

TABLE 9
RECOMMENDED AND ADOPTED HUMAN BODY WEIGHT VALUES *

Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
1,1,1-Trichloroethane 71556	80	
1,1,2,2-Tetrachloroethane 79345	80	70
1,1,2-Trichloroethane 79005	80	70
1,1-Dichloroethylene 75354	80	70
1,2,4-Trichlorobenzene 120821	80	
1,2-Dichlorobenzene 95501	80	70
1,2-Dichloroethane 107062	80	70
1,2-Dichloropropane 78875	80	70
1,2-Diphenylhydrazine 122667	80	70
1,3-Dichlorobenzene 541731	80	70
1,3-Dichloropropene 542756	80	70
1,4-Dichlorobenzene 106467	80	70
2,3,7,8-TCDD (Dioxin) 1746016	70	70
2,4,6-Trichlorophenol 88062	80	70

Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
2,4-Dichlorophenol 120832	80	70
2,4-Dimethylphenol 105679	80	70
2,4-Dinitrophenol 51285	80	70
2,4-Dinitrotoluene 121142	80	70
2-Chloronaphthalene 91587	80	70
2-Chlorophenol 95578	80	70
2-Methyl-4,6-Dinitrophenol 534521	80	70
3,3'-Dichlorobenzidine 91941	80	70
3-Methyl-4-Chlorophenol 59507	80	
Acenaphthene 83329	80	70
Acrolein 107028	80	70
Acrylonitrile 107131	80	70
Aldrin 309002	80	70
alpha-Hexachlorocyclohexane (HCH) 319846	80	70
alpha-Endosulfan 959988	80	70

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Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
Anthracene 120127	80	70
Antimony 7440360	70	70
Arsenic 7440382	70	70
Asbestos 1332214	70	70
Benzene 71432	80	70
Benzidine 92875	80	70
Benzo(a)anthracene 56553	80	70
Benzo(a)pyrene 50328	80	70
Benzo(b)fluoranthene 205992	80	70
Benzo(k)fluoranthene 207089	80	70
beta-Hexachlorocyclohexane (HCH) 319857	80	70
beta-Endosulfan 33213659	80	70
Bis(2-Chloro-1-Methylethyl) Ether 108601	80	70
Bis(2-Chloroethyl) Ether 111444	80	70
Bis(2-Ethylhexyl) Phthalate 117817	80	70

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Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
Bromoform 75252	80	70
Butylbenzyl Phthalate 85687	80	70
Carbon Tetrachloride 56235	80	70
Chlordane 57749	80	70
Chlorobenzene 108907	80	70
Chlorodibromomethane 124481	80	70
Chloroform 67663	80	70
Chrysene 218019	80	70
Copper 7440508	70	70
Cyanide 57125	80	70
Dibenzo(a,h)anthracene 53703	80	70
Dichlorobromomethane 75274	80	70
Dieldrin 60571	80	70
Diethyl Phthalate 84742	80	70
Dimethyl Phthalate 131113	80	70

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Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
Di-n-Butyl Phthalate 84742	80	70
Endosulfan Sulfate 1031078	80	70
Endrin 72208	80	70
Endrin Aldehyde 7421934	80	70
Ethylbenzene 100414	80	70
Fluoranthene 206440	80	70
Fluorene 86737	80	70
gamma-Hexachlorocyclohexane (HCH) [Lindane] 58899	80	70
Heptachlor 76448	80	70
Heptachlor Epoxide 1024573	80	70
Hexachloroene 118741	80	70
Hexachlorobutadiene 87683	80	70
Hexachlorocyclopentadiene 77474	80	70
Hexachloroethane 67721	80	70
Indeno(1,2,3-cd)pyrene 193395	80	70

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Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
Isophorone 78591	80	70
Methylmercury 22967926		
Methyl Bromide 74839	80	70
Methylene Chloride 75092	80	70
Nickel 744000	70	70
Nitrobenzene 98953	80	70
N-Nitrosodimethylamine 62759	70	70
N-Nitrosodiphenylamine 86306	70	70
N-Nitrosodi-n-Propylamine 621647	70	70
Pentachlorophenol 87865	80	70
Phenol 108952	80	70
p,p'-Dichlorodiphenyldichloroethane (DDD) 72548	80	70
p,p'-Dichlorodiphenyldichloroethylene (DDE) 72559	80	70
p,p'-Dichlorodiphenyltrichloroethane (DDT) 50293	80	70
Polychlorinated Biphenyls (PCBs) 1336363	70	70

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Chemical	EPA Recommended Body Weight (kg)	ADEM Adopted Body Weight (kg)
Pyrene 129000	80	70
Selenium 7782492	70	70
Tetrachloroethylene 127184	80	70
Thallium 7440280	70	70
Toluene 108883	80	70
Toxaphene 8001352	80	70
trans-1,2-Dichloroethylene 156605	80	70
Trichloroethylene 79016	80	70
Vinyl Chloride 75014	80	70
Zinc 7440666	70	70

*** Summary:**

Table 9 identifies the human body weight used to calculate EPA's national recommended water quality criteria for 98 toxic pollutants to protect human health and the human body weight used to calculate ADEM's adopted water quality criteria for 95 toxic pollutants to protect human health. The former are based on individual water quality criteria documents for toxic pollutants hyperlinked in *National Recommended Water Quality Criteria - Human Health Criteria Table*, <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table> (accessed Dec. 31, 2021). The latter are based on ADEM Admin. Code r. 335-6-10-.07(1)(d) which provides that water quality criteria for toxic pollutants will be based on a human body weight of 70 kg.

Comments:

In November 1980, EPA recommended a national default human body weight of 70 kg based on the *Report of the Task Group on Reference Man, International Commission for Radiation Protection* (Nov. 23, 1957). *Notice of Water Quality Criteria Documents*, 45 Fed. Reg. 79318, 79324 (Nov. 28, 1980). This body weight was reaffirmed in 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, Oct. 2000), at 4-19.

In September, 2011, EPA updated the national default human body weight to 80 kg based on data derived from the National Health and Nutrition Examination Survey (NHANES) 1999-2006. *Exposure Factors Handbook: 2011 Edition* (EPA-600-R-09-052F, Sep 2011), at Table 8-1.

In *Water Quality Standards Handbook* (EPA 823-B-17-001 2017), Chap. 3, at § 3.3.2, EPA explained:

The EPA's 2015 updated recommended exposure assumption for body weight is 80 kg, which represents the mean weight for adults 21 years of age and older based on data derived from the Center for Disease Control and Prevention's National Health and Nutrition Examination Survey (NHANES) 1999–2006 data. This recommendation is found in Table 8.1 in the 2011 Exposure Factors Handbook. This updated body weight assumption replaced the EPA's previously recommended weight for adults of 70 kg that was described in the 2000 Human Health Methodology, which was approximated from the mean body weight of adults from the NHANES III database (1988-1994) and a 1989 study by the National Cancer Institute (see the 2000 Human Health Methodology for additional information).

See *Human Health Ambient Water Quality Criteria: 2015 Update* (EPA 820-F-15-001 June 2015).

ADEM Admin. Code r. 335-6-10-.07(d) provides that water quality criteria for toxic pollutants will be based on a human body weight of 70 kg.