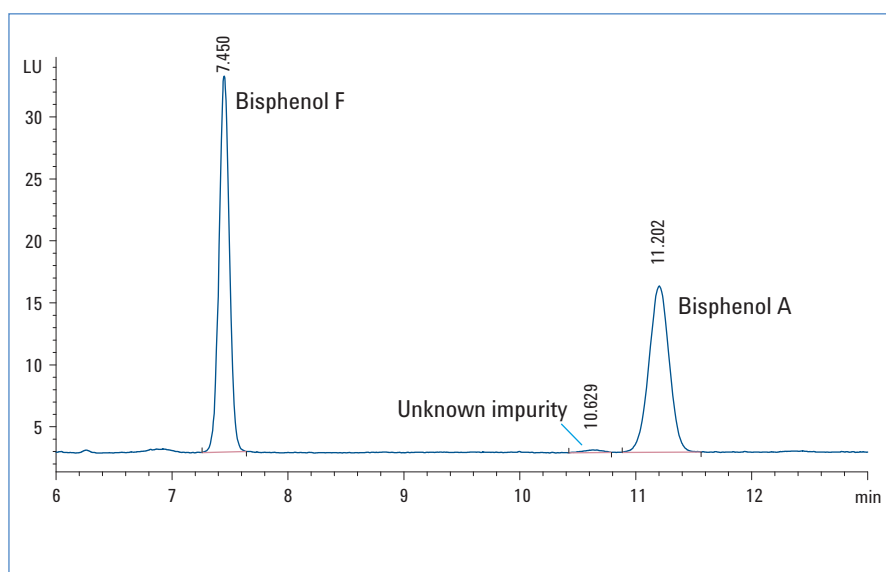


Consumer Products



Analysis of bisphenol A leaching from baby feeding bottles

Application Solution



Abstract

- Method development
- Method validation
- Sample preparation
- Real-life sample analysis

Bisphenol A can leach out from the plastic surfaces of food containers and has been detected in various matrices such as plasma, urine and groundwater. Bisphenol A is an endocrine disruptor, which can mimic the body's own hormones such as estrogen and may lead to negative health effects. In this Application Solution, we describe a method to quantify bisphenol A and a structurally similar analog bisphenol F extracted from baby feeding bottles. The method was developed on an Agilent 1260 Infinity LC system using an Agilent ZORBAX Eclipse Plus C18 column. The method was transferred to an ultrahigh performance liquid chromatography (UHPLC) method using an Agilent 1290 Infinity LC System. The UHPLC method has the same experimental conditions but showed narrower and higher peaks, better resolution, and improved signal-to-noise response.



Scope and Benefits

Bisphenol A (BPA) is a monomer used to make polycarbonate plastic and epoxy resins. Traces of BPA can leach out of these polycarbonate plastic surfaces under various environmental conditions such as heat or pH changes and are eventually consumed by humans. Based on the assumption that a threshold exists above which toxic effects are seen, the U.S. Environmental Protection Agency (US EPA) has established 50 µg/kg body weight/day as the reference dose (RfD) for BPA1. Baby bottles made of polycarbonate plastic are a potential risk to children.

Analytes

Bisphenol A, Bisphenol B

Matrix

Polycarbonate baby bottles

Ordering Information



Agilent 1260 Infinity Binary LC

Description

- 1260 Infinity Binary Pump
- 1260 Infinity Vacuum Degasser
- 1260 Infinity High Performance Autosampler with Thermostat
- 1260 Infinity Thermostatted Column Compartment
- 1260 Infinity Fluorescence Detector

Part Number

G1312B
G1379B
G1367E
G1330B
G1316A
G1312BB

Agilent 1290 Infinity LC

Description

- 1290 Infinity Binary Pump with integrated vacuum degasser
- 1290 Infinity High Performance Autosampler with Thermostat
- 1290 Infinity Thermostatted Column Compartment
- 1260 Infinity Fluorescence Detector

Part Number

G4220A
G4226A
G1330B
G1316C
G1312A

Software

Agilent ChemStation B.04.02 or higher

Columns

Description

ZORBAX Eclipse Plus C18 4.6 x 100 mm, 5 µm
ZORBAX Eclipse Plus C18 4.6 x 100 mm, 1.8 µm

Part Number

959996-902
959964-902

Chemicals

HPLC grade solvents
All chemicals were purchased from regular suppliers

For full details of this application see

Agilent Application Note 5990-9398EN

www.agilent.com/chem/lc

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