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Lab Solutions

Application Brief
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THM 1000 Calibration Linearity and Mid-Point Accuracy

To be compliant by law, drinking water facilities need to ensure that the water they deliver to the general public is safe for consumption. One key test that drinking water municipalities which chlorinate their water perform is the measurement of Total Trihalomethanes (TTHM).

A trihalomethane can be formed when free chlorine encounters any residual organics in the drinking water delivery stream. The trihalomethane group consists of 4 unique compounds; Chloroform, Bromoform, Bromodichloromethane, and Chlorodibromomethane. A typical TTHM analysis will involve the testing of the individual trihalomethanes and report a total concentration. EPA regulations state that the TTHM value must be below 80 ppb.

YSI
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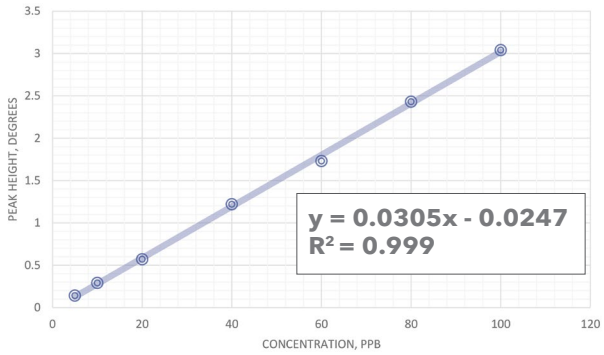
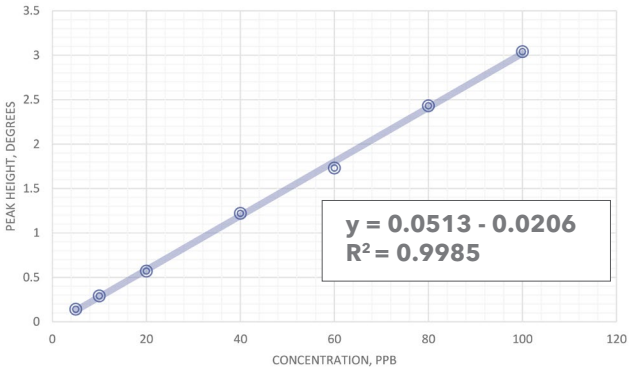
The YSI THM 1000 is a selective volatile organic compound analyzer that can measure the 4 individual compound concentrations as well as the TTHM concentration for internal reporting information. To demonstrate the linearity of the THM 1000, this application brief will show the 4 unique calibration curves for each compound spanning the range of 5 to 100 ppb. Demonstration of accuracy and precision will be shown with the analysis of a mid-range standard being run as an unknown.

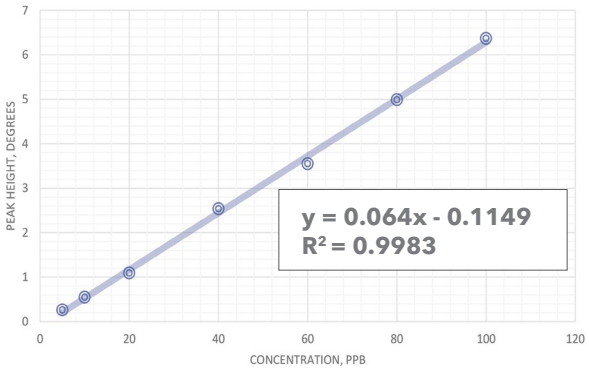
Chloroform Linear Calibration



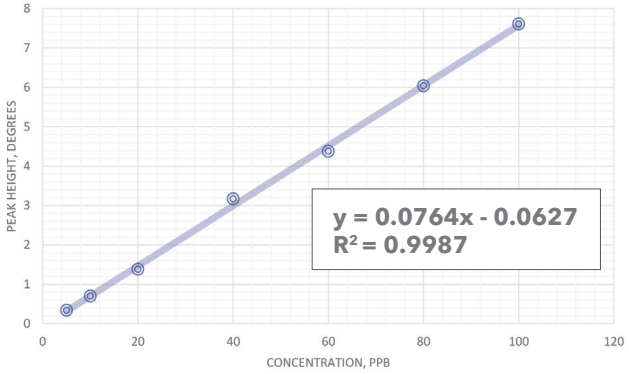
Dichlorobromomethane Linear Calibration



Dibromochloromethane Linear Calibration



Bromoform Linear Calibration



Results of 40 ppb Standard Analyzed as an Unknown									
Compound	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Mean	Std Dev	%RSD
Chloroform	39.6	41.0	42.6	39.6	39.2	43.0	40.8	1.6	4.0%
Bromodichloromethane	37.8	42.0	43.8	38.3	38.1	43.7	40.3	2.8	6.9%
Chlorodibromomethane	36.8	37.6	41.9	37.1	36.8	42.0	38.7	2.5	6.5%
Bromoform	35.4	37.5	42.4	37.4	36.6	40.9	38.4	2.7	7.0%

YSI, a Xylem brand
1725 Brannum Lane
Yellow Springs, OH 45387

+1.937.767.7241
info@ysi.com
ysi.com

ysi.com/THM1000