

Aluf Plastics Canister Sampling

At the request of Region 3 Air staff, four evacuated canisters were provided to the Region for 1-hour sampling. Two samples were taken by Region 3 staff, and two samples were collected by citizen volunteers from the neighborhood. Table 1 lists the location, date and time of each sample collected. A map of the sampling locations is provided in Figure 1.

Table 1. Aluf Plastics Sampling Details

Canister ID	Date	Time	Location	Wind Direction
H40	9/2/16	1:15 PM	Cottage Lane Elem. School	NNE
N18	9/8/16	6:15 PM	Joseph B. Clark Rail Trail, between DC & Aluf	ESE
N19	9/11/16	3:30 PM	Joseph B. Clark Rail Trail, 200' N of Mountain View Ave	WNW
H22	9/11/16	5:35 PM	Inside Aluf Facility	NNW

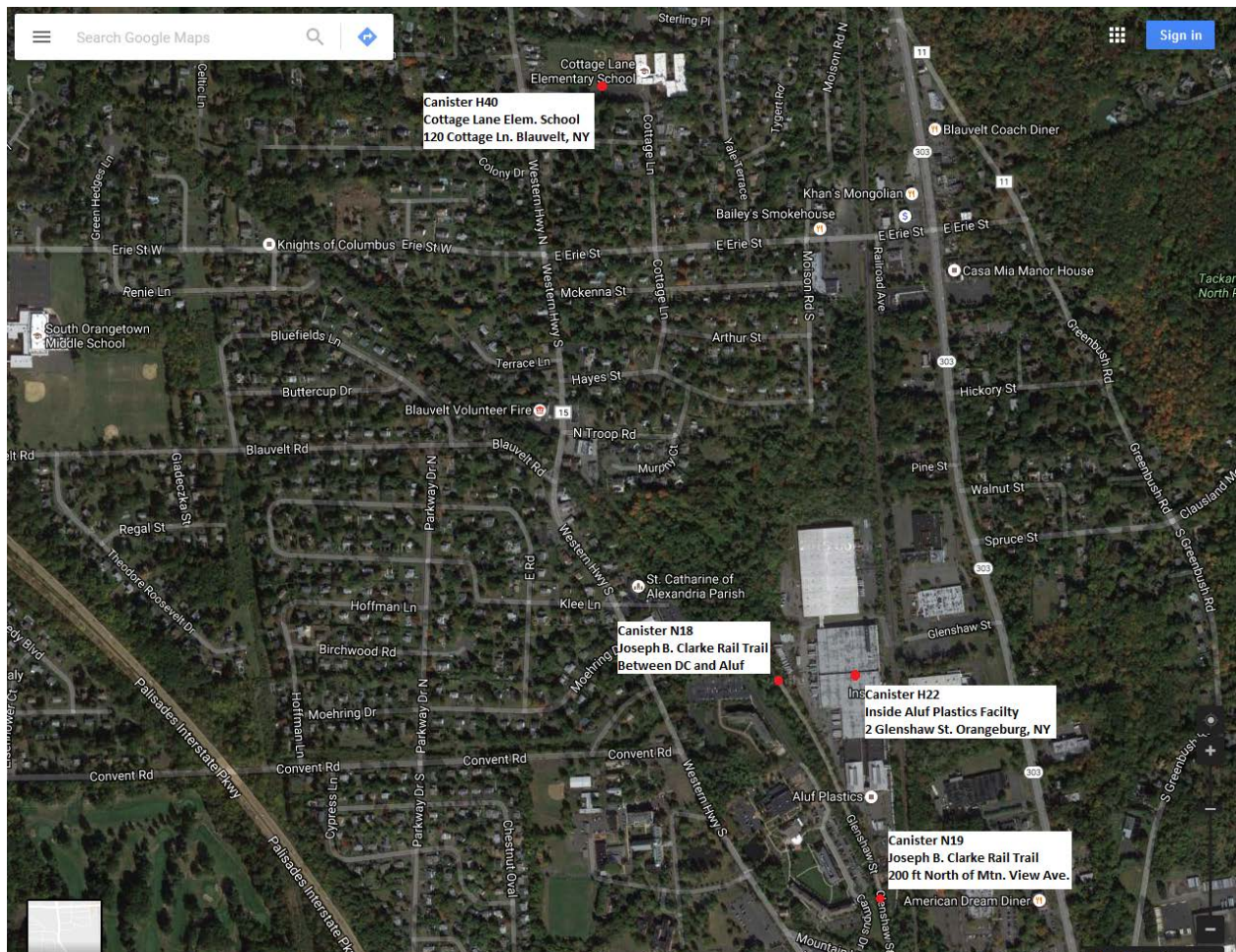


Figure 1. Map of Sampling Locations

The Division of Air Analytical Laboratory Facility at the SUNY East Campus performs Volatile Organic Compounds (VOCs) analysis for the Statewide Air Toxics Network, and the National Air Toxics Trends Station Network. Using EPA Method TO-15, the concentrations of 43 targeted compounds are quantified using Gas Chromatograph/Mass Spectrometry (GC/MS). The Aluf samples were analyzed in the same manner.

Results

The observed concentrations in parts per billion volume (ppbv) of these 1-hour samples are given in Table 2. Also listed are 2015 annual 24-hr composite sample averages for reference. However, one must not make direct comparisons as the Aluf samples were of one hour duration only. The Method Detection Limit (MDL), which is the minimum level of analyte present in the ambient air before it can be quantified, is also listed in the last column. The presence of compounds measured at or below the MDL should be considered tentative, as the background noise can confound results.

Table 2. Concentrations of EPA TO-15 Targeted Compounds in Aluf Samples (ppbv)

Compound Name	Cottage Lane	DC & Aluf	Inside Aluf	Mountain View	2015 Statewide 24-hr Ave	Method Detection Limit
Dichlorodifluoromethane	0.552	0.525	0.531	0.527	0.517	0.008
Chloromethane	0.449	0.52	0.474	0.448	0.517	0.007
Dichlorotetrafluoroethane	0.023	0.021	0.021	0.023	0.015	0.006
Vinyl Chloride	0.008	0.007	0.011	0.009	<MDL	0.008
1,3Butadiene	0.008	0.02	0.015	0.012	0.024	0.005
Bromomethane	0.012	0.014	0.015	0.013	0.009	0.006
Chloroethane	0.008	0.011	0.009	0.007	<MDL	0.005
Trichlorofluoromethane	0.236	0.247	0.257	0.235	0.246	0.008
1,1Dichloroethylene	0.005	0.006	0.006	0.006	<MDL	0.010
Dichloromethane	0.028	0.217	0.031	0.024	0.124	0.010
Trichlorotrifluoroethane	0.077	0.077	0.079	0.074	0.071	0.006
1,1Dichloroethane	0.006	0.007	0.007	0.006	<MDL	0.007
Methyl Tert Butyl Ether	0.006	0.007	0	0.006	<MDL	0.005
trans 1,2Dichloroethylene	0.005	0.007	0.006	0.004	<MDL	0.004
Chloroform	0.026	0.055	0.026	0.022	0.027	0.005
1,2Dichloroethane	0.013	0.017	0.013	0.011	0.016	0.009
1,1,1Trichloroethane	0.009	0.011	0.009	0.009	0.008	0.006
Benzene	0.038	0.272	0.084	0.039	0.203	0.018
Carbon Tetrachloride	0.082	0.085	0.087	0.084	0.082	0.006
1,2Dichloropropane	0.01	0.01	0.01	0.007	<MDL	0.010
Bromodichloromethane	0.006	0.008	0.009	0.006	<MDL	0.010
Trichloroethylene	0.005	0.017	0.01	0.005	<MDL	0.008

cis1,3Dichloropropylene	0.01	0.006	0.009	0.006	<MDL	0.009
trans1,3Dichloropropylene	0.008	0.008	0.008	0.007	<MDL	0.009
1,1,2Trichloroethane	0.005	0.004	0.002	0.003	<MDL	0.010
Toluene	0.073	2.683	0.135	0.058	0.315	0.013
1,2Dibromoethane	0.005	0.006	0.007	0.005	<MDL	0.011
Tetrachloroethylene	0.012	0.14	0.028	0.009	0.029	0.008
Chlorobenzene	0.01	0.021	0.01	0.007	<MDL	0.009
Ethylbenzene	0.016	0.135	0.025	0.018	<MDL	0.009
m,pXylene	0.041	0.341	0.072	0.049	0.161	0.025
Styrene	0.014	0.02	0.037	0.011	0.022	0.015
1,1,2,2Tetrachloroethane	0.007	0.004	0	0.006	<MDL	0.012
oXylene	0.02	0.146	0.039	0.026	0.062	0.013
1,3,5Trimethylbenzene	0.01	0.021	0.016	0.01	0.014	0.011
1,2,4Trimethylbenzene	0.019	0.08	0.025	0.018	0.049	0.013
aChlorotoluene	0.012	0.013	0.016	0.013	<MDL	0.015
1,3Dichlorobenzene	0.007	0.005	0.007	0.007	<MDL	0.016
1,4Dichlorobenzene	0.01	0.053	0.011	0.01	0.014	0.014
1,2Dichlorobenzene	0.009	0.011	0.014	0.009	<MDL	0.016
1,2,4Trichlorobenzene	0.01	0.019	0.014	0.014	<MDL	0.028
Hexachloro1,3Butadiene	0.008	0.009	0.009	0.008	<MDL	0.012
Acrolein	0.113	0.187	0.165	0.097	--	0.028
Carbon disulfide	0.006	0.015	0.013	0.015	--	0.007
Naphthalene	0.028	0.06	0.042	0.028	--	0.839

Findings

- The source sample taken inside the Aluf facility on 9/11/2016 showed background levels of VOCs, consistent with the 2011 environmental chamber study in which 6 formulations of polyethylene pellets were heated.
- The Cotton Lane Elementary School sample collected on 9/2/2016 was upwind of the facility and exhibited background levels of VOCs.
- The citizen sample taken at the Joseph B. Clarke Rail Trail north of Mountain View Ave on 9/11/2016 also indicated background concentrations of the targeted compounds. This sample was downwind of the facility during the time of sampling.
- The 9/8/2016 sample was collected by another citizen volunteer at the Joseph B. Clarke Rail Trail between Dominican College (D.C.) and Aluf. Relative to the other three samples, it showed higher concentrations of benzene, toluene, ethyl benzene, xylenes, trimethylbenzene, and tetrachloroethylene (also known as PERC). The first five listed compounds (BTEX) are petroleum chemicals and are often associated with automobile exhausts. Tetrachloroethylene is a common dry cleaning solvent.

- As no sample was taken concurrently at the facility on 9/8/2016, one cannot directly associate the observed compounds to Aluf. As the average wind direction during the time of sampling was ESE, there may be additional sources south of the facility that can influence the sample. It is not uncommon to observe similar levels of BTEX in areas downwind of automobile exhausts, and PERC is often detected in the ambient air near a dry cleaner.