

**TABLE B1: Chemicals Included in RBCA**

Compound	MW (g/mol)	Reference	Hourly's Law Constant (dimensionless)	Reference	VF (m <sup>3</sup> /kg)	Reference	GIABS or RAF ingestion (unitless)	Reference	ABS or RAF dermal (unitless)	Reference	RBA or RAF water (unitless)	Reference	Cancer		Non-cancer		Non-cancer		Cancer		Construction receptor only	Ingestion/Dermal Sub-chronic Toxicity	Construction receptor only	Inhalation Sub-chronic Toxicity	Compound		
													Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference						Reference	Reference
C5-C8 Aliphatics	93	MADEP 2002	54	MADEP 2002	1,189	DEQ 2023*	1	MADEP 2002	1	MADEP 2002	1	MADEP 2002	NA	MADEP 2003	4.00E-02	MADEP 2003	7.00E-01	IRIS, 2005	NA	MADEP 2003	4.00E-01	MADEP 2003	2.00E-00	IRIS, 2005	C5-C8 Aliphatics		
C9-C12 Aliphatics	149	MADEP 2002	65	MADEP 2002	5,176	DEQ 2023*	1	MADEP 2002	0.5	MADEP 2002	1	MADEP 2002	NA	MADEP 2003	1.00E-01	MADEP 2003	2.00E-01	MADEP 2003	NA	MADEP 2003	1.00E-00	MADEP 2003	5.00E-01	MADEP 2003	C9-C12 Aliphatics		
C9-C10 Aromatics	120	MADEP 2002	0.33	MADEP 2002	10,978	DEQ 2023*	1	MADEP 2002	0.5	MADEP 2002	0.91	MADEP 2002	NA	MADEP 2003	3.00E-02	MADEP 2003	5.00E-02	MADEP 2003	NA	MADEP 2003	3.00E-01	MADEP 2003	5.00E-01	MADEP 2003	C9-C10 Aromatics		
MTBE	88	EPA 2023	2,40E-02	EPA 2023	4,900	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	1,80E-03	EPA 2023	NA	EPA 2023	3.0E+00	EPA 2023	2,6E+07	EPA 2023	4.0E-01	EPA 2023	1,6E+00	EPA 2023	MTBE		
Benzene	78	EPA 2023	2,30E-01	EPA 2023	3,540	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	5,50E-02	EPA 2023	4.0E-03	EPA 2023	3.0E-02	EPA 2023	7,8E+06	EPA 2023	1.0E-02	EPA 2023	8.0E-02	EPA 2023	Benzene		
Toluene	92	EPA 2023	2,70E-01	EPA 2023	4,290	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	NA	EPA 2023	8.0E-02	EPA 2023	5.0E+00	EPA 2023	NA	EPA 2023	8.0E-01	EPA 2023	5.0E+00	EPA 2023	Toluene		
Ethylbenzene	110	EPA 2023	3,20E-01	EPA 2023	5,670	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	0.011	EPA 2023	5.0E-02	EPA 2023	1.0E+00	EPA 2023	2,5E+06	EPA 2023	5.0E-02	EPA 2023	9.0E+00	EPA 2023	Ethylbenzene		
Xylenes	110	EPA 2023	2,70E-01	EPA 2023	5,740	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	NA	EPA 2023	2.0E-01	EPA 2023	1.0E-01	EPA 2023	NA	EPA 2023	4.0E-01	EPA 2023	4.0E-01	EPA 2023	Xylenes		
Naphthalene	128	EPA 2023	1,80E-02	EPA 2023	46,300	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1,20E-01	EPA 2023	2.0E-02	EPA 2023	3.0E-03	EPA 2023	3,4E+05	EPA 2023	6.0E-01	EPA 2023	NA	EPA 2023	Naphthalene		
1,2-Dibromochloroethane (EDB)	190	EPA 2022	2,70E-02	EPA 2023	8,640	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	2	EPA 2023	9.0E-03	EPA 2023	9.0E-03	EPA 2023	6.0E-04	EPA 2023	NA	EPA 2023	2.0E-03	EPA 2023	1,2-Dibromochloroethane (EDB)		
1,2-Dichloroethane (DCA)	99	EPA 2022	4,80E-02	EPA 2023	4,570	EPA 2023	1	EPA 2023	0	EPA 2023	1	EPA 2023	9,10E-02	EPA 2023	6.0E-03	EPA 2023	7.0E-03	EPA 2023	2,6E+05	EPA 2023	2.0E-02	EPA 2023	7.0E-02	EPA 2023	1,2-Dichloroethane (DCA)		
C6-C8 Aliphatics	170	MADEP 2002	69	MADEP 2002	11,992	DEQ 2023*	1	MADEP 2002	0.5	MADEP 2002	1	MADEP 2002	NA	MADEP 2003	1.00E-01	MADEP 2003	2.00E-01	MADEP 2003	NA	MADEP 2003	1.00E-00	MADEP 2003	5.00E-01	MADEP 2003	C6-C8 Aliphatics		
C1-C5 Aliphatics	NA	MADEP 2002	NA	MADEP 2002	NA	DEQ 2023*	1	MADEP 2002	0.1	MADEP 2002	1	MADEP 2002	NA	MADEP 2003	3.00E-00	PPRTV 2022	NA	PPRTV 2022	NA	MADEP 2003	3.00E-01	PPRTV 2022	NA	PPRTV 2022	C1-C5 Aliphatics		
C11-C22 Aromatics	150	MADEP 2002	0.03	MADEP 2002	NA	DEQ 2023*	0.36	MADEP 2002	0.1	MADEP 2002	0.91	MADEP 2002	NA	MADEP 2003	3.00E-02	MADEP 2003	5.00E-02	MADEP 2003	NA	MADEP 2003	3.00E-01	MADEP 2003	5.00E-01	MADEP 2003	C11-C22 Aromatics		
Acenaphthene	150	EPA 2023	7,50E-03	EPA 2023	141,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	6.0E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	2.0E-01	EPA 2023	NA	EPA 2023	Acenaphthene		
Anthracene	180	EPA 2023	2,30E-03	EPA 2023	53,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	3.0E-01	EPA 2023	NA	EPA 2023	NA	EPA 2023	1.0E+00	EPA 2023	NA	EPA 2023	Anthracene		
Benzo(a)anthracene	230	EPA 2023	4,90E-04	EPA 2023	4,410,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	0.1	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+05	EPA 2023	NA	EPA 2023	Benzo(a)anthracene		
Benzo(a)pyrene	250	EPA 2023	1,90E-05	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1	EPA 2023	3.0E-04	EPA 2023	2.0E-06	EPA 2023	NA	EPA 2023	6.0E-04	EPA 2023	NA	EPA 2023	NA	EPA 2023	Benzo(a)pyrene
Benzo(b)fluoranthene	250	EPA 2023	2,70E-05	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	0.1	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+05	EPA 2023	NA	EPA 2023	NA	EPA 2023	Benzo(b)fluoranthene
Benzo(k)fluoranthene	250	EPA 2023	2,40E-05	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1.00E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+06	EPA 2023	NA	EPA 2023	NA	EPA 2023	Benzo(k)fluoranthene
Chrysene	230	EPA 2023	2,10E-04	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1.00E-03	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+07	EPA 2023	NA	EPA 2023	NA	EPA 2023	Chrysene
Dibenz(a,h)anthracene	260	EPA 2023	5,80E-06	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+04	EPA 2023	NA	EPA 2023	NA	EPA 2023	Dibenz(a,h)anthracene
Fluorene	200	EPA 2023	3,60E-04	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	4.0E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	1.6E-01	EPA 2023	NA	EPA 2023	NA	EPA 2023	Fluorene
Fluorene	170	EPA 2023	3,90E-03	EPA 2023	281,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	4.0E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	8.0E-04	EPA 2023	NA	EPA 2023	Fluorene
Indeno(1,2,3-cd)pyrene	280	EPA 2023	1,40E-05	EPA 2023	NA	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	1.00E-01	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	6.0E+05	EPA 2023	NA	EPA 2023	NA	EPA 2023	Indeno(1,2,3-cd)pyrene
1-Methylnaphthalene	140	EPA 2023	2,10E-02	EPA 2023	58,600	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	2,90E-02	EPA 2023	7.0E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	1-Methylnaphthalene
2-Methylnaphthalene	140	EPA 2023	2,12E-02	EPA 2023	58,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	4.0E-03	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	4.0E-03	EPA 2023	NA	EPA 2023	2-Methylnaphthalene
Pyrene	200	EPA 2023	4,90E-04	EPA 2023	2,380,000	EPA 2023	1	EPA 2023	0.13	EPA 2023	1	EPA 2023	NA	EPA 2023	3.0E-02	EPA 2023	NA	EPA 2023	NA	EPA 2023	NA	EPA 2023	3.0E-01	EPA 2023	NA	EPA 2023	Pyrene

Particulate Emission Factor (PEF) = 1.36E+09 m<sup>3</sup>/kg (EPA, 2023)  
 For compounds with both non-carcinogenic and carcinogenic effects, the more conservative of the two was chosen as the DC RBSL on a receptor-by-receptor basis.  
 C19-C36 Aliphatics is considered insoluble (MADEP 2002)

NA = Not Applicable  
 MW = molecular weight; MADEP, 2002 & EPA RSLs, November 2023  
 g/mol = grams per mole  
 VF = volatilization factor  
 m<sup>3</sup>/kg = cubic meter per kilogram  
 RAF = relative absorption factor  
 RDB = oral reference dose  
 mg/kg-d = milligram per kilogram-day  
 SFU = oral slope factor  
 kg-d/mg = kilogram-day per milligram  
 RIC = reference concentration  
 m<sup>3</sup>/m<sup>3</sup> = milligrams per cubic meter  
 IUR = inhalation unit risk  
 m<sup>3</sup>/kg = cubic meter per kilogram  
 Res. = residential  
 Comm. = commercial/industrial  
 Cons. = construction  
 DC = Direct Contact  
 VPI = Volatile Petroleum Hydrocarbon  
 EPI = Extractable Petroleum Hydrocarbon  
 TPI = Total Petroleum Hydrocarbon  
 MADEP = Massachusetts Department of Environmental Policy  
 EPA = U.S. Environmental Protection Agency  
 PPRTV = Provisional Peer Reviewed Toxicity Value  
 IRIS = Integrated Risk Information System

**References:**  
 DEQ 2023\* Calculated by DEQ using EPA Volatilization Factor Equation and generic site assumptions (EPA RSLs November, 2023) with chemical-specific values for TPH fractions (MADEP 2002)  
 EPA 2023: Value is based on DEQ-specific receptor criteria using the November 2023 RSL Calculator  
 MADEP 2002: Value used is summarized in Table 4-13 or Table 4-14, Implementation of the MADEP VPI/EPI Approach, MADEP October 2002  
 Toxicity values are presented in more detail in Updated Petroleum Hydrocarbon Fraction Toxicity Values for the VPI/EPI/APH Methodology (MADEP, November 2003)  
 MADEP 2002\*: Indicates that the cited value is excluded in the calculation of the DC RBSL. Dermal exposure is excluded in the calculation of certain volatiles, consistent with EPA Risk Assessment Guidance for Superfund Part E, EPA 2004 and EPA RSLs, November 2023  
 VF TPH Fraction References: The following are the sources of the data used to calculate the volatilization factors. All non-chemical specific data and the chemical specific data for the target analytes: EPA, November 2003 Chemical specific data for the non-target analytes except for Ds: MADEP, October 2002  
 DEQ Cons. Receptor RBLS use sub-chronic non-cancer toxicity values (s-RDB and/or s-RC), if available. If there is not a sub-chronic value indicated for a chemical, then the chronic value was used in the RBSL calculation for non-cancer RBLS.