

Petroleum Coke Analysis

Element/ Chemical (ppm)	Detroit Samples		Nat'l Samples
	Ecology Center ¹ (2013)	Michigan DEQ ² (2013)	API ³ (2007)
Ag	0.00	-	-
Al	-	-	263.05
As	0.06	0	0
Au	0.00	-	-
B	-	-	0
Ba	5.60	1.8	3.87
Be	-	0	0
Bi	0.00	-	0
Br	0.11	-	-
Ca	390.10	-	129.85
Cd	0.00	0	0
Cl	828.33	-	-
Co	0.53	0.88	0.95
Cr	52.22	0	1.95
Cu	0.30	0	0.9
Fe	43.22	78	262.95
Hf	0.00	-	-
Hg	0.02	0	0
I	0.00	-	-
K	190.67	-	5.45
Li	-	-	0
Mg	-	-	63.85
Mn	4.78	1.4	2.65
Mo	0.00	20	8.35
Na	-	-	110.4
Nb	0.00	-	-
Ni	128.22	190	343.35
P	0.00	-	9.9
Pa	0.00	-	-
Pb	0.02	0	2.44
Pd	-	-	0
Pt	-	-	3.8
Rb	0.00	-	-
Re	0.00	-	-
S	75,340.33	60000	3.7
Sb	66.00	0	0
Se	0.13	0	0
Si	-	0	410.475
Sn	19.56	-	0
Sr	1.90	-	-
Ta	0.00	0	-
Ti	253.33	-	12.3
V	1,404.78	470	1748.5
W	0.00	-	-
Zn	1.36	2.2	10.45
Zr	0.00	-	-

Element/Chemical (ppm)
Naphthalene
1-methyl naphthalene
2-methyl naphthalene
Acenaphthene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Pyrene
Fluoranthene
Benzofluorenes
Benzo(a)anthracene
Benzo(a,b)anthracene
Chrysene
Benzo(a)pyrene
Benzo(e)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Perylene
Methyl benzo(a)pyrene
Benzo(g,h,i)perylene
Dibenzo(a,h)anthracene
Benzo(g,h,i)fluoranthene
Indeno(1,2,3-cd)pyrene
Dimethylbenzo(a)anthracene
Methylbenzo(g,h,i)perylene
Coronene

Detroit Samples		Nat'l Samples
Ecology Center ¹ (2013)	Michigan DEQ ² (2013)	API ³ (2007)
-	-	3.6
-	-	2.9
-	-	11.5
-	-	0.18
-	-	0.12
-	-	0.355
-	-	0.665
-	-	0.29
-	-	1.25
-	-	0.1
-	-	-
-	-	0.585
-	-	-
-	-	0.99
-	-	1.75
-	-	-
-	-	0.57
-	-	-
-	-	-
-	-	-
-	-	1.25
-	-	0.5
-	-	-
-	-	0.395
-	-	-
-	-	-
-	-	-

¹Ecology Center, Jeff Gearhart, April 2, 2013. X-ray Fluorescence

²Michigan DEQ PET COKE Analysis, George Krisztian, April 9, 2013. Several methods: 7471, 6020, 3050

³Petroleum Coke Category Analysis and Hazard Characterization, The American Petroleum Institute, December 28, 2007. Several methods