

**Table E-4
Exposure Factors**

| Parameter | Symbol | Unit | Default Value | reference |
|--|---------------------|-----------------|---------------|-----------|
| Averaging Time for Carcinogens | AT _c | days | 25550 | 1,8 |
| Averaging Time for Non-Carcinogens | AT _{nc} | days | | |
| Resident - Child | | | 2190 | 1,8 |
| Resident - Adult | | | 7300 | 1,8 |
| Resident - Age-Adjusted | | | 9490 | 1,8 |
| Non-Residential Worker | | | 9125 | 1,8 |
| Construction Worker | | | 126 | 1,3 |
| Body Weight: | BW | kg | | |
| Resident - Child | | | 15 | 7,8 |
| Resident - Adult | | | 80 | 7,8 |
| Non-Residential Worker | | | 80 | 7,8 |
| Construction Worker | | | 80 | 7,8 |
| Exposure Frequency: | EF | days/year | | |
| Resident | | | 350 | 2,8 |
| Non-Residential Worker | | | 250 | 2,8 |
| Construction Worker - Soil Exposure | | | 90 | 9 |
| Construction Worker - Groundwater Exposure | | | 15 | 10 |
| Exposure Duration: | ED | year | | |
| Resident - Child | | | 6 | 2,8 |
| Resident - Adult | | | 20 | 7,8 |
| Resident - Age-Adjusted | | | 26 | 7,8 |
| Non-Residential Worker | | | 25 | 2,8 |
| Construction Worker | | | 1 | 3 |
| Mutagenic Exposure Duration: | ED | year | | |
| Resident - Mutagenic Exposure Duration (0-2 years) | | | 2 | 5 |
| Resident - Mutagenic Exposure Duration (2-6 years) | | | 4 | 5 |
| Resident - Mutagenic Exposure Duration (6-16 years) | | | 10 | 5 |
| Resident - Mutagenic Exposure Duration (16-26 years) | | | 10 | 5 |
| Mutagenic Age-Dependent Adjustment Factor: | ADAF | unitless | | |
| Resident - Mutagenic Age-Dependent Adjustment Factor (0-2 years) | | | 10 | 5 |
| Resident - Mutagenic Age-Dependent Adjustment Factor (2-6 years) | | | 3 | 5 |
| Resident - Mutagenic Age-Dependent Adjustment Factor (6-16 years) | | | 3 | 5 |
| Resident - Mutagenic Age-Dependent Adjustment Factor (16-26 years) | | | 1 | 5 |
| Water Ingestion Rate: | IRW | L/day | | |
| Resident - Child | | | 0.78 | 7,8 |
| Resident - Adult | | | 2.5 | 7,8 |
| Skin Surface Area for Dermal Contact with Water: | SA _{water} | cm ² | | |
| Resident - Child | | | 6,365 | 7,8 |
| Resident - Adult | | | 19,652 | 7,8 |
| Construction Worker | | | 3,527 | 7,8 |
| Exposure Time for Dermal Contact with Water | t _{event} | hours/event | | |
| Resident - Child | | | 0.54 | 7,8 |
| Resident - Adult | | | 0.71 | 7,8 |
| Resident - Age-Adjusted | | | 0.67 | 4,8 |
| Construction Worker | | | 1 | 9 |
| Event Frequency for Dermal Contact with Water | F _{event} | events/day | | |
| Resident | | | 1 | 4 |
| Construction Worker | | | 1 | 4 |

**Table E-4
Exposure Factors**

| Parameter | Symbol | Unit | Default Value | reference |
|--|--------------------|--------------------|---------------|-----------|
| Soil Ingestion Rate: | IRS | mg/day | | |
| Resident - Child | | | 200 | 7,8 |
| Resident - Adult | | | 100 | 2,8 |
| Non-Residential Worker | | | 100 | 2,8 |
| Construction Worker | | | 330 | 3 |
| Skin Surface Area for Dermal Contact with Soil: | SA _{soil} | cm ² | | |
| Resident - Child | | | 2373 | 7,8 |
| Resident - Adult | | | 6032 | 7,8 |
| Non-Residential Worker | | | 3527 | 7,8 |
| Construction Worker | | | 3527 | 7,8 |
| Soil to Skin Adherence Factor: | AF | mg/cm ² | | |
| Resident - Child | | | 0.2 | 4,8 |
| Resident - Adult | | | 0.07 | 4,8 |
| Non-Residential Worker | | | 0.12 | 7,8 |
| Construction Worker | | | 0.3 | 3 |
| Exposure Time for Inhalation: | ET | hours/day | | |
| Resident | | | 24 | 6,8 |
| Non-Residential Worker | | | 8 | 6,8 |
| Construction Worker | | | 8 | 6,8 |

¹U.S. EPA 1989. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response. EPA/540/1-89/002.

²U.S. EPA 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors". OSWER Directive 9285.6-03.

³U.S. EPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

⁴U.S. EPA 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. OSWER 9285.7-02EP. July 2004.

⁵U.S. EPA 2005. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. U.S. Environmental Protection Agency, Washington, DC, EPA/630/R-03/003F, 2005.

⁶U.S. EPA 2009. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) Final. OSWER 9285.7-82. January 2009.

⁷U.S. EPA 2011. Exposure Factors Handbook: 2011 Edition. EPA/600/R-090/052F, September 2011.

⁸U.S. EPA 2014. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120.

⁹Original MRBCA default

¹⁰Professional Judgement