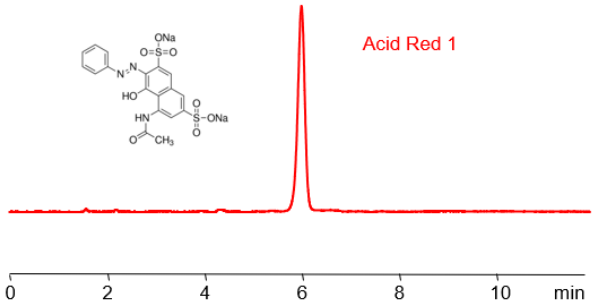
HPLC Method for Analysis of Acid Red 1 on BIST A Column



Column:	BIST™A
Column size:	4.6 × 150 mm, 5 µm
Column part number:	TA-46. 150.0510
Mobile phase:	MeCN/H_2O - 80/20%
Buffer:	TMDAP formate pH 4.0 - 5 mM
Flow rate:	1.0 mL/min
Detection:	VIS 535 nm

Acid Red 1 , also known as Red 2G , is a popular red synthetic dye used in a wide variety of food products with the chemical formula C18H13N3Na2O8S2 . It is banned for food use in Australia, Canada, Japan, Norway, Malaysia, and Israel due to being an potential carcinogen. In certain European countries, it is heavily restricted. Outside of use, it is used in inks and in histology.

Using SIELC's newly introduced BIST™ method, C.I. Acid Red 1 , which ionizes in water, can be retained on a negatively-charged, cation-exchange BIST A column. 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 Acid Red 1 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. The effect of reducing the solvation layer by increasing the organic component concentration in the mobile phase can be clearly seen above. Using this new and unique analysis method, Acid Red 1 can be retained and UV detected at 270 nm.

Method Parameters

Column	BIST A, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN – 80/20%
Buffer	TMDAP formate pH 4.0 – 5,0 mM
Flow Rate	1.0 mL/min
Detection	Vis 535 nm

Quelle: https://sielc.com/hplc-determination-of-acid-red-1-2

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