(F,Cl,Br,I)</b>	<b>→ HX,X<sub>2</sub></b>	<b>→ X<sup>-</sup></b>
<b>S</b>	<b>→ SO<sub>2</sub>,SO<sub>3</sub></b>	<b>→ SO<sub>4</sub><sup>2-</sup></b>
<b>C</b>	<b>→ CO<sub>2</sub></b>	
<b>H</b>	<b>→ H<sub>2</sub>O</b>	
<b>N</b>	<b>→ NO,NO<sub>2</sub> (unsolved in aqueous sol.)</b>	
<b>P</b>	<b>→ P<sub>2</sub>O<sub>5</sub>(non volatile)</b>	
<b>M</b>	<b>→ MO(non volatile)</b>	



# Instrument

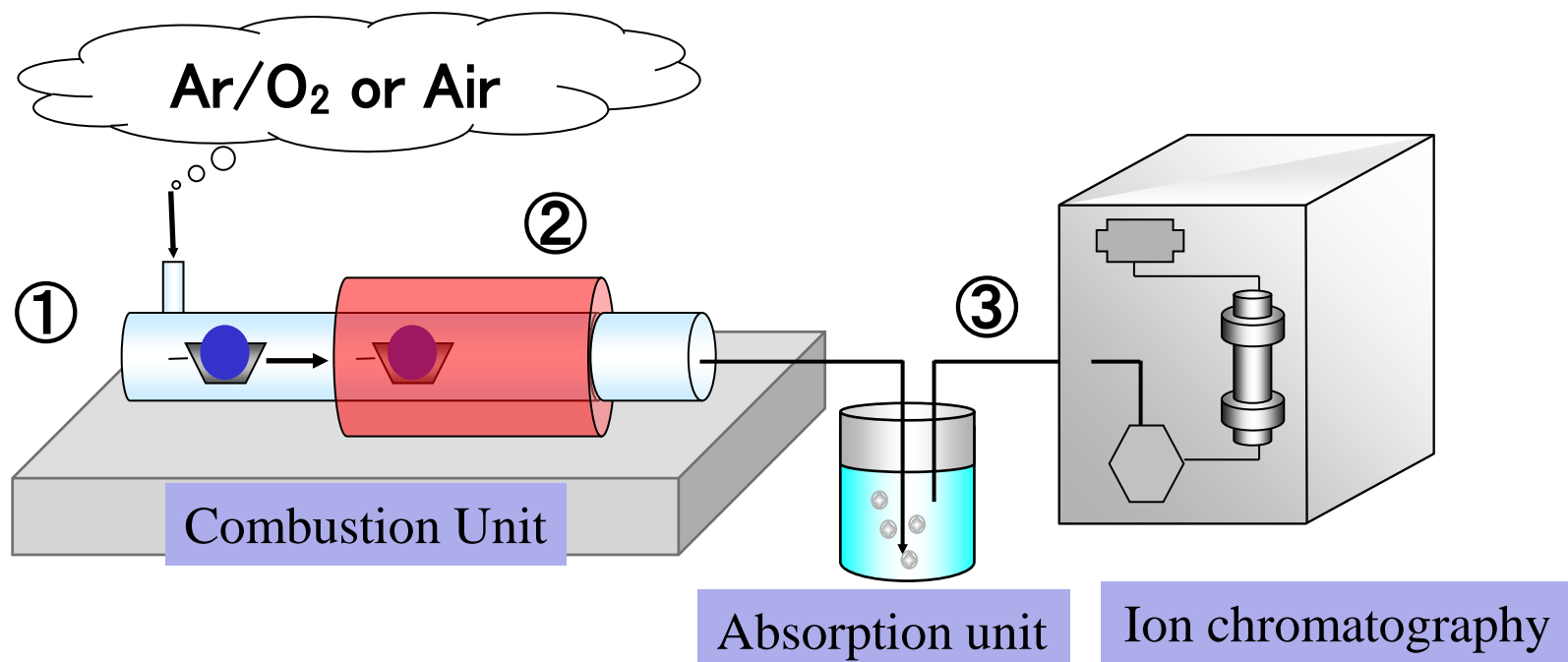
AQF-100,GA-100 Mitsubishi Chemical Analytech Co., Ltd



Toray Research Center, Inc.

S00229有機分析化学第2研究室20131101

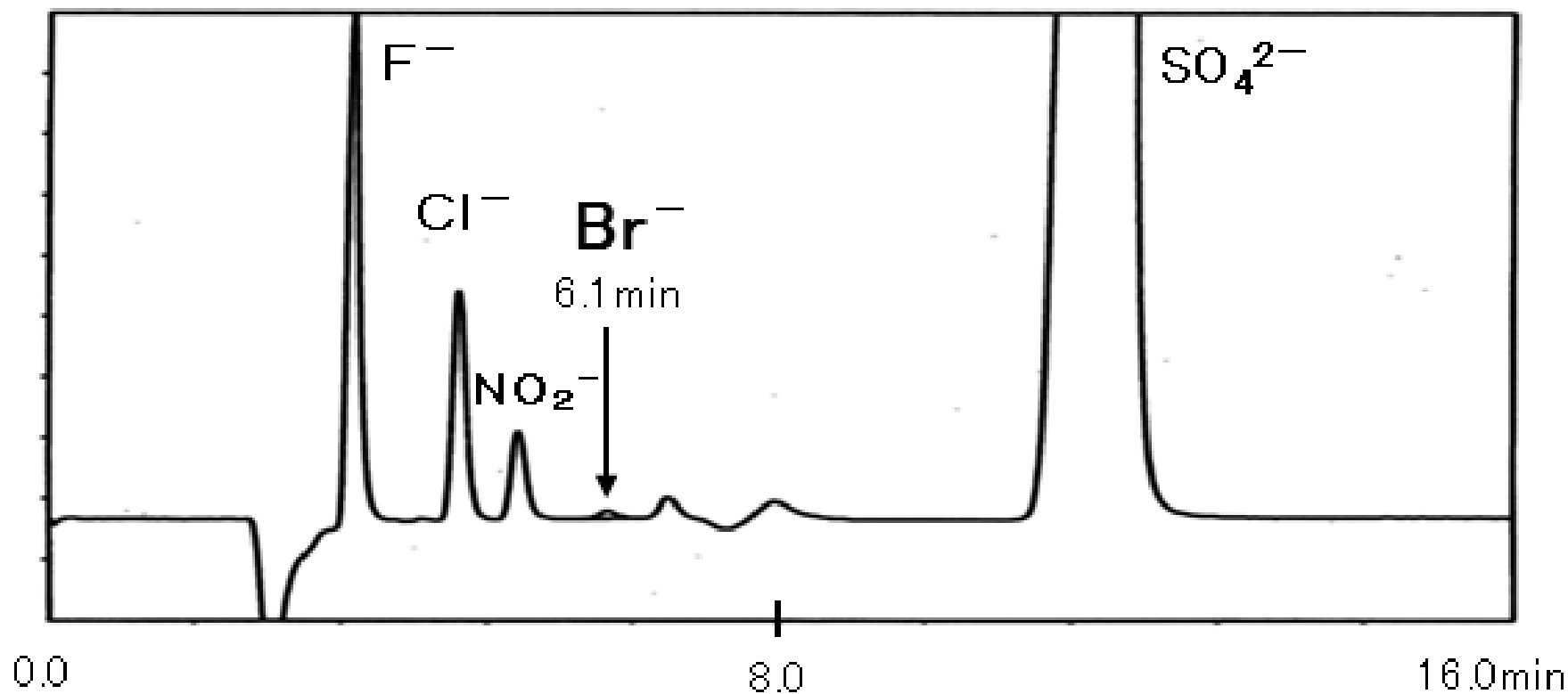
# Procedure



- ① Sample is weighed on a boat
- ② Burned completely in Ar/O<sub>2</sub> at 900~1000°C. Halide in the combustion gas is absorbed to 0.1% aqueous solution of hydrogen peroxide.
- ③ Halide ion generated from halide in absorbent, is measured using ion chromatography.



# Chromatogram(Br analysis)



**Halide and sulfur can be determined by combustion ion chromatography.**

**Detection limit: 2~10  $\mu\text{g/g}$**



Toray Research Center, Inc.

S00229有機分析化学第2研究室20131101

# Report format (example)

Table 1. Result for bromine in “sample name”.

Sample	Run	Found ( $\mu\text{g/g}$ )
		Br
○○○	First run	<4
	Second run	<4
	Average value	<4
Detection limit		4

