
DW-CIC-D100 Ion Chromatograph

1. Introduction

HPIC, based on classic ion chromatograph, is a new means of analyzing ion. It is developed in 1970's, and is a technology that can analyze micro-traces ion (esp. anion) distinctively and efficiently. The beginning of modern chromatograph is symbolized by Austrian scholar's principle of on-line separating and measuring, and American scholars H. Small, T. S. Stevens and W. C. Bauman's treatise "Novel Ion Exchange Chromatographic Method Using Conductimetric Detection".

DW-CIC-D100 model ion chromatographic meter is the research achievements of Shanghai Drawell Scientific Instrument Co.,Ltd in recent years. It is the new generation of products that is based on the research achievements of China's ion chromatographic technology, and is a synthesis of China's newest achievements of ion chromatographic research. Moreover, the company makes a thorough study on its application, which reflects the developmental trend of modern ion chromatographic. The ion chromatographic technology is based on the principle of ion exchange and use thin housing ion chromatographic column to quickly separate various ions. And then, in self-regenerative suppressor, which is at the back of separating column, series connection is used to dissolve strong electrolyte in rinse water in order to deduct its background conductance. And then use conductance detector to continuously detect conductance value of output fluid and we can get chromatographic peak value of various ion. This accomplishes the aim of separating, analyzing qualitatively and quantitatively at one time.

DW-CIC-D100 model ion chromatographic meter have the analytic model of suppress conductance detecting anion. We can use different types of chromatographic column to analyze various anions. We can detect not only such conventional anion as F-, Cl-, NO₂-, PO₄³⁻, Br-, NO₃-, SO₄²⁻, but also ClO₂-, ClO₃-, BrO₃-, etc.

At present, HPIC analytic technology has been applied to various fields such as environmental monitoring, sanitation and epidemic prevention, medicines, chemical

metallurgy, geology, hydrology, agriculture, forage, electronics industry, electric power, atomic energy, food and drinks, drinking water, scientific research, education, etc.

2. Major technical standards

2.1 Ion chromatographic pump

Type: High pressure double plunger tandem advection pump

High pressure pump maximum pressure : 42 MPa

Flow range : 0.001 ~ 9.999 mL/min

Flow accuracy : RSD < 0.1 %

Flow repeatability : RSD ≤ 0.2 %

2.2 Conduction Detection

type: Five electrodes conductance detector

Cell volume : ≤ 0.8 μL

Resolution : ≤ 0.0020 nS/cm

Signal output range : 0 ~ 35000 μS/cm (10 files available)

Output voltage : -6000 ~ 6000 mv

Baseline noise : ≤ 0.05% FS

Baseline drift : ≤ 3% FS/30min

Range of temperature : Room temperature +5 °C to 60 °C

The precision of temperature control : ± 0.01 °C

Temperature compensation : 1.7 %/°C

Maximum operating pressure : 10.0 MPa

2.3 Flow Path System

Plastic flow path : the whole PEEK material

six-way valve: PEEK material FLOM series of six-way valve, pressure 5000psi; a signal automatic collecting and flow function.

2.4 Analysis Ability

Anion analysis: F⁻, Cl⁻, Br⁻, I⁻, NO₂⁻, PO₄³⁻, NO₃⁻, SO₄²⁻ and other anions

Cation analysis: Li⁺, Na⁺, NH₄⁺, K⁺, Mg²⁺, Ca²⁺, Sr²⁺, Ba²⁺ and other cations

linear range: $\geq 10^3$

Analysis of reproducibility: $\leq 1.5\%$ ((measured by the Cl⁻, Na⁺))

Minimum detectable concentration: Cl⁻ ≤ 0.0005 ug/ml, BrO₃⁻ ≤ 0.001 ug/ml , Na⁺ ≤ 0.004

ug/ml