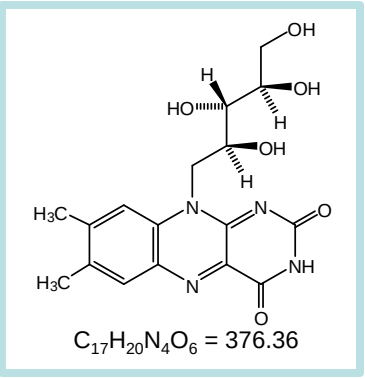
■ Analysis Example of Vitamin B_2 (Riboflavin)

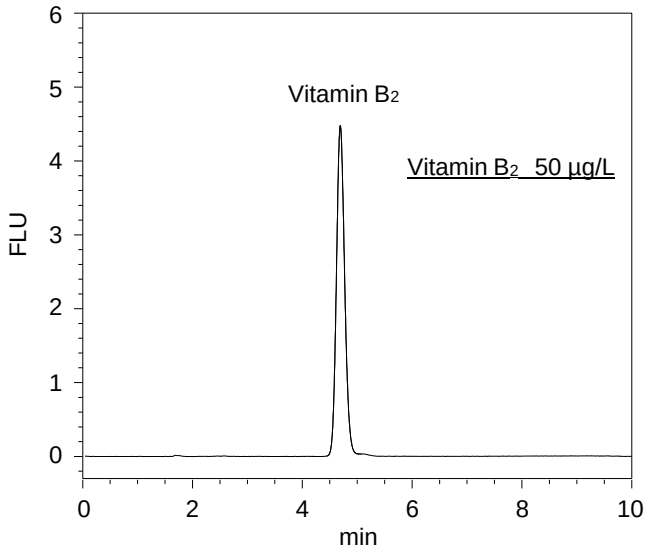
Vitamin B_2 (Riboflavin) is a physiologically-active substance classified as a water-soluble vitamin. While it may exist in the form of phosphate ester, it is absorbed as free riboflavin in bodies. The actions of vitamin B_2 include growth stimulation and skin and mucosal protection, and vitamin B_2 deficiency is known to cause growth disorder, skin inflammation, canker sore, etc.
Vitamin B_2 is highly contained in dairy products and natto. It is also contained in green vegetables. Vitamin B_2 is easily destroyed when exposed to light and thus, it is important to keep it away from sunlight, etc. In addition to its presence in food, vitamin B_2 is added to food and fodder for nutritional enhancement or as a colorant. It is also used as a drug. The analysis method is described in literatures such as the official methods for food, the test methods for food and feed additives, and Japanese Pharmacopoeia.
This time, the analysis was performed by using Chromaster, Hitachi High Performance Liquid Chromatograph, in accordance with the "High Performance Liquid Chromatograph Method," which is one of the analysis methods described in the Standard Methods of Analysis in Food Safety Regulation (*). A fluorescence detector is used for the detection.

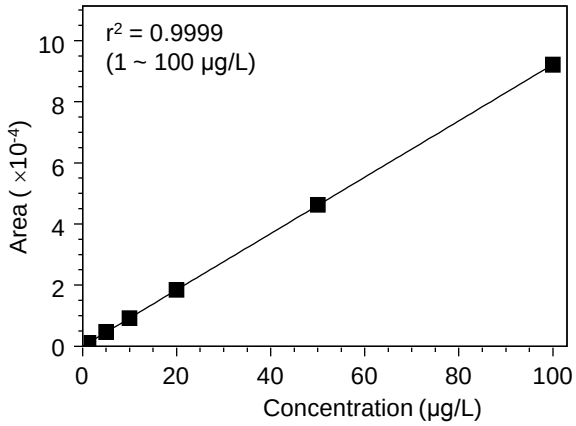
(*)Standard Methods of Analysis in Food Safety Regulation, Chemistry (Japan Food Hygiene Association, 2005)



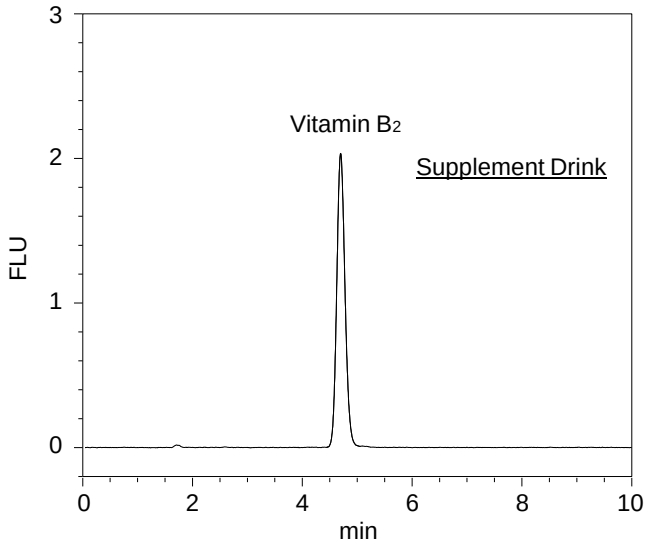
[Structural Formula of Vitamin B_2 (Riboflavin)]

■ Analysis Examples of Vitamin B_1 Standard Sample and Supplement Drink





[Linearity for Vitamin B_2]



<Analytical Conditions>
Column : LaChrom II C18 (5 µm) 4.6 mm I.D. × 150 mm
Eluents : Acetic acid buffer solution (pH 4.5) / Methanol = 65 / 35(v/v)
Flow rate : 1.0 mL/min
Column temperature : 35 °C
Detection wavelength : FL Ex 445 nm、Em 530 nm
Injection vol. : 20 µL

<Eluent Preparation Method>
Acetic acid buffer solution (pH 4.5): Mix 40 mL of 4 M sodium acetate solution and 20 mL of 50% acetic acid solution and make up to 2 L with water.
Mix 650 mL of this buffer solution and 350 mL of methanol.

<Sample Preparation Method>
Dilute to 1000 times with acetic acid buffer solution (pH 4.5)and filter through a 0.45 µm filter.

Main system configuration: Chromaster 5110 Pump, 5210 Autosampler, 5310 Column Oven, 5440 Fluorescence Detector

NOTE: These data are an example of measurement; the individual values cannot be guaranteed.