



EMSL ANALYTICAL, INC.
 200 Route 130 North
 Cinnaminson, NJ 08077
 Telephone: (856)858-4800 FAX: (856)858-4571
to15lab@EMSL.com | <http://www.EMSL.com>

EMSL ORDER ID: 491800115
 EMSL CUSTOMER ID: EMSL50
 EMSL SAMPLE ID: 491800115-0001
 CUSTOMER SAMPLE ID: VOC-01

Attention: EMSL Analytical, Inc
 200 US Route 130 North
 Cinnaminson, NJ 08077

Customer PO:
EMSL Project ID:
Project Name: USEPA TO-15 Sample Report

Phone: 856-858-4800
Email: to15lab@EMSL.com

Collected: 10/22/2020 10:12
Received: 10/23/2020 8:32
Analyzed: See Results
Reported: 10/23/2020

Analysis Initial	Analysis Date	Analyst Init.	Lab File ID	Canister ID	Sample Vol.	Dil. Factor
	10/22/2020	KW	K14736.D	HD4365	250 cc	1
Dilution1	10/22/2020	KW	K14753.D	HD4365	50 cc	5

Possible Background Sources of Contaminants

Target Compounds	CAS#	Result		*Typical Indoor Air Data			Use and Possible Sources	
		ppbv	Q	ug/m3	% of Samples Detected	Min. Conc. (ppbv)		Max. Conc. (ppbv)
Chloromethane	74-87-3	0.78		1.6	77%	ND	0.81	Chloromethane is present at very low concentrations throughout the atmosphere. Naturally occurring chloromethane is continuously released into the atmosphere from oceans, rotting wood, forest fires, and volcanoes. Manmade sources of chloromethane include cigarette smoke, polystyrene insulation, aerosol propellants, home burning of wood, grass, coal, or certain plastics, chlorinated swimming pools, refrigerators over 30 years old. (2)
n-Butane	106-97-8	65	D	160	87%	ND	33	Butane is contained in natural gas. Its main uses are in the production of chemicals, as a refrigerant, as an aerosol propellant, as a constituent in liquefied petroleum gas, and as the main component of gas lighter refills.(13)
Ethanol	64-17-5	450	DE	850	100%	3.4	658	Ethanol is ubiquitous in air samples as it is found in many products: cleaners (home, auto,pets), disinfectants/sanitizers, laundry care products, pesticide sprays, mouthwash, deoderants, first aid sprays, paints, air fresheners, auto care products. Ethanol is also contained in gasoline. Please see citation for an extensive list. (6)
Isopropyl alcohol(2-Propanol)	67-63-0	17		41	97%	ND	268	IPA is very common in air samples. Multiple types of cleaners (home, auto, pet) and disinfecting/sanitizing/polishing wipes, ink cartridges, paints, personal care products: nail polish, nail polish remover, colognes, perfumes, rubbing alcohol, hair spray. Please see citation for an extensive list. (6)



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		ppbv	Q		ug/m3	% of Samples Detected	Min. Conc. (ppbv)	
Acetone	67-64-1	48	D	120	100%	2.6	45	Another very common VOC in air samples, found in home products such as glues, rubber cement and adhesives, expanding foams/crack fillers, air fresheners, paint thinners and paint clean up products. Please see citation for an extensive list. (6)
n-Hexane	110-54-3	0.80		2.8	10%	ND	0.78	Solvents containing hexane are used as cleaning agents in the printing, textile, furniture, and shoemaking industries. Certain kinds of special glues used in the roofing and shoe and leather industries also contain n-hexane. Some consumer products contain n-hexane, such as gasoline, quick-drying glues used in various hobbies, and rubber cement. (2)
2-Butanone(MEK)	78-93-3	1.5		4.4	45%	ND	2.5	The primary use of MEK is as a solvent in processes involving gums, resins, cellulose acetate, and cellulose nitrate. MEK is also used in the synthetic rubber industry, in the production of paraffin wax, and in household products such as lacquer and varnishes, paint and paint remover, and glues. (1) MEK may be found in automobile exhaust, printing inks, cleaning agents and cigarette smoke and is used as a fragrance/flavoring agent in candy and perfume. (7)



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Ethyl acetate	141-78-6	4.4		16	100%	0.53	34	Ethyl acetate is used as a solvent for varnishes, lacquers and dry cleaning. It is released during the manufacture of linoleum, and 'plastic' wood, dyes, artificial fruit flavorings and essences, and perfumes and fragrances. Ethyl acetate is used as a solvent in nail polish, nail polish remover, base coats and other manicuring products. Ethyl acetate is present in wines. (15)
Chloroform	67-66-3	1.0		5.1	None Detected in Study			Chloroform is released into the air from chlorinated waters including drinking water, municipal and industrial waste waters and swimming-pool and whirlpool-spa water. Increased release rates of chloroform in waters can be expected from chloroform-containing waters that are heated (e.g., water used for cooking, showers, swimming pools, and spas). (2)
2,2,4-Trimethylpentane(Isooctane)	540-84-1	0.85		4.0	13%	ND	4.9	Isooctane may be present in ink, toner, and colorant products, paints and coatings and fuels and related products such as gasoline additive for anti-knocking; will occur in automobile exhaust. (12)



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Benzene	71-43-2	1.7		5.4	None Detected in Study			The major sources of benzene exposure are tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions. Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure. Auto exhaust and industrial emissions account for about 20% of the total national exposure to benzene. About half of the exposure to benzene in the United States results from smoking tobacco or from exposure to tobacco smoke. (2),(5)
Toluene	108-88-3	3.7		14	81%	ND	3.2	Toluene is added to gasoline and other fuels and may be found in gasoline exhaust. Toluene is found in paints, paint thinners, fingernail polish, lacquers, adhesives, synthetic fragrances, cigarette smoke and rubber and in some printing and leather tanning processes. (2),(5)
Tetrachloroethene	127-18-4	3.0		20	None Detected in Study			Tetrachloroethylene is a chemical that is widely used for dry cleaning of fabrics and for metal-degreasing and is used in some consumer products. (2)
Ethylbenzene	100-41-4	0.63		2.7	6%	ND	0.79	Ethylbenzene is found in fuels, asphalt and naphtha. It is also found in manufactured products such as inks, insecticides, wood office furniture, scented candles and paints. Ethylbenzene is used primarily to make another chemical, styrene. (2),(5),(7)



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Xylene (p,m)	1330-20-7	1.9		8.3	32%	ND	3.5	Mixed xylenes are present in petroleum and coal tar. Xylenes are used as solvents and in the printing, rubber, and leather industries, used as a thinner for paint, and in paints and varnishes. They are found in small amounts in airplane fuel and gasoline. (2) Also found in: Water sealer, automobile exhaust, markers, floor polish and cigarette smoke.(7)
Xylene (Ortho)	95-47-6	0.74		3.2	6%	ND	1.0	Mixed xylenes are present in petroleum and coal tar. Xylenes are used as solvents and in the printing, rubber, and leather industries, used as a thinner for paint, and in paints and varnishes. They are found in small amounts in airplane fuel and gasoline. (2) Also found in: Water sealer, automobile exhaust, markers, floor polish and cigarette smoke.(7)
4-Ethyltoluene	622-96-8	1.3		6.4	3%	ND	1.1	4-Ethyltoluene is added to fuel to increase performance and may be present in vehicle exhaust fumes. (9) The most significant releases of 4-Ethyltoluene are likely to occur from petroleum refineries and gas stations. Trace amounts are present in cigarette smoke.
1,2,4-Trimethylbenzene	95-63-6	1.7		8.2	6%	ND	0.84	1,2,4-Trimethylbenzene is released to the environment as a component of gasoline and through automobile exhaust. It is used as a solvent to make dyes, perfumes, resins and pharmaceuticals. (10),(5)

*Based on EMSL in-house data collection 04/2019-06/2019

Qualifier Definitions

ND = Non Detect

B = Compound also found in method blank.



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E= Estimated concentration exceeding upper calibration range.
 D= Result reported from diluted analysis.
 J= Concentration estimated between lower calibration standard and MDL.

Sources References

- <https://www.epa.gov/sites/production/files/2016-09/documents>
- [https://www.atsdr.cdc.gov/toxfaqs/IndividualFAQs have different update dates.](https://www.atsdr.cdc.gov/toxfaqs/IndividualFAQs%20have%20different%20update%20dates)
- EPA Document# EPA-740-R1-7012 May 2018
- Delaware Health and Social Services, Division of Public Health FAQ Sheets. January 2010.
- New York Department of Environmental Conservation, Uses, Sources and Potential Exposure to Toxic Air Pollutants.
- US Department of Health and Human Services, Household Products Database.
- NJDEP "Common Household Sources of Background Indoor Air Contamination". June 26, 2012.
- IARC Working Group on the Evaluation of Carcinogenic Risk to Humans. Some Chemicals Present in Industrial and Consumer Products, Food and Drinking-water. Lyon (FR): International Agency for Research on Cancer; 2013.
- <http://apps.sepa.org.uk/spria/Pages/SubstanceInformation.aspx?pid=53>
- <https://nj.gov/health/eoh/rtkweb/documents/fs>
- 1-Propene CAS 115-07-1, Environment Canada_Health Canada, September 2014. <http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=AD74EA35-1>
- <https://pubchem.ncbi.nlm.nih.gov/compound>
 Committee on Acute Exposure Guideline Levels; Committee on Toxicology; Board on Environmental Studies and Toxicology; Division on Earth and Life Studies; National Research Council. Acute Exposure Guideline Levels for Selected Airborne Chemicals: Volume 12. Washington (DC): National Academies Press (US); 2012
- All about Acrylonitrile <http://angroup.org/about/index.php>
- <http://www.npi.gov.au/resource/ethyl-acetate>