

Analysis of Formaldehyde in Drinking Water by HPLC and Post-column Derivatization

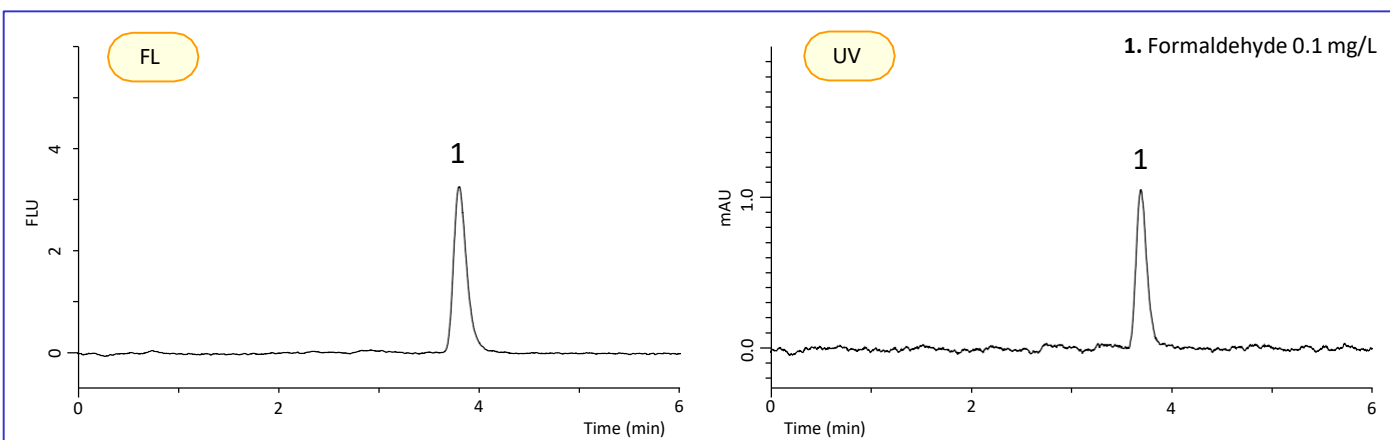
Formaldehyde is widely known as a toxic chemical, and the guideline value of 0.9 mg/L for its content in drinking water has been established by WHO. This note describes a determination method for formaldehyde in beer using HPLC equipped with a post-column derivatization system.

Formaldehyde in injected solution is separated from other compounds in the ODS column, reacted with

acetylacetone solution, and converted to fluorescent 3,5-diacetyl-1,4-dihydrolutidine.

Concentration of one-tenth of the guideline value of formaldehyde was determined with a UV/VIS detector in the HPLC system. Furthermore, fluorescence (FL) detector provided even higher sensitivity.

Chromatograms obtained from standard solution



Conditions

Column : Inertsil ODS-3
(5 μ m, 250 x 4.6 mm I.D.)
Cat.No. 5020-01732

Eluent : 6 mM Na₂HPO₄ (pH 2.1, H₃PO₄)

Flow rate : 1.0 mL/min

Col. Temp. : 20 °C

Reaction reagent
: Acetylacetone solution*

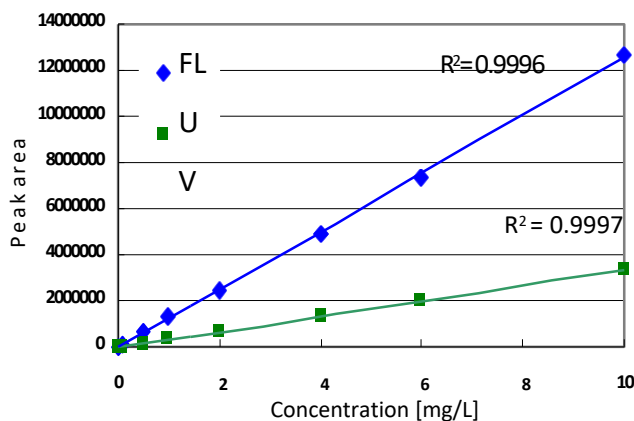
Flow rate of reaction reagent
: 0.5 mL/min

Detection : VIS 413nm
FL Ex. 445 nm, Em. 505 nm

Injection vol. : 10 μ L

* Acetylacetone solution :

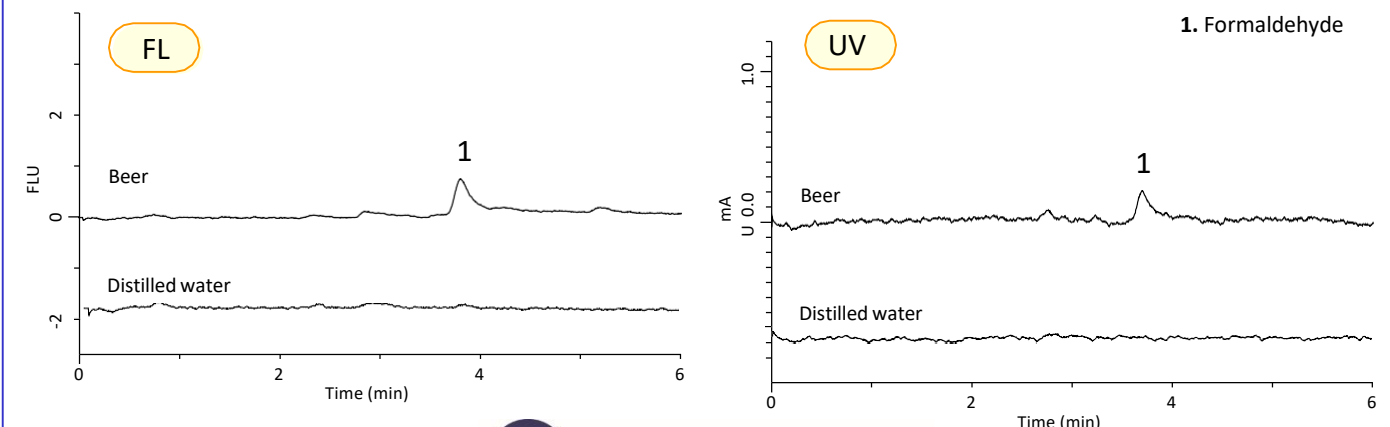
To 150 g of ammonium acetate, 3 mL of acetic acid and 2 mL of acetylacetone was added. The solution was made up to 1 L with water.



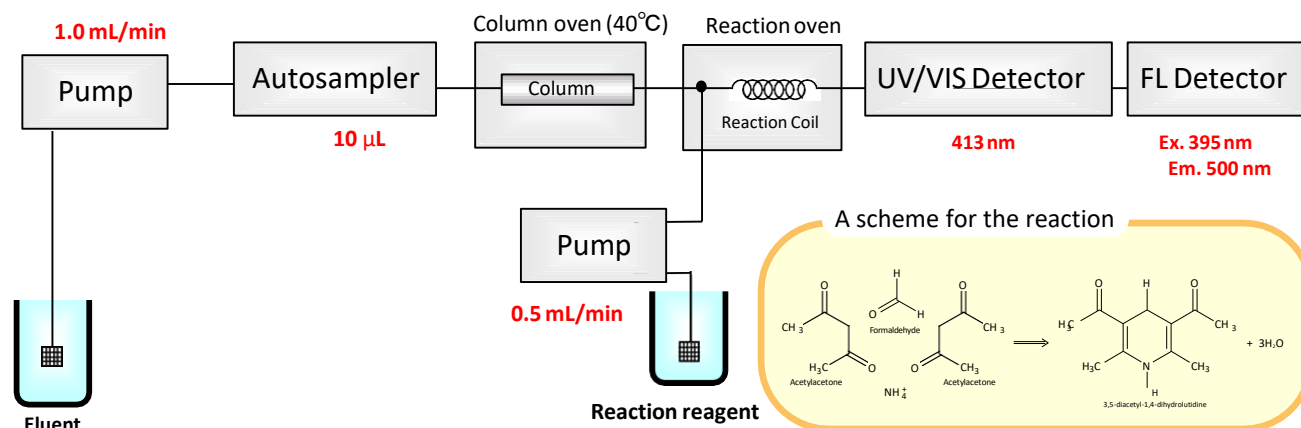
Calibration curves for formaldehyde

An analysis of canned beer

Commercially available canned beer was filtrated with 0.45 μ m membrane filter and injected into the HPLC system.



A Diagram for the HPLC System



GL Sciences disclaims any and all responsibility for any injury or damage which may be caused by this data directly or indirectly. We reserve the right to amend this information or data at any time and without any prior announcement.

GL Sciences, Inc. Japan

22-1 Nishishinjuku 6-Chome
Shinjuku-ku, Tokyo,
163-1130, Japan
Phone: +81-3-5323-6620
Fax: +81-3-5323-6621
Email: world@glsc.co.jp
Web: www.glsciences.com

GL Sciences B.V.

De Sleutel 9
5652 AS Eindhoven
The Netherlands
Phone: +31 (0)40 254 95 31
Email: info@glsciences.eu
Web: www.glsciences.eu

GL Sciences (ShangHai) Ltd.

Tower B, Room 2003,
Far East International Plaza,
NO,317 Xianxia Road,
Changning District.
Shanghai, China P.C. 200032
Phone: +86 (0)21-6278-2272
Email: contact@glsciences.com.cn
Web: www.glsciences.com.cn

GL Sciences, Inc. USA

4733 Torrance Blvd. Suite 255
Torrance, CA 90503
Phone: 310-265-4424
Fax: 310-265-4425
Email: info@glsciencesinc.com
Web: www.glsciencesinc.com

International Distributors

Visit our Website at:

<https://www.glsciences.com/company/distributor.html>