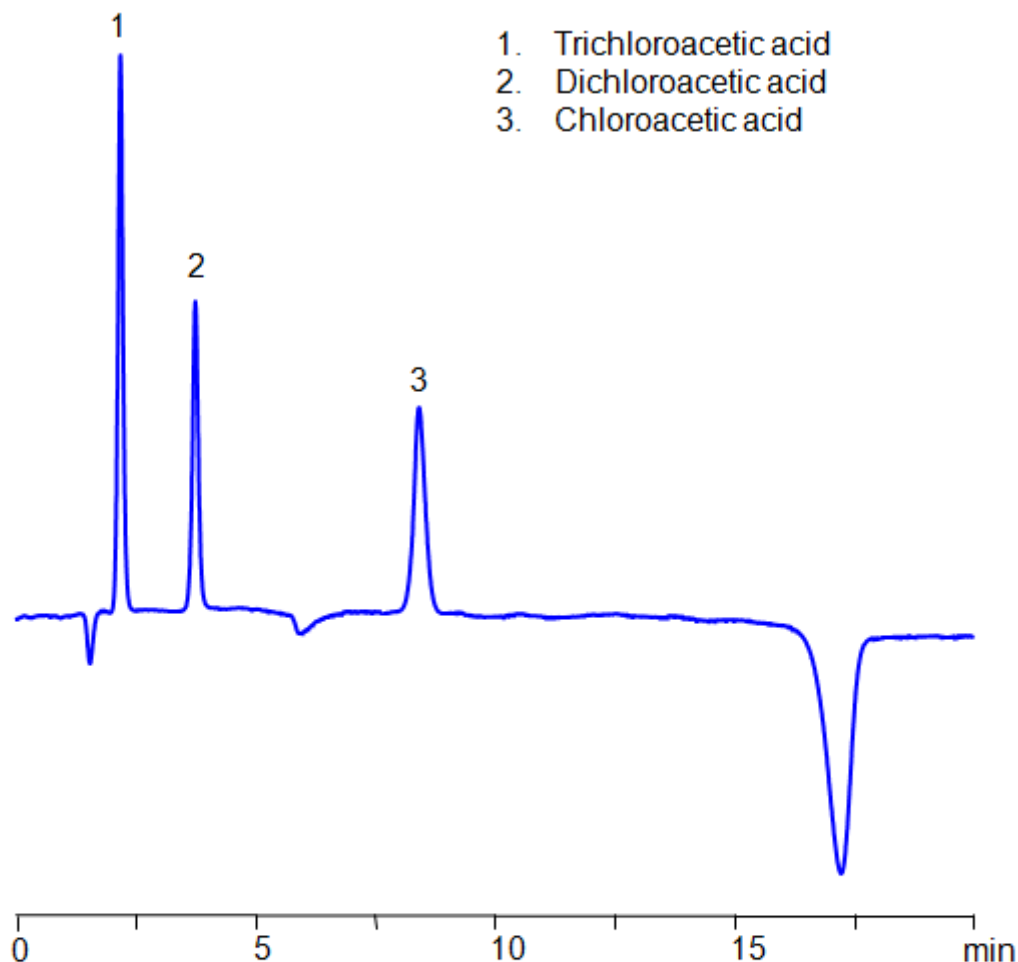


HPLC Method for Analysis of Chloroacetic acid, Dichloroacetic acid and Trichloroacetic acid on BIST™ A+ Column

<https://sielc.com/hplc-method-for-analysis-of-chloroacetic-acid-dichloroacetic-acid-and-trichloroacetic-acid>

Chromatogram



Column:	BIST™ A +
Column size:	2.1 × 100 mm, 3 µm
Column part number:	TAP-21.100.0310
Mobile phase:	MeCN - 90%
Buffer:	TMDAP formate – 5 mM pH 4.0
Flow rate:	0.4 mL/min
Detection:	Conductivity

Description

High Performance Liquid Chromatography (HPLC) Method for Analysis of Chloroacetic acid , Dichloroacetic acid , Trichloroacetic acid .

Chloroacetic Acid , also known as monochloroacetic acid (MCA), is a very toxic acid with the chemical formula $\text{ClCH}_2\text{CO}_2\text{H}$. It is most often used in the production of other chemicals such as phenoxy herbicides, carboxymethyl cellulose, and

carboxymethyl starch. It is considered extremely hazardous as it can cause burns on skin and eyes as well as be fatal if inhaled or swallowed. Despite that, it is a popular building block in organic syntheses. You can find detailed UV spectra of Chloroacetic Acid and information about its various lambda maxima by visiting the following link.

Dichloroacetic Acid (DCA) , also known as bichloroacetic acid (BCA), is a highly corrosive acid with the chemical formula $C_2H_2Cl_2O_2$. While it is used in personal care items and disinfectants, it is a known carcinogen. Despite that, research shows that it may be a plausible treatment for certain cancers. You can find detailed UV spectra of Dichloroacetic Acid and information about its various lambda maxima by visiting the following link.

Trichloroacetic Acid (TCA) , also known as trichloroethanoic acid, is an analogue of acetic acid with the chemical formula $C_2HCl_3O_2$. It is often used as a skin peeling treatment to exfoliate damaged skin and encourage collagen production. In laboratory research, it is used for precipitating proteins and to extract and prepare standards for ascorbic acid (Vitamin C) assays. You can find detailed UV spectra of Trichloroacetic Acid and information about its various lambda maxima by visiting the following link.

Using SIELC's newly introduced BIST™ method, a mixture of these three acids can be separated on a negatively-charged, cation-exchange BIST A+ column, contrary to conventional chromatographic wisdom. There are two keys to this retention method: 1) a multi-charged, positive buffer, such as N,N,N',N'-Tetramethyl-1,3-propanediamine (TMDAP), which acts as a bridge, linking the negatively-charged anion analytes to the negatively-charged column surface and 2) a mobile phase consisting mostly of organic solvent (such as MeCN) to minimize the formation of a solvation layer around the charged analytes. Other positively-charged buffers that can generate BIST™ include Calcium acetate and Magnesium acetate. Using this new and unique analysis method, these anions can be separated, retained, and detected with a Conductivity Detector.

Method Parameters

Mobile Phase	MeCN – 90%
Buffer	TMDAP (N,N,N',N'-Tetramethyl-1,3-diaminopropane) formate – 5 mM pH 4.0
Flow Rate	0.4 ml/min
Detection	Conductivity
Class of Compounds	Acid, Carboxylic acid, Haloacetic acid
Analyzing Compounds	Chloroacetic acid,Dichloroacetic acid,Trichloroacetic acid

HPLC Column Used

BIST A+, 2.1 x 100 mm, 3 µm, 100 Å, dual ended

[Order this column at hplc-shop.de →](https://www.hplc-shop.de)