



## Detection of DCAA and TCAA in tap water

### Introduction:

Dichloroacetic acid and trichloroacetic acid are common organic chloride pollutants in water, which have potential hazards to the environment and human health. Dichloroacetic acid and trichloroacetic acid are usually caused by factors such as industrial wastewater, agricultural emissions, and disinfection by-products. In order to effectively monitor and control the content of dichloroacetic acid and trichloroacetic acid in water, it is necessary to establish accurate and reliable measurement methods. Ion chromatography can conveniently and quickly determine disinfection by-products.

Table 1: Detection items

Ions	Dichloroacetic acid	Trichloroacetic acid
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**Keywords:** Disinfection by-products, Ion Chromatograph.

### Instruments and equipment

- **Ion chromatograph:** CIC-D180
- **Ultra pure water machine:** EU-20

Qingdao Shenghan Chromatograph Technology Co., Ltd





## Requirements

### Reagents

Unless otherwise specified, all reagents used are superior grade. Commercially available certified standard solutions for dichloroacetic acid and trichloroacetic acid (1000 mg/L).

### Deionized Water

When preparing standard samples manually or diluting real samples, please use ASTM filtration and deionization requirements that meet the specifications listed in the table 2.

Table 2: Deionized water specification.

Specification	
Ions Resistivity	≥18.25MΩ·cm
Organics-TOC	<10ppb
Iron/Transition Metals	<1ppb
Pyrogens	<0.03Eu/mL
Particulates (>0.2μm)	<1unit/mL
Colloids-Silica	<10ppb
Bacteria	<1cfu/mL

## Chromatography conditions

Table 3: Analysis conditions

Instrument	CIC-D180
Eluent	0-30 min 3 mM KOH 30-43 min 3-16 mM KOH 43.1-48 min 45 mM KOH 48.1-53 min 3 mM KOH
Flow rate	1 mL/min
Injection volume	500 μL
Analytical column	SH-AC-25
Column oven temperature	35°C

Conductivity cell temperature	35°C
Suppressor current	120 mA

## Sample preparation

After passing through a 0.22μm filter membrane, the sample was tested on the instrument.

## Sample chromatogram

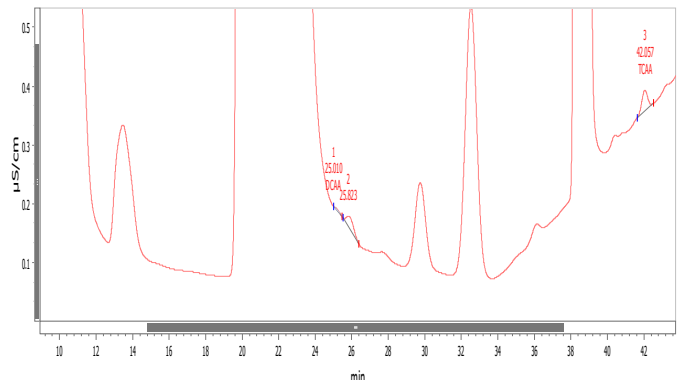


Figure 1. Chromatogram of sample

## Calculations

Remarks: ① Blank space has been deducted from the test results; ② There may be differences in testing results between different methods and laboratories.

## Feasibility analysis and conclusion

The above experiments prove that the detection method has good resolution and is suitable for the determination of the content of the components to be measured in the sample.