



ARCO Recycling Fire Samples-Residence

Ambient Air Sampling Results-Volatile Organic Compounds(VOCs)

October 28, 2017- November 16, 2017

24 Hour Residence Sampling Results

Compound list	Average (1/2mdl)**	Minimum	Maximum	Count***	Short-term Screening Values	Source
	ppb	ppb	ppb			
1,2,4-Trimethylbenzene	0.06	BDL	0.17	2	595	MAGLC
1,3-Butadiene	0.05	BDL	0.10	1	10,000	ERPG-1
2-Butanone	0.27	BDL	0.67	1	200,000	AEGL-1
Acetone	2.54	BDL	4.81	17	13,000	MRLs (intermed.)
Benzene	0.34	BDL	1.77	19	6	MRLs (intermed.)
Carbon tetrachloride	0.07	BDL	0.10	4	30	MRLs (intermed.)
Chloromethane	0.78	0.40	4.56	20	200	MRLs (intermed.)
Dichlorodifluoromethane	0.50	0.44	0.58	20	24,000	MAGLC
Ethanol	3.78	1.39	8.16	20	1,800,000	ERPG-1
Ethylbenzene	0.08	BDL	0.31	5	2000	MRLs (intermed.)
Hexane	0.18	BDL	0.37	17	1,190	MAGLC
Isopropyl alcohol	0.46	BDL	2.22	5	5,000	MAGLC
Methylene chloride	0.07	BDL	0.11	7	300	MRLs (intermed.)
Naphthalene	0.11	BDL	0.23	1	240	MAGLC
n-Butane	1.69	0.54	6.19	20	18,000	MAGLC
n-Heptane	0.06	BDL	0.13	2	10,000	MAGLC
n-Pentane	0.70	0.25	1.35	20	14,286	MAGLC
o-Xylene	0.06	BDL	0.15	2	600	MRLs (intermed.)
Propylene	0.77	0.21	3.20	20	11905	MAGLC
Styrene	0.09	BDL	0.50	3	5000	MRLs (acute)*
Toluene	0.36	0.12	1.07	20	2,000	MRLs (acute)*
Total m&p-xylenes	0.14	BDL	0.37	5	600	MRLs (intermed.)
Trichlorofluoromethane	0.41	0.20	1.04	20	24,000	MAGLC

BDL= below detection limits

ATSDR Minimum Risk Level (MRLs)

*MRL(acute)-No intermediate value available.

ERPG-Emergency Response Planning Guidelines.The first tier (e.g., ERPG-1) is a temporary, non-disabling effects threshold

AEGL-1 = Acute exposure guideline levels for mild effects

MAGLC= TLV/42

** Average (½ method detection limit): The arithmetic mean (average) listed uses one-half of the method detection limit (1/2 MDL) as the numerical value for non-detected compounds when computing the average of multiple sampling events. This method is standard practice to estimate averages with non-detected values.

Method Detection limit: The method detection limit is the lowest measurement the collection / analysis procedure can accurately

*** Count: Total detections out of 20 sampling events (other samples were below detection limits)



ARCO Recycling Fire Samples- Offsite-Residence

Ambient Air Sampling Results-Volatile Organic Compounds(VOCs)

October 28, 2017- November 16, 2017

24 Hour Offsite-Residence Sampling Results

Compound list	Average (1/2mdl)**	Minimum	Maximum	Count***	Screening Values	Source
	ppb	ppb	ppb			
1,2,4-Trimethylbenzene	0.07	BDL	0.21	3	595	MAGLC
2,2,4-Trimethylpentane	0.11	BDL	0.24	1	7,143	MAGLC
Acetone	2.43	BDL	4.32	11	13000	MRLs (intermed.)
Benzene	0.21	BDL	0.43	14	6	MRLs (intermed.)
Carbon tetrachloride	0.06	BDL	0.10	2	30	MRLs (intermed.)
Chloromethane	0.59	0.53	0.69	15	200	MRLs (intermed.)
Cyclohexane	0.06	BDL	0.16	1	2,400	MAGLC
Dichlorodifluoromethane	0.50	0.44	0.55	15	24,000	MAGLC
Ethanol	5.28	2.57	12.40	15	1,800,000	ERPG-1
Ethylbenzene	0.06	BDL	0.15	3	2,000	MRLs (intermed.)
Hexane	0.22	BDL	0.54	13	1,190	MAGLC
Isopropyl alcohol	0.33	BDL	0.76	3	5,000	MAGLC
Methyl methacrylate	0.10	BDL	0.10	2	17,000	AEGL-1
Methylene chloride	0.06	BDL	0.10	5	300	MRLs (intermed.)
Naphthalene	0.15	BDL	0.37	5	240	MAGLC
n-Butane	1.98	0.47	4.61	15	18,000	MAGLC
n-Heptane	0.07	BDL	0.18	4	10,000	MAGLC
n-Pentane	0.77	0.16	1.70	15	14,286	MAGLC
o-Xylene	0.07	BDL	0.20	4	600	MRLs (intermed.)
Propylene	0.63	BDL	1.14	14	11,905	MAGLC
Toluene	0.36	0.10	1.21	15	2,000	MRLs (acute)*
Total m&p-xylenes	0.17	BDL	0.49	4	600	MRLs (intermed.)
Trichlorofluoromethane	0.22	0.16	0.30	15	24,000	MAGLC
BDL= below detection limits						

ATSDR Minimum Risk Level (MRLs)

*MRL(acute)-No intermediate value available.

ERPG-Emergency Response Planning Guidelines. The first tier (e.g., ERPG-1) is a temporary, non-disabling effects threshold

AEGL-1 = Acute exposure guideline levels for mild effects

MAGLC= TLV/42

** Average (1/2 method detection limit): The arithmetic mean (average) listed uses one-half of the method detection limit (1/2 MDL) as the numerical value for non-detected compounds when computing the average of multiple sampling events. This method is standard practice to estimate averages with non-detected values.

Method Detection limit: The method detection limit is the lowest measurement the collection / analysis procedure can accurately quantify as a true measurement of the ambient air concentration.

*** Count: Total detections out of 15 sampling events (other samples were below detection limits)



ARCO Recycling Fire Samples-Upwind

Ambient Air Sampling Results-Volatile Organic Compounds(VOCs)

October 28, 2017- November 16, 2017

24 Hour **Upwind** Sampling Results

Compound list	Average (1/2mdl)**	Minimum	Maximum	Count***	Short-term Screening Values	Source
	ppb	ppb	ppb			
1,2,4-Trimethylbenzene	0.05	BDL	0.14	1	595	MAGLC
2,2,4-Trimethylpentane	0.11	BDL	0.25	1	7,143	MAGLC
4-Methyl-2-pentanone	0.05	BDL	0.10	1	476	MAGLC
Acetone	2.25	BDL	5.07	15	13,000	MRLs (intermed.)
Benzene	0.25	0.10	0.81	20	6	MRLs (intermed.)
Carbon tetrachloride	0.05	BDL	0.10	1	30	MRLs (intermed.)
Chloromethane	0.60	0.52	0.82	20	200	MRLs (intermed.)
Dichlorodifluoromethane	0.51	0.43	0.60	20	24,000	MAGLC
Ethanol	4.21	1.78	19.00	20	1,800,000	ERPG-1
Ethylbenzene	0.06	BDL	0.13	2	2000	MRLs (intermed.)
Hexane	0.17	BDL	0.36	15	1,190	MAGLC
Isopropyl alcohol	0.48	BDL	3.09	5	5000	MAGLC
Methyl methacrylate	0.05	BDL	0.10	1	17,000	AEGL-1
Methylene chloride	0.07	BDL	0.12	8	300	MRLs (intermed.)
n-Butane	1.66	0.56	3.87	20	18,000	MAGLC
n-Heptane	0.06	BDL	0.12	1	10,000	MAGLC
n-Pentane	0.63	0.23	1.39	20	14,286	MAGLC
o-Xylene	0.05	BDL	0.14	1	600	MRLs (intermed.)
Propylene	0.65	0.31	1.19	20	11,905	MAGLC
Styrene	0.05	BDL	0.13	1	5000	MRLs (acute)*
Toluene	0.28	0.13	0.72	20	2000	MRLs (acute)*
Total m&p-xylenes	0.11	BDL	0.32	1	600	MRLs (intermed.)
Trichlorofluoromethane	0.32	0.15	0.59	20	24,000	MAGLC

BDL= below detection limits

ATSDR Minimum Risk Level (MRLs)

*MRL (acute)-No intermediate value available.

ERPG-Emergency Response Planning Guidelines.The first tier (e.g., ERPG-1) is a temporary, non-disabling effects


AEGL-1 = Acute exposure guideline levels for mild effects

MAGLC= TLV/42

** Average (½ method detection limit): The arithmetic mean (average) listed uses one-half of the method detection limit (1/2 MDL) as the numerical value for non-detected compounds when computing the average of multiple sampling events. This method is standard practice to estimate averages with non-detected values.

Method Detection limit: The method detection limit is the lowest measurement the collection / analysis procedure can accurately

*** Count: Total detections out of 20 sampling events (other samples were below detection limits)

ARCO Recycling Fire						
Ambient Air Sampling Results-Volatile Organic Compounds(VOCs)						
October 28, 2017- November 16, 2017						
24 Hour Downwind Sampling Results						
Compound list	Average (1/2mdl)**	Minimum	Maximum	Count****	Short-term Screening Values	Source
	ppb	ppb	ppb			
1,2,4-Trimethylbenzene	0.11	BDL	0.59	7	595	MAGLC
1,3,5-Trimethylbenzene	0.07	BDL	0.28	2	595	MAGLC
1,3-Butadiene	0.86	BDL	12.30	4	10,000	ERPG-1
1,4-Dioxane	0.11	BDL	0.20	1	200	MRLs (intermed.)
2-Butanone	0.90	BDL	5.50	5	200,000	AEGL-1
2-Hexanone	0.05	BDL	0.13	1	120	MAGLC
4-Ethyltoluene	0.08	BDL	0.37	3	NA	
Acetone	5.31	BDL	24.10	17	13,000	MRLs (intermed.)
Acrolein***	0.53	BDL	5.94	1	0.04	MRLs (intermed.)
Acrylonitrile	0.06	BDL	0.31	1	100	MRLs (acute)
Benzene	3.36	0.13	29.10	20	6	MRLs (intermed.)
Bromomethane	0.07	BDL	0.47	1	50	MRLs (intermed.)
Carbon tetrachloride	0.06	BDL	0.10	2	30	MRLs (intermed.)
Chlorobenzene	0.06	BDL	0.13	2	10,000	AEGL-1
Chloroethane	0.09	BDL	0.56	3	15,000	MRLs (acute)
Chloromethane	7.97	0.51	61.00	20	200	MRLs (intermed.)
Cumene	0.11	BDL	0.63	3	50,000	AEGL-1
Cyclohexane	0.05	BDL	0.11	1	2,400	MAGLC
Dichlorodifluoromethane	0.52	0.44	0.60	20	24,000	MAGLC
Ethanol	5.22	BDL	15.40	19	1,800,000	ERPG-1
Ethylbenzene	0.67	BDL	5.37	9	2000	MRLs (intermed.)
Hexane	0.37	BDL	1.90	17	1,190	MAGLC
Isopropyl alcohol	0.37	BDL	1.00	6	5000	MAGLC
Methyl methacrylate	0.13	BDL	1.44	3	17,000	AEGL-1
Methylene chloride	0.07	BDL	0.16	7	300	MRLs (intermed.)
Naphthalene	0.24	BDL	2.34	4	240	MAGLC
n-Butane	2.21	0.53	5.70	20	18,000	MAGLC
n-Heptane	0.18	BDL	1.17	7	10,000	MAGLC
n-Nonane	0.11	BDL	0.59	5	4,762	MAGLC
n-Pentane	1.38	0.20	6.14	19	14,286	MAGLC
n-Propylbenzene	0.07	BDL	0.32	2	NA	
o-Xylene	0.19	BDL	1.32	7	600	MRLs (intermed.)
Propylene	5.89	0.32	57.50	20	11,905	MAGLC
Styrene	0.72	BDL	5.70	9	5000	MRLs (acute)*
Tetrachloroethylene	0.06	BDL	0.22	1	6	MRLs (intermed.)
Tetrahydrofuran	0.35	BDL	2.09	5	1190	MAGLC
Toluene	1.63	0.12	11.80	20	2000	MRLs (acute)*
Total m&p-xylenes	0.43	BDL	3.14	7	600	MRLs (intermed.)
Trichlorofluoromethane	0.47	0.19	1.19	20	24,000	MAGLC
Vinyl acetate	0.39	BDL	5.13	3	10	MRLs (Intermed.)
BDL= below detection						
ATSDR Minimum Risk Level (MRLs)						
*MRL (acute)-No intermediate value available.						
ERPG-Emergency						
AEGL-1 = Acute exposure guideline levels for mild effects						
MAGLC= TLV/42						
** Average (½ method detection limit): The arithmetic mean (average) listed uses one-half of the method detection limit (1/2 MDL) as the numerical value for non-detected compounds when computing the average of multiple sampling events. This method is standard						
Method Detection limit: The method detection limit is the lowest measurement the collection / analysis procedure can accurately quantify as a true measurement of the ambient air concentration.						
***Acrolein: Sample results for Acrolein are suspect. This compound can be created within the sample canister itself: U.S. EPA is refining the test method to correct for this problem.						
**** Count: Total detections out of 20 sampling events (other samples were below detection limits)						

ARCO Recycling Airborne Results		May 5, 2017-November 9, 2017																																	
Sample Description	PCM upwind	PCM downwind	0.5 um PCM 50m	0.5 um PCM 100m	East end Residue	West end Residue																													
Laboratory Sample ID	1701676-1	1701676-2	1702819-1	1702819-2	1702819-1	1702819-2	1703014-1	1703014-2	1703160-1	1703160-2	1703219-1	1703219-2	1703344-1	1703344-2	1703487-1	1703487-2	1703545-1	1703545-2	1703706-1	1703706-2	1703883-1	1703883-2	1704000-1	1704000-2	1704193-1	1704193-2	1704286-1	1704286-2	1704193-1	1704193-2	1704537-1	1704537-2	1704684-1	1704684-2	
Client ID	CO79584	CO79642	Site #1 CO79644	Site #2 CO79634	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	Site #1 CO79644	Site #2 CO79644	
Date Collected	5/5/2017	5/5/2017	7/10/2017	7/10/2017	7/27/2017	7/27/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	8/2/2017	
Fiber Concentration /ft ³	<0.01	<0.01	0.013	0.008	0.008	0.009	0.008	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



ARCO Recycling Lead Results		July 18, 2017-November 15, 2017						
Sample Description	PCM upwind	PCM downwind	0.5 um PCM 50m	0.5 um PCM 100m	East end Residue	West end Residue		
1705 Noble Road, East Cleveland								
Cleveland ARCO Project Metals Data -								
units - µg/m ³								
Parameters								
Element								
Month	Arsenic	Beryllium	Cadmium	Chromium	Lead	Manganese	Nickel	Zinc
July								
18-Jul-17	0.0014	<0.000285	0.0001	0.001	0.004	0.021	0.003	0.031
24-Jul-17	0.0014	<0.000273	0.0004	0.003	0.029	0.059	0.004	0.063
30-Jul-17	0.0014	<0.000271	0.0003	0.001	0.009	0.018	0.003	0.048
August								
5-Aug-17	0.0014	<0.000272	0.0001	0.001	0.004	0.007	0.001	0.031
11-Aug-17	0.0014	<0.000271	0.0001	0.001	0.010	0.019	0.001	0.048
17-Aug-17	0.0014	<0.00027	0.0001	0.001	0.019	0.036	0.011	0.070
23-Aug-17	0.0014	<0.000272	0.0003	0.003	0.016	0.053	0.001	0.055
29-Aug-17	0.0014	<0.000272	0.0005	0.004	0.031	0.076	0.005	0.082
September								
5-Sep-17	0.0014	<0.000272	0.0006	0.001	0.010	0.033	0.001	0.061
10-Sep-17	0.0014	<0.000271	0.0001	0.001	0.001	0.007	0.001	0.014
16-Sep-17	0.0014	<0.000289	0.0003	0.007	0.030	0.017	0.031	0.051
22-Sep-17	0.0014	<0.000271	0.0004	0.004	0.030	0.067	0.004	0.077
28-Sep-17	0.0014	<0.000271	0.0001	0.001	0.015	0.025	0.001	0.014
October								
4-Oct-17	0.0014	<0.00027	0.0004	0.003	0.019	0.018	0.004	0.077
10-Oct-17	0.0013	0.00033	0.0005	0.001	0.011	0.041	0.007	0.087
16-Oct-17	0.0014	<0.000274	0.0001	0.001	0.022	0.031	0.001	0.038
22-Oct-17	0.0013	<0.000309	0.0007	0.001	0.023	0.025	0.001	0.056
28-Oct-17	0.0014	<0.000277	0.0001	0.001	0.012	0.024	0.001	0.033
November								
4-Nov-17	0.0014	<0.000272	0.0001	0.001	0.007	0.006	0.001	0.014
10-Nov-17	0.0014	<0.000276	0.0004	0.005	0.029	0.026	0.003	0.084
16-Nov-17	0.0014	<0.000274	0.0005	0.006	0.040	0.044	0.004	0.074
Average	0.0015	0.0	0.0003	0.003	0.017	0.017	0.004	0.061
Screening Value	0.002	0.004	0.01	0.3	0.15	0.3	0.2	0.005
Source	MSDS/7	MSDS/7	MSDS/MS1	NAAGS	MSDS/MS1	MSDS/MS1	MSDS/MS1	MSDS/MS1
Count	1	0	3	7	20	18	16	18
MRLs (chronic) Intermediate screening values not available								
Bold values=1/2 detection limit								
MRLs=1/2SDR Minimum Risk Level								
RIE=U.S. EPA Integrated Risk Information System								
NAAGS=National Ambient Air Quality Standard								
PAC=1/2CFR Protective Action Level								
Count Total detections out of 21 sampling events (total samples were below detection limits)								
Concentration estimated due to interference with the internal standard								

ARCO PM10 Air Quality Summary				
DATE	Day	24-hour concentration µg/m ³	High 1-hour value µg/m ³	High hour
October/November				
10/26/2017	Thursday	11.2	28.4	13
10/27/2017	Friday	29.4	106.2	7
10/28/2017	Saturday	7.2	16.3	21
10/29/2017	Sunday	6.2	13.6	11
10/30/2017	Monday	9.9	45.4	9
10/31/2017	Tuesday	14.7	22.4	8
11/1/2017	Wednesday	11.3	28.6	8
Note: NAAQS for PM10 - 150 µg/m ³ - 24 hour average				

ARCO PM10 Air Quality Summary				
DATE	Day	24-hour concentration µg/m ³	High 1-hour value µg/m ³	High hour
November				
11/2/2017	Thursday	14.9	21.4	18
11/3/2017	Friday	9.1	15.9	13
11/4/2017	Saturday	28.6	85.6	7
11/5/2017	Sunday	12	26.3	9
11/6/2017	Monday	7.1	13	2
11/7/2017	Tuesday	17.4	48.5	13
11/8/2017	Wednesday	23.1	78.4	8
Note: NAAQS for PM10 - 150 µg/m ³ - 24 hour average				