

Water contained in acetic acid may sometimes affect the experiment result, such as chemical reaction or mobile phase adjustment of normal phase LC. This time, in order to confirm such quality, water contained in brand-new acetic acid of special grade (higher than 99.7%) was measured simply by the standard addition method.

Procedure of Pretreatment

Special grade
acetic acid 99.7%

Pour approximately 9mL into
10mL measuring flask.

GC Conditions

System	: GC/TCD
Column	: InertCap Pure-WAX 0.53 mm I.D. × 15 m, df = 1.00 μm
Col.Cat. No.	: 1010-68425
Col.Temp.	: 80 °C
Carrier Gas	: He, 12.0 mL/min
GC Inlet	: 150 °C, Split 5:1 Split flow 60 mL/min
Detection	: TCD (120 mA Low, 130°C)

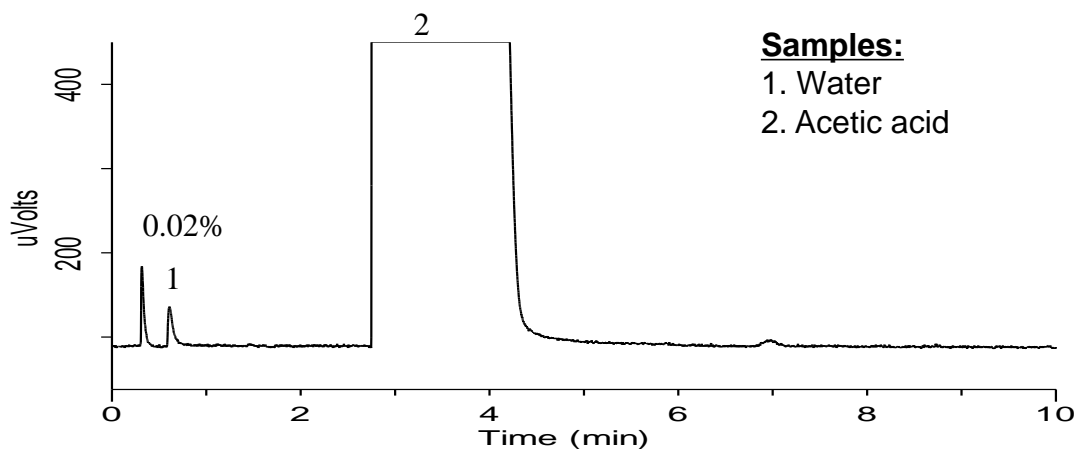
Addition of ultrapure water

Add each amount of water
into 10mL measuring flask
and then dilute by acetic acid.

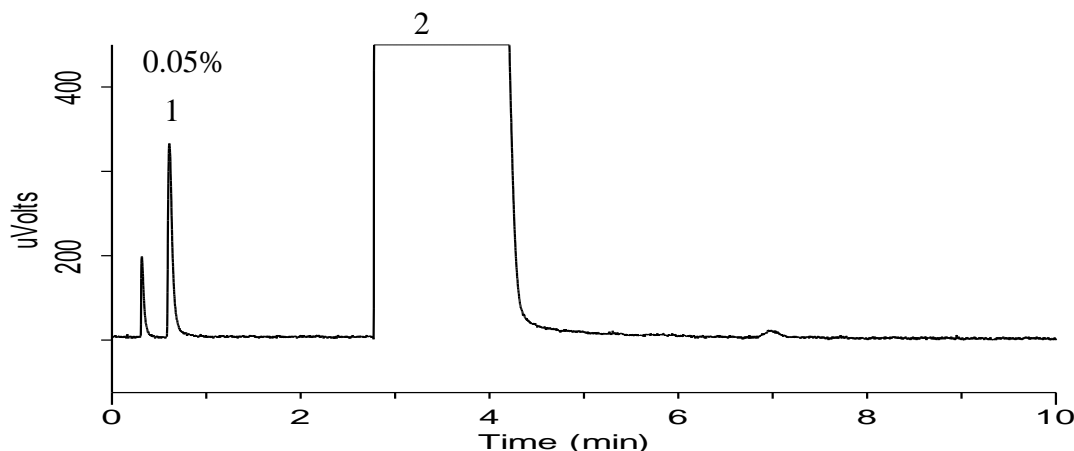
GC/TCD

Result

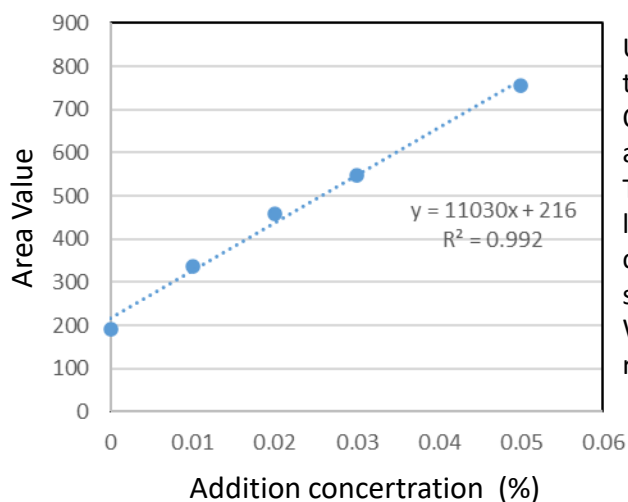
<Chromatogram of special grade acetic acid>



<Chromatogram of special grade acetic acid added with ultrapure water of 0.05%>



Reference: Quantitation by standard addition method



Ultrapure water was added to special grade acetic acid so that the water contain may become 0.010, 0.020, 0.030 and 0.050%. Original water contain becomes relatively reduced when added, and calibration curve is estimated to become a curved line.

This time, an even convex curve was obtained, but within the linearity range of $R^2 =$ higher than 0.99, quantitation of water contain in special grade acetic acid was implemented simply by standard addition method.

When y-intercept is zero, absolute value $|x|=X$ becomes the result of quantitation. This time the below result was obtained.

$$y = 0 = 11030x + 216$$

$$X = |x| = 216/11030 = 0.020\%$$

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