



TAG

Thermal desorption Aerosol Gas chromatography (TAG) system



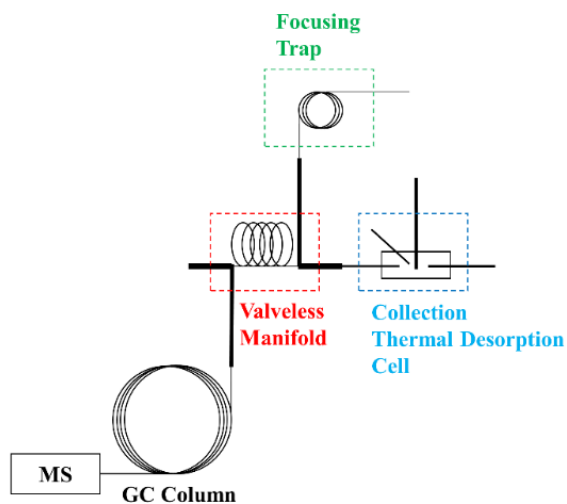
- TAG system automates online sampling and analysis of condensed phase (e.g. aerosols) organic materials and eliminates the laborious sample collection, transportation, storage, and preparation process associated with filter based measurements.
- Equipped with in-situ derivatization setup which enables detection of polar compounds (e.g. alcohols, organic acids, amines) and minimizes thermal decomposition.
- Automated liquid injection system for internal and external standard calibrations.
- Available in two configurations:
 - Stand-alone version for standard GC-MS systems (eg. Agilent's 6890N/5975 MSD or equivalent).
 - Mini GC version compatible with Tofwerk EI-HTOF for high resolution mass spectrometry and analysis.
- Control software for Windows PC – configures TAG controller for automated sequence operation.



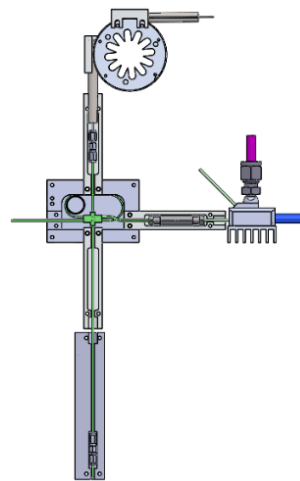
Stand-alone tag (with Agilent's 6890N/ 5975 MSD)



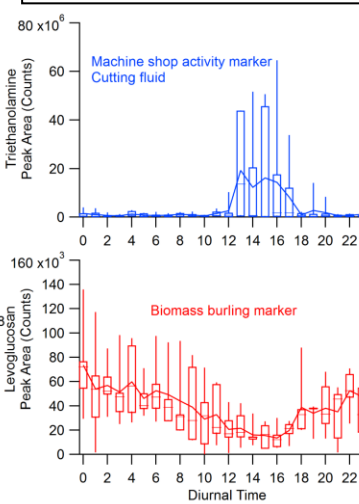
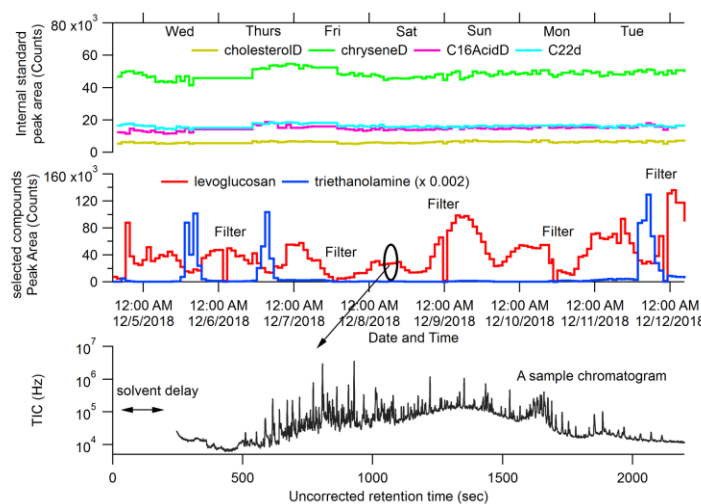
TAG (with Tofwerk EI-HTOF)



Schematic of TAG system connected to a MS



Drawing of TAG system (no GC column), with cover of heating components removed showing Valveless injection manifold



Time series of internal standard and selected marker compounds showing elevated biomass burning and machine shop activity during nighttime and daytime, respectively. The increased nighttime biomass burning might correspond to people burning woods for heating in New England area.

Size	31 x 38 x 20 in (for stand-alone TAG)
Electric Power	Max 500 W, 110VAC/60Hz or 220VAC/50Hz (not including sampling pump)
Components	TAG core parts, IDEX valves, humidifier, RH/T sensors, mass flow controllers, TAG main controller, Octal temperature controller, User I/O box.
Connectivity	USB
Required Accessory	Helium or other carrier gases. Gas Purifiers, Gas regulators, sampling tubing, sampling pump, Cyclone, Windows PC

Aerodyne specializes in collaboration and custom design. Please contact us if you would like to discuss additional measurement options and applications.

REFERENCES:

Williams, B. J., Goldstein, A. H., Kreisberg, N. M., Hering, S. V. (2006). An In-Situ Instrument for Speciated Organic Composition of Atmospheric Aerosols: Thermal Desorption Aerosol GC/MS-FID (TAG). *Aerosol Science & Technology* 40:627 - 638.

Williams, B. J., Jayne, J. T., Lambe, A. T., Hohaus, T., Kimmel, J. R., Sueper, D., Brooks, W., Williams, L. R., Trimborn, A. M., Martinez, R. E., Hayes, P. L., Jimenez, J. L., Kreisberg, N. M., Hering, S. V., Worton, D. R., Goldstein, A. H., Worsnop, D. R. (2014). The First Combined Thermal Desorption Aerosol Gas Chromatograph—Aerosol Mass Spectrometer (TAG-AMS). *Aerosol Science and Technology* 48:358-370.