Supplemental Files

Table S-1: IH SkinPerm Parameters for Scenario 1: Instantaneous Dermal Exposure for TCE and CTC

Scenario Parameter	**Value**	**Rationale and Assumptions**
Instantaneous deposition dose	749 mg/event	Calculated using EPA's Assumed Q_u and S values (refer to Table 2).
Affected skin area	535 cm^2	Surface area of one hand (same as EPA model).
Maximum skin adherence	0.584 mg/cm^2	The skin adherence was assumed to be equal to 0.0004 (cm) x density (mg/cm^3) based on assumptions of 20 μm stratum corneum thickness and 20% stratum corneum saturation volume (Tibaldi et al., 2014); The density of pure TCE and CTC are both 1.46 g/cm^3 as reported in the Final EPA Risk Evaluation documents (USEPA, 2020a Table 1-1, p. 41 and USEPA, 2020b Table 1-1, p. 30). It was assumed that any additional TCE or CTC loaded beyond the film thickness rolled off of the skin or was washed off the skin.
Thickness of stagnant air	1 cm	Assumes no gloves, based on recommendation from Tibaldi et al. (2014) for bare skin.
Weight fraction of TCE/CTC	1	Default value that assumes 100% TCE/CTC (same as EPA model)
Timing Parameters	**Value or Selection**	**Rationale**
Start of deposition	0 h	Instantaneous deposition of TCE begins at start of loading/unloading task. Assumes all of TCE was deposited at the beginning of each event (to simulate a wetting or soaking of hands during sample collection or connection of transfer lines).
End time observation	0.25, 0.5, or 1 h	Observation time is set at 0.25, 0.5, or 1 hour, to simulate the duration of the task and assumption that the hands are washed at the end of the observation period. There is potential for additional absorption past the observation period.

Table S-2: IH SkinPerm Parameters for Scenario 2: Constant Dose Dermal Exposure to TCE and CTC

Scenario Parameter	**Value**	**Rationale and Assumptions**
Affected skin area	535 cm^2	Surface area of one hand (same as EPA model).
Maximum skin adherence	0.584 mg/cm^2	The maximum volume for absorption assumed to be 0.0004 (cm) x density (mg/cm^3) based on assumptions of 20 μm stratum corneum thickness and 20% stratum corneum saturation volume (Tibaldi et al., 2014); The density of pure TCE and CTC are both 1.46 g/cm^3 as reported in the Final EPA Risk Evaluation documents (USEPA, 2020a Table 1-1, p. 41 and USEPA, 2020b Table 1-1, p. 30).
Dermal deposition rate	5.6 $mg/cm^2/h$ (assuming 15 min event) 2.8 $mg/cm^2/h$ (assuming 30 min event) 1.4 $mg/cm^2/h$ (assuming a 1 h event)	Based on EPA estimation of Q_u (quantity remaining on skin) loading and assumes mass loading is uniformly spread over 0.25, 0.5 or 1 h exposure event.
Thickness of stagnant air	1 cm	Assumes no gloves, based on recommendation from Tibaldi et al. (2014) for bare skin.
Weight fraction of TCE/CTC	1	Default value that assumes 100% TCE or CTC (Same as EPA model).
Timing Parameters		**Rationale and Assumptions**
Start of deposition	0 h	Instantaneous deposition of TCE or CTC begins at start of the task, such as collecting a sample or connecting a transfer line (TCE).
Duration of deposition	0.25, 0.5 or 1 h	Based on the assumption of dripping or minimal contact loading for ongoing work on a task (e.g. a maintenance task) estimation of between 15 minutes (0. 25 h), 30 minutes (0.5 h), or 1 hour (1 h). Represents constant dose of TCE over task time.

Scenario Parameter	Value	Rationale and Assumptions
End time	0.25, 0.5 h or 1 h	Based on the assumption of dripping or minimal contact loading for ongoing work on a task (e.g. a maintenance task) estimation of between 15 minutes (0. 25 h), 30 minutes (0.5 h), or 1 hour (1 h). There is potential for additional absorption past the observation period (assumes no handwashing).

References:
US EPA 2020a. Risk Evaluation for Trichloroethylene CASRN: 79-01-6. Book Risk Evaluation for Trichloroethylene CASRN: 79-01-6, U.S. Environmental Protection Agency (EPA).
USEPA 2020b. Risk Evaluation for Carbon Tetrachloride (Methane, Tetrachloro-) CASRN: 56-23-5, U.S. Environmental Protection Agency (EPA).

Table S-3. Summary of IH SkinPerm Results for Instantaneous and Constant Exposure Scenarios for TCE

Scenario 1 - Instantaneous Dermal Exposure			
Observation Time	**Absorbed fraction % (f_{abs})**	**Amount absorbed (mg) per event**	**Total absorbed dose per workday[a] (mg/day) (mg/kg/day)**
15 min (0.25 h)	0.262% (0.00262)	1.96	15.68 (0.196)
30 min (0.5 h)	0.340% (0.00340)	2.54	10.16-20.32 (0.127-0.254)
60 min (1 h)	0.370% (0.00370)	2.77	22.16 (0.277)
Scenario 2 - Constant Dose Dermal Exposure			
Duration of Deposition	**Absorbed fraction % (f_{abs})**	**Amount absorbed (mg) per event**	**Total absorbed dose per workday[a] (mg/day) (mg/kg/day)**
15 min (0.25 h)	0.416% (0.00416)	3.12	24.96 (0.312)
30 min (0.5 h)	0.700% (0.00700)	5.24	20.96-41.92 (0.262-0.524)
60 min (1 h)	1.04% (0.0104)	7.78	62.24 (0.778)

[a] For 15 min duration - assume application of 8 times per day; for 30 min duration - assume application 4 or 8 times per day; for 60 min duration - assume 8 events per day. Absorbed dose in mg/kg/day was calculated by dividing the mg/day by typical worker body weight, or 80 kg.

Table S-4. Summary of IH SkinPerm Results for Instantaneous and Constant Exposure Scenarios for CTC

Scenario 1 - Instantaneous Dermal Exposure			
Observation Time	**Absorbed fraction % (f_{abs})**	**Amount absorbed (mg) per event**	**Total absorbed dose per workday[a] (mg/day) (mg/kg/day)**
15 min (0.25 h)	0.132% (0.00132)	0.987	7.90 (0.0990)
30 min (0.5 h)	0.174% (0.00174)	1.30	5.20-10.40 (0.065-0.130)
60 min (1 h)	0.192% (0.00192)	1.44	11.52 (0.144)
Scenario 2 - Constant Dose Dermal Exposure			
Duration of Deposition	**Absorbed fraction % (f_{abs})**	**Amount absorbed (mg) per event**	**Total absorbed dose per workday[a] (mg/day) (mg/kg/day)**
15 min (0.25 h)	0.194% (0.00194)	1.45	11.60 (0.145)
30 min (0.5 h)	0.329% (0.00329)	2.46	9.84-19.68 (0.123-0.246)
60 min (1 h)	0.495% (0.00495)	3.70	29.60 (0.370)

[a] For 15 min duration - assume application of 8 times per day; for 30 min duration - assume application 4 or 8 times per day; for 60 min duration - assume 8 events per day. Absorbed dose in mg/kg/day was calculated by dividing the mg/day by typical worker body weight, or 80 kg (Table 3).