

## Shortforms June 2024 - Version Changes

MassDEP has made the following changes to the June 2024 Version of Shortforms (as compared to the 2014 version, the last complete published version):

- New formulas for the derivation of ELCR for mutagenic OHM have been added for Vinyl Chloride, Trichloroethylene, and eight other chemicals referred to as “Other Mutagens Except Vinyl Chloride and Trichloroethylene”
- Cancer slope factor values for TCE have been updated to reflect the two mutagenic and non-mutagenic modes of action for this chemical
- Toxicity values for certain chemicals have been updated/corrected as described in the documents named “3-28-24 Shortforms revision notes.pdf” and “12-13-23 Shortform revision note.pdf” (reproduced in Addendum A)
- PFAS chemicals have been added to the “Method 3 Assessment Lookup Tables” workbook (or “Lookup” file/workbook for short, previously called “Vlookup” file)
- New scenarios have been added to calculate the risks from exposure to contaminants in air in elementary and high schools (sf24osa.xlsx; sf24saih.xlsx), daycare centers (sf24dca.xlsx; sf24dcaih.xlsx), and for the office worker (sf0624oaih.xlsx; office worker’s chronic exposure is covered under sf24osa.xlsx)
- Exposure parameter values (body weight, skin surface area, time spent in shower/bathroom ( $D_t/D_s$ ), and adherence factors) have been updated to reflect the values in the EPA’s 2011 Exposure Factors Handbook and as discussed in the MassDEP’s 2024 Risk Assessment Guidance
- $K_p$  values were updated to align them with the values used in the Method 1 spreadsheets
- Information on Trichloroethylene (TCE) and Cyanide for Imminent Hazard (IH) exposure were updated
- The Lookup and scenario workbooks were updated to enable the user to add new OHM in a streamlined manner, resulting in addition of several new tabs to the Lookup workbook
- Certain structural changes were made to the design of the workbooks to improve their functionality and streamline further development work; however, these changes do not affect user’s experience with the Shortforms
- Certain format changes were made, which do not affect functionality or user’s experience
- Certain unnecessary cell comments were deleted
- Shortforms user’s guide (“SFUG0624.pdf”) and index of the Shortform documents have been updated (“SFIndex0624.xlsx”)

## **Addendum A**

### **3-28-24 Description of Shortform Revisions**

The following revisions were made to the Shortforms on March 28, 2024.

#### **Resident Drinking Water Shortforms**

- 1) A note has been revised in sf24rw relating to PFAS drinking water risk to read: "For PFAS6 a separate calculation,  $HI = \text{SUM}(\text{PFAS6 Concentrations})/20 \text{ ppt}$ , meets Method 3 risk requirements."

#### **Resident Air Shortform**

- 1) The ADAF units in the exp tab have been changed to dimensionless.

#### **Toxicity Shortform (v0324)**

- 1) Bolded values in the V1 tab in v1223.xlsx have been un-bolded.
- 2) The Chronic RfD for RDX (CASRN 121-82-4) has been changed to 0.004 mg/kg/day (from 0.003). The CSF for RDX has been changed to 0.08 (mg/kg/day)<sup>-1</sup> (from 0.11) to reflect the IRIS values from 2018.
- 3) The subchronic RfC value for trans-1,2-dichloroethylene (CASRN 156-60-5) has been corrected to 7.00E-01 (from 7.0 E-2).
- 4) For Chrysene (CASRN 218-01-9) the relative potency factor (to BaP) has been corrected to 0.001 and the notes associated with these values have been revised. The CSF has been corrected to 0.001 (mg/kg/day)<sup>-1</sup> (from 0.01) and the IUR has been corrected to 6E-7 (ug/m<sup>3</sup>)<sup>-1</sup> (from 6E-6).
- 5) The subchronic RfD for barium has been revised to 0.2 mg/kg-day (from 0.07).
- 6) In tab V4 the word 'constsants' was corrected to 'constants'.
- 7) The spacing for the CAS numbers have been amended where appropriate.

Please note: the current set of shortforms does not include sf12osa and sf12osih (office worker, students & teachers exposure models). These worksheets are being revised and will be added to the Shortforms when they are complete.

### **12-23-23 Description of Shortform Revisions**

The following revisions were made to the toxicity file for the Shortforms (v1223) on December 12, 2023. These revisions address data entry errors and rounding inconsistencies.

Fluoranthene: the chronic RfC was changed to 0.05 mg/m<sup>3</sup> (from 1E-1, a data entry error) which makes the value consistent with that used in the derivation of the Method 1 standards.

Ideno(1,2,3)pyrene: the oral cancer slope factor has been changed to  $1\text{E-}1$   $1(\text{mg/kg/d})$  (from  $1\text{E-}2$ , a data entry error), which makes the value consistent with that used in the derivation of the Method 1 standards.

Styrene: the chronic inhalation RfC was changed to  $1 \text{ mg/m}^3$  (from  $2\text{E-}10$ , a data entry error) and the subchronic inhalation RfC was changed to  $3 \text{ mg/m}^3$  (from  $2\text{E-}10$ ). These values are consistent with IRIS.

Trichloroethylene: the oral cancer slope factor has been changed to  $4.6\text{E-}2$   $1(\text{mg/kg/d})$  (from the rounded value of  $5\text{E-}2$ ), as listed in IRIS. The inhalation unit risk has been changed to  $4.1\text{E-}6$   $1/(\text{ug/m}^3)$  (from  $5\text{E-}6$ ), which makes the value consistent with that used in the derivation of the Method 1 standards.