State of Oregon Department of Environmental Quality

Ambient Benchmark Concentrations

Based on 2014-2017 ATSAC Review
Adopted into rule by EQC on May 11, 2018

CASRN	Chemical Name	ABC ($\mu g/m^3$)	Derivation
75-07-0	Acetaldehyde [Cancer]	0.45 †	ABC calculated using the 1997 USEPA IRIS URE of 2.2×10^{-6} per $\mu g/m^3$. OEHHA URE is similar (2.7×10^{-6} per $\mu g/m^3$), newer (1999), and would give a similar ABC (0.37). Choice of ABC based on preference for USEPA toxicity information.
107-02-8	**Acrolein [Non-Cancer]**	**0.35**	ABC is the 2008 OEHHA REL. This replaces the older (2002) IRIS RfC of 0.02 $\mu g/m^3$, which was the basis of the previous ABC for this chemical.
107-13-1	Acrylonitrile [Cancer]	0.01	ABC calculated using the 1991 USEPA IRIS URE of 6.8×10^{-5} per $\mu g/m^3$. OEHHA URE is higher (2.9×10^{-4} per $\mu g/m^3$), newer (1999), and would give a lower ABC (0.003 $\mu g/m^3$). OEHHA analysis was more recent but based on the same study used by USEPA. Choice of ABC based on preference for USEPA toxicity information, because the ATSAC did not accept the uncertainty factors applied by OEHHA.
7664-41-7	**Ammonia [Non-Cancer]**	**500**	ABC is the 2016 IRIS RfC. Choice of ABC based on preference for newer USEPA toxicity information (as compared to the OEHHA REL from 2000).

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
7440-38-2	ARSENIC [Cancer]	0.0002	ABC calculated using the 1997 USEPA IRIS URE of 4.3×10^{-3} per $\mu g/m^3$.for elemental As. OEHHA URE is lower (3.3×10^{-3} per $\mu g/m^3$), older (1990), and would give a similar ABC (0.0003 $\mu g/m^3$). Choice of ABC based on preference for USEPA toxicity information.
71-43-2	Benzene [Cancer]	0.13	ABC calculated using the high end (7.8×10^{-6} per $\mu g/m^3$) of the 2000 USEPA IRIS URE range. OAQPS also uses the high end of the USEPA IRIS URE range. OEHHA URE is higher (2.9×10^{-5} per $\mu g/m^3$), older (1985), and would give a lower (0.03) ABC. Choice of ABC based on preference for USEPA (OAQPS) toxicity information.
7440-41-7	Beryllium [Cancer]	0.0004	ABC calculated using the 1998 USEPA IRIS URE of 2.4×10^{-3} per $\mu g/m^3$. Both OEHHA and NATA 1999 use this URE. Choice of ABC based on preference for USEPA toxicity information.
106-99-0	1,3-Butadiene [Cancer]	0.03	ABC calculated using the 2003 USEPA IRIS URE of 3.0×10^{-5} per $\mu g/m^3$. OEHHA URE is higher (1.7×10^{-4} per $\mu g/m^3$), older (1992), and would give a lower (0.006 $\mu g/m^3$) ABC. Choice of ABC based on preference for USEPA toxicity information, which is also newer.
7440-43-9 1306-19-0	**Cadmium** **Cadmium Fumes** **[Cancer]**	**0.0006**	Original ABC retained. ABC calculated using the 1998 USEPA IRIS URE of 1.8×10^{-3} per $\mu g/m^3$. OEHHA URE is higher (4.2×10^{-3} per $\mu g/m^3$), older (1974-1987), and would give a lower (0.0002 $\mu g/m^3$) ABC. The OEHHA REL is 0.02. Choice of ABC based on preference for USEPA toxicity information, which is also newer.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
75-15-0	Carbon Disulfide [Non-Cancer]	800	ABC is the 2002 OEHHA REL. USEPA IRIS RfC is lower (700 $\mu g/m^3$) and older (1995). Choice of ABC based on the newer OEHHA value.
56-23-5	**Carbon Tetrachloride [Cancer]**	**0.2**	ABC calculated using the 2010 USEPA IRIS URE of 6×10^{-6} per $\mu g/m^3$, which is newer than the 1991 USEPA IRIS URE of 1.5×10^{-5} per $\mu g/m^3$ (which was chosen as the basis of the original ABC). The resulting ABC value of 0.17 $\mu g/m^3$ was rounded up to 0.2 $\mu g/m^3$, per ATSAC protocol.
7782-50-5	**Chlorine [Non-Cancer]**	**0.1**	ABC is the 2010 ATSDR chronic MRL, which is 0.00005 parts per million, or 0.1 $\mu g/m^3$. The 2000 OEHHA REL, upon which the original ABC for this chemical was based, was itself based upon a rodent study. The ATSAC chose the ATSDR MRL as the ABC because it was based on a study that used monkeys, and monkey inhalation mechanisms are much more similar to those of humans than are those in rodents.
67-66-3	**Chloroform [Non-Cancer]**	**300**	ABC is the 2000 OEHHA REL. Previous ABC value was based on a 1998 ATSDR. Back in 2005, the ATSAC incorrectly assumed that the study upon which the 2000 OEHHA REL was based was an oral exposure study, and so chose not to use the information because ATSAC policy does not allow extrapolation of inhalation toxicity values from oral studies. However, the 2000 OEHHA REL is actually based on an inhalation study, which the ATSAC does consider appropriate for use. Both USEPA IRIS and OEHHA present a URE value for Cancer effects from exposure to chloroform, but in both cases, the inhalation unit risk value was extrapolated from an oral study. ATSAC policy does not allow the use of inhalation values extrapolated from oral studies.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
18540-29-9	**Chromium, Hexavalent [Cancer]**	**0.00008**	Original ABC retained. ABC calculated using the 1998 USEPA IRIS URE of 1.2×10^{-2} per $\mu g/m^3$. OEHHA URE is higher (1.5×10^{-1} per $\mu g/m^3$), older (1986), and would give a lower (0.0000067 $\mu g/m^3$) ABC. Choice of ABC based on preference for USEPA toxicity information, which is also newer.
7440-48-4	**Cobalt Compounds [Non-Cancer]**	**0.1**	Original ABC retained. ABC is the 2001 ATSDR MRL. A newer (2008) and lower (0.006 $\mu g/m^3$) USEPA PPRTV chronic inhalation RfC was not chosen by the ATSAC due to USEPA's application of additional uncertainty factors to the same study results used for the ATSDR MRL.
106-46-7	1,4-Dichlorobenzene [Cancer]	0.09	ABC calculated using the 1999 OEHHA URE of 1.1×10^{-5} per $\mu g/m^3$. Same URE is used by NATA 1999. Choice of ABC based on only available toxicity information, which is also consistent with that used by USEPA.
542-75-6	1,3-Dichloropropene [Cancer]	0.25	ABC calculated using the 2000 USEPA IRIS URE of 4.0×10^{-6} per $\mu g/m^3$. There is no OEHHA URE. Same URE is used by NATA 1999. Choice of ABC based on preference for USEPA toxicity information.
(none)	**Diesel Particulate Matter [Cancer]**	**0.1**	The original ABC was retained. ABC is the highest credible value reflecting the carcinogenic potential of this material. It was chosen by the ATSAC in 2005 from a 1997 World Health Organization report which has since been withdrawn. In both 2005 and in 2015, the ATSAC reviewed the basis of the 1998 OEHHA URE value of 0.0003 per $\mu g/m^3$ (which would result in an ABC of 0.003 $\mu g/m^3$), and rejected it due to the lack of a credible protocol used by OEHHA to obtain the value. No other Cancer-based numeric toxicity values are currently (as of June 2017) available for DPM. Retention of the original ABC based on an extensive review and discussion of the available literature and best professional judgment on the part of the ATSAC.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
1746-01-6	Dioxins & Furans, Chlorinated [Cancer]	3.0E-08	ABC calculated using the 1999 OEHHA URE of 38 per $\mu g/m^3$. OAQPS uses the lower (33) and older (1994) USEPA ORD URE, which would give the same (3.0E-08) ABC. The measured mean total dioxin ambient concentration in Oregon is 51.3 femtograms (5.1×10^{-14} grams), close to the benchmark value (3.0×10^{-14} grams) Choice based on newer OEHHA toxicity information for children.
100-41-4	Ethyl Benzene [Cancer]	0.4	ABC calculated using the 2007 OEHHA URE of 2.5×10^{-6} per $\mu g/m^3$. 1991 USEPA IRIS RfC of 3000. Choice of ABC based on newer and lower CalEPA value derived from recent studies demonstrating carcinogenicity. Adopted by EQC, 19 Aug 2010.
106-93-4	Ethylene Dibromide [Cancer]	0.002	ABC calculated using the 2004 USEPA IRIS URE of 6.0×10^{-4} per $\mu g/m^3$. OEHHA URE is lower (7.1×10^{-5} per $\mu g/m^3$), older (1985), and would give a higher (0.01 $\mu g/m^3$) ABC. Choice of ABC based on preference for USEPA toxicity information, which is also newer.
107-06-2	Ethylene Dichloride [Cancer]	0.04	ABC calculated using the 2004 USEPA IRIS URE of 2.6×10^{-5} per $\mu g/m^3$. OEHHA URE is lower (2.1×10^{-5} per $\mu g/m^3$), older (1985), and would give a higher (0.05 $\mu g/m^3$) ABC. Choice of ABC based on preference for USEPA toxicity information, which is also newer.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
75-21-8	**Ethylene Oxide [Cancer]**	**0.0003**	ABC based on December 2016 USEPA IRIS URE of 3 x 10^{-3} per $\mu g/m^3$. This value is nearly 30 years newer than the 1987 OEHHA URE previously used as the basis of the ABC. Choice of ABC is based on preference for newer IRIS toxicity information.
16984-48-8	**Fluorides (hydrogen fluoride included) [Non-Cancer]**	**13**	ABC is the 2003 OEHHA REL for fluorides, which is based on the toxicity of the fluoride anion, rather than on a specific fluoride compound. Original ABC was based on the 2003 OEHHA REL for hydrogen fluoride.
50-00-0	**Formaldehyde [Cancer]**	**0.2**	ABC is based on the 1992 OEHHA Inhalation Unit Risk of 6 x 10^{-6} per $\mu g/m^3$. In 2005, the ATSAC did not think there was enough evidence of formaldehyde's carcinogenicity to assign it a Cancer-based ABC, so the original ABC for formaldehyde was based on the 2000 OEHHA REL for non-Cancer effects of 3 $\mu g/m^3$. A 1989 USEPA IRIS URE value of 1.3 x 10^{-5} per $\mu g/m^3$ is also available, which would have resulted in an ABC of 0.08 $\mu g/m^3$. Choice of the OEHHA IUR for the ABC is based on the fact that both the OEHHA and IRIS Cancer values were obtained using the same toxicological study, and per ATSAC policy the higher (less stringent) of the two values was chosen.
110-54-3	**n-Hexane [Non-Cancer]**	**700**	ABC is the 2005 USEPA IRIS RfC. The original ABC was based on the 2000 OEHHA REL, a value still current as of March 2017. Choice of revised ABC based on newer, lower IRIS RfC.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
7647-01-0	Hydrogen Chloride [Non-Cancer]	20	ABC is the 1995 USEPA IRIS RfC value. OEHHA REL is lower (9) and newer (2000). Both USEPA and OEHHA relied on the same study but used different analysis assumptions. Choice of ABC based on preference for newer USEPA toxicity information, because the ATSAC did not accept the uncertainty factors applied by OEHHA.
74-90-8	**Hydrogen Cyanide [Non-Cancer]**	**0.8**	ABC is the 2010 USEPA IRIS RfC. The original ABC was based on the 2000 OEHHA REL. Choice of ABC based on newer IRIS toxicity information.
7783-06-4	**Hydrogen Sulfide [Non-Cancer]**	**2**	The original ABC was retained; it is the 2003 USEPA IRIS RfC. OEHHA REL is higher (10 $\mu g/m^3$) and older (2000). The ATSDR intermediate duration MRL is 28 $\mu g/m^3$. Choice of ABC based on preference for USEPA toxicity information, which is also newer.
7439-92-1	**Lead Compounds [Non-Cancer]**	**0.15**	The original ABC was retained, and is based on the National Ambient Air Quality Standard (NAAQS) for lead adopted by USEPA in 2008.
7439-96-5	**Manganese Compounds [Non-Cancer]**	**0.09**	The original ABC was retained. It is the 2008 OEHHA REL, which reflects greater susceptibility of children to manganese. Choice of ABC based on newer OEHHA toxicity information.
7439-97-6	**Mercury (Elemental) [Non-Cancer]**	**0.3**	The original ABC was retained, and is the 1995 USEPA IRIS RfC for elemental Hg. Choice of ABC based on an extensive review and discussion of the available literature and best professional judgment on the part of the ATSAC.
67-56-1	**Methanol [Non-Cancer]**	**4,000**	The original ABC was retained, which is the 2000 OEHHA REL. Pending 2010 draft EPA IRIS value of 2,000 $\mu g/m^3$ is still provisional, and so will not be used. Choice of ABC based on only available toxicity information.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
74-83-9	Methyl Bromide [Non-Cancer]	5	ABC is the 1992 USEPA IRIS RfC. OEHHA REL is the same (5 $\mu g/m^3$) and newer (2000). Choice of ABC based on preference for USEPA toxicity information, which is consistent with OEHHA.
74-87-3	Methyl Chloride [Non-Cancer]	90	ABC is the 2001 USEPA IRIS RfC. Same RfC is used by NATA 1999. ATSDR MRL is 95 $\mu g/m^3$. Choice of ABC based on only available toxicity information.
71-55-6	**Methyl Chloroform aka 1,1,1-Trichloroethane [Non-Cancer]**	**5,000**	ABC is the 2007 EPA IRIS RfC. The 2000 OEHHA REL of 1,000 $\mu g/m^3$, upon which the original ABC was based, is now older than the currently-available IRIS value.
75-09-2	**Methylene Chloride aka Dichloromethane [Cancer]**	**100**	ABC calculated using the 2011 USEPA IRIS URE of 1×10^{-8} per $\mu g/m^3$. Choice of ABC based on preference for USEPA toxicity information.
91-20-3	Naphthalene [Cancer]	0.03	ABC calculated using the 2004 OEHHA URE of 3.4×10^{-5} per $\mu g/m^3$. Both OEHHA and NATA 1999 use this URE. Choice of ABC based on only available toxicity information, which is also consistent with that used by USEPA.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
373-02-4 7718-54-9 3333-39-3 13463-39-3 12054-48-7 1271-28-9 7786-81-4 10101-97-0 13478-00-7 12607-70-4	**Nickel Compounds (Soluble) [1]** **[Non-Cancer]** Nickel acetate Nickel chloride Nickel carbonate Nickel carbonyl Nickel hydroxide Nickelocene Nickel sulfate Nickel sulfate hexahydrate Nickel nitrate hexahydrate Nickel carbonate hydroxide	**0.01**	ABC is the 2012 OEHHA REL of 0.014 $\mu g/m^3$. ABC also chosen based on similar values used by other jurisdictions.
12035-72-2 1313-99-1 11113-75-0 7440-02-0	**Nickel Compounds (Insoluble) [1]** **[Cancer]** Nickel subsulfide Nickel oxide Nickel sulfide Nickel metal	**0.004**	ABC based on 1991 OEHHA URE for nickel subsulfide of 2.6×10^{-4} per $\mu g/m^3$.
75-44-5	**Phosgene** **[Non-Cancer]**	**0.3**	ABC is the 2008 IRIS RfC. OEHHA REL is higher (4 $\mu g/m^3$) and is based on a study of acute exposure duration. Choice of ABC based on USEPA's use of a more-relevant exposure duration, and on the fact that USEPA"s number is based on a 1997 study, while the OEHHA value is based on an older (1985) study.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
7803-51-2	**Phosphine [Non-Cancer]**	**0.8**	Based on newer (2002) OEHHA REL. The 1995 USEPA IRIS RfC, upon which the previous ABC was based, is lower (0.3 $\mu g/m^3$) but older (1995).
7664-38-2	Phosphoric Acid [Non-Cancer]	10	ABC is the 2004 USEPA IRIS RfC. OEHHA REL is higher (70 $\mu g/m^3$) and older (2000). Choice of ABC based on preference for USEPA toxicity information, which is also newer.
1336-36-3	Polychlorinated Biphenyls (PCB) [Cancer]	0.01	ABC calculated using the 1999 USEPA IRIS URE of 1.0×10^{-4} per $\mu g/m^3$. ABC is for total PCB. OEHHA URE for high risk PCB group is higher (5.7×10^{-4} per $\mu g/m^3$), the same age (1999), and would give a lower (0.002 $\mu g/m^3$) ABC. Choice of ABC based on preference for USEPA toxicity information.
Various	**Polycyclic Aromatic Hydrocarbons (PAH) [Cancer]**	**0.002**	ABC calculated using the USEPA 2017 IRIS URE for benzo(a)pyrene of 6 x 10^{-4} per $\mu g/m^3$. Benchmark is compared to the toxicity equivalency factor weighted sum of concentrations for 26 individual PAHs (please refer to Attachment 1). Choice of ABC based on newer USEPA toxicity information.
106-94-5	**n-Propyl Bromide [Cancer]**	**0.5**	Based on URE value of 2.1 x 10^{-6} per $\mu g/m^3$ calculated by Exponent, Inc. in a 2012 report. No other numeric toxicity information was available for this chemical.
7782-49-2	**Selenium**	**NA**	The ATSAC concluded that inadequate chronic toxicity information existed for selenium, and so chose not to assign it an ABC.
100-42-5	**Styrene [Non-Cancer]**	**1,000**	ABC is based on a 1992 IRIS RfC. OEHHA REL nearly the same (900 $\mu g/m^3$), but ATSAC policy is to choose the higher value from two different studies, if those studies are similar. Also, the IRIS RfC was obtained using an NOAEL as the starting point, whereas OEHHA used a less-preferred model-fitting process to identify a starting point.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
127-18-4	**Tetrachloroethylene aka Perchloroethylene [Cancer]**	**4**	ABC is based on the 2012 EPA IRIS URE of 2.6×10^{-7} per $\mu g/m^3$. Choice of original ABC was previously based on a non-Cancer OEHHA REL due to lack of clear evidence of significant Cancer potency in humans circa 2005.
108-88-3	**Toluene [Non-Cancer]**	**5,000**	ABC is the 2005 EPA IRIS RfC. OEHHA REL is lower (300 $\mu g/m^3$) and older (2000). Choice of ABC based on preference for USEPA toxicity information.
26471-62-5	**2,4-/2,6-Toluene Diisocyanate (Mixture) [Non-Cancer]**	**0.02**	ABC is the 2015 ATSDR MRL. The 1995 EPA IRIS RfC is more than 20 years older, and used an older study than did ATSDR.
79-01-6	**Trichloroethylene [Cancer]**	**0.2**	ABC calculated using the 2011 EPA IRIS URE of 4.1×10^{-6} per $\mu g/m^3$, obtaining a value of 0.244 $\mu g/m^3$, and rounding to 0.2 $\mu g/m^3$. OEHHA URE is older (1990) and would result in a higher ABC of 0.5 $\mu g/m^3$. Choice of ABC based on preference for USEPA toxicity information.
75-01-4	Vinyl Chloride [Cancer]	0.1	ABC calculated using the 2000 USEPA IRIS URE of 8.8×10^{-6} per $\mu g/m^3$. OEHHA URE is higher (7.8×10^{-5}), older (1990) and would give a lower (0.01) ABC. Guidance must indicate that this be used with an Early Life Stage adjustment factor. Choice of ABC based on preference for USEPA toxicity information, which is also newer.
7723-14-0	**White Phosphorus [Non-Cancer]**	**9**	ABC is a 1999 Repeated Public Exposure Guidance Level from the National Research Council. The 1991 OEHHA REL is older (1991) and lower (0.07 $\mu g/m^3$), and has been withdrawn. Choice based on preference of newer, well-researched National Research Council value.

CASRN	Chemical Name	ABC ($\mu g/m^{-3}$)	Derivation
1330-20-7	**Xylenes (Mixed) [Non-Cancer]**	**200**	ABC is the 2007 ATSDR MRL. The 2000 OEHHA REL of 700 $\mu g/m^3$, on which the previous ABC was based, used the same study that ATSDR did, but ATSDR added an uncertainty factor that the ATSAC found defensible. The 2003 USEPA IRIS RfC is lower (100 $\mu g/m^3$).

NOTES

† Benchmark values for carcinogens are calculated as 1×10^{-6} (acceptable risk level) ÷ URE.
NA = not applicable.
Twenty of the original 52 benchmarks were not reviewed by the 2014-2017 ATSAC due to lack of any new toxicity information for those chemicals.
Red font = revised ABCs.
1 = Previously, ABCs were available for soluble nickel compounds, nickel subsulfide, and nickel refinery dust; with this revision of the ABCs, only two nickel categories are presented: soluble nickel compounds and insoluble nickel compounds.
Green font = ABCs reviewed by the 2014-2017 Air Toxics Science Advisory Committee for which the original ABC value was retained.
Orange font = indicates ABCs identified for new chemicals added to the list.

ACRONYMS

ABC	Ambient benchmark concentration for Oregon
ATSAC	Air Toxics Science Advisory Committee (for DEQ's Air Quality Division)
ATSDR	Agency for Toxic Substances and Disease Registry (part of U.S. Public Health Service)
CalEPA	California Environmental Protection Agency
DEQ	Oregon Department of Environmental Quality
IRIS	Integrated Risk Information System
IUR	Inhalation unit risk (aka URE) in units of per ug/m^3, or (ug/m^3) $^{-1}$
MRL	Minimum risk level
NATA	National Air Toxics Assessment (by USEPA)
OAQPS	USEPA Office of Air Quality Planning and Standards
OEHHA	Office of Environmental Health Hazard Assessment (within CalEPA)
ORD	Office of Research and Development (USEPA)
PPRTV	Provisional Peer-Reviewed Toxicity Value
REL	Reference exposure level
RfC	Reference concentration
RPEGL	National Research Council Repeated Public Exposure Guidance Level
µg/m^3	Micrograms of chemical per cubic meter of air
URE	Unit risk estimate (aka IUR) in units of per ug/m^3, or (ug/m^3) $^{-1}$
USEPA	U. S. Environmental Protection Agency
WHO	World Health Organization

ATTACHMENT 1: 26 Individual PAHs and Related Potency Equivalency Factors for Use in Calculating a Concentration of Total PAHs.

#	PAH	CASRN	EPA Required (1)*	EPA Requested (14)**	From MN list (11) §	PEF ǂ
1	5-Methylchrysene	3697-24-3			⊙	1 ǂǂ
2	6-Nitrochrysene	7496-02-8			⊙	10 ǂǂ
3	Acenaphthene	83-32-9		⊙		--
4	Acenaphthylene	208-96-8		⊙		--
5	Anthanthrene	191-26-4			⊙	0.4
6	Anthracene	120-12-7		⊙		0
7	Benz(a)anthracene	56-55-3		⊙		0.2
8	Benzo(a)pyrene	50-32-8	⊙			1
9	Benzo(b)fluoranthene	205-99-2		⊙		0.8
10	Benzo(c)fluorene	243-17-4			⊙	20
11	Benzo(e)pyrene	192-97-2		⊙		--
12	Benzo(g,h,i)perylene	191-24-2			⊙	0.009
13	Benzo(j)fluoranthene	205-82-3			⊙	0.3
14	Benzo(k)fluoranthene	207-08-9		⊙		0.03
15	Chrysene	218-01-9		⊙		0.1
16	Cyclopenta[c,d]pyrene	27208-37-3			⊙	0.4
17	Dibenzo(a,h)anthracene	53-70-3		⊙		10
18	Dibenzo(a,e)pyrene	192-65-4			⊙	0.4
19	Dibenzo(a,h)pyrene	189-64-0			⊙	0.9
20	Dibenzo(a,i)pyrene	189-55-9			⊙	0.6
21	Dibenzo(a,l)pyrene	191-30-0			⊙	30
22	Fluoranthene	206- 44-0		⊙		0.08
23	Fluorene	86-73-7		⊙		--
24	Indeno(1,2,3-c,d)pyrene	193-39-5		⊙		0.07
25	Phenanthrene	85-01-8		⊙		0
26	Pyrene	129-00-0		⊙		0

List recommended by the ATSAC in 2015.

* Naphthalene is also required but already has its own ABC.
** Per NATTS TAD 2009, Revision 2, Table 1.1-1.
§ PAHs on MN MDH 2014 list of 19 priority cPAHs that are not already required or requested by EPA.
ǂ Unless footnoted otherwise, these PEF values are the average from the ranges given in EPA/635/R-08/012A (2010), External Review Draft.
ǂǂ Relative to PEF for benzo(a)pyrene as presented in Minnesota Department of Health *Guidance for Evaluating the Cancer Potency of Polycyclic Aromatic Hydrocarbons (PAH) Mixtures in Environmental Samples* (2016).