

Supplemental Material

Human Health Effects of Trichloroethylene: Key Findings and Scientific Issues

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Supplemental Material, Table S1. Studies relevant to evaluation of TCE non-cancer endpoints.

Tissue or organ system	Endpoint(s)	Relevant studies
Central Nervous System	Changes in trigeminal nerve function or morphology.	Human studies: Barret et al. (1982); Barret et al. (1984); Barret et al. (1987); El Ghawabi et al. (1973); Feldman et al. (1988); Feldman et al. (1992); Kilburn and Warshaw (1993); Kilburn (2002a, b); Mhiri et al. (2004); K Rasmussen et al. (1993a); Ruijten et al. (1991); Triebig et al. (1982); Triebig et al. (1983) Experimental animal studies: Albee et al. (2006); Barret et al. (1991); Barret et al. (1992)
	Impairment of vestibular function.	Human studies: Grandjean et al. (1955); Hirsch et al. (1996); Liu et al. (1988); Rasmussen and Sabroe (1986); Smith (1970); Stewart et al. (1970) Experimental animal studies: Niklasson et al. (1993); Tham et al. (1979); Tham et al. (1984); Umezu et al. (1997)
	Delayed motor function, including during neurodevelopment.	Human studies: Beppu (1968); Gamberale et al. (1976); Gash et al. (2008); Gun et al. (1978); Kilburn and Warshaw (1993); Kilburn and Thornton (1996); Kilburn (2002a, b); K Rasmussen et al. (1993a); Reif et al. (2003); White et al. (1997) Experimental animal studies: Albee et al. (2006); Blossom et al. (2008); Bushnell (1997); Bushnell and Oshiro (2000); Fredriksson et al. (1993); Kishi et al. (1993); Kulig (1987); Moser et al. (1995); Moser et al. (2003); Nunes et al. (2001); Savolainen et al. (1977); Shih et al. (2001); Taylor et al. (1985); Umezu et al. (1997); Waseem et al. (2001); Wolff and Siegmund (1978)
	Changes in auditory, visual, and cognitive function or performance.	Human studies: ATSDR (2002); Burg et al. (1995); Burg and Gist (1999); Chalupa et al. (1960); Gamberale et al. (1976); Kilburn (2002a, b); K Rasmussen et al. (1993c); Reif et al. (2003); Salvini et al. (1971); Stewart et al. (1970); Triebig et al. (1976); Triebig et al. (1977a); Triebig et al. (1977b); Tröster and Ruff (1990); Vernon and Ferguson (1969) Experimental animal studies: Albee et al. (2006); Blain et al. (1994); Boyes et al. (2000); Boyes et al. (2003); Boyes et al. (2005); Crofton et al. (1994); Crofton and Zhao (1997); Fechter et al. (1998); Isaacson and Taylor (1989); Isaacson et al. (1990); Jaspers et al. (1993); Kishi et al. (1993); Kjellstrand et al. (1980); Kulig (1987); Muijser et al. (2000); Ohta et al. (2001); Oshiro et al. (2004); Rebert et al. (1991); Rebert et al. (1993); Rebert et al. (1995); Umezu et al. (1997); Yamamura et al. (1983)

Supplemental Material, Table S1 (continued).

Tissue or organ system	Endpoint(s)	Relevant studies
Kidney	Nephrotoxicity, particularly in the form of tubular toxicity.	<p>Human studies: Bolt et al. (2004); Brüning et al. (1999a); Brüning et al. (1999b); Green et al. (2004); Jacob et al. (2007); Nagaya et al. (1989); Radican et al. (2006); K Rasmussen et al. (1993b); Selden et al. (1993)</p> <p>Experimental animal studies: Chakrabarti and Tuchweber (1988); Dow and Green (2000); Green et al. (1998); Green et al. (2003); Jaffe et al. (1984); NCI (1976); NTP (1988, 1990); Terracini and Parker (1965)</p> <p>Mechanistic studies: Cummings and Lash (2000); Cummings et al. (2000a); Cummings et al. (2000b)</p>
Liver	Hepatotoxicity.	<p>Human studies: Davis et al. (2005); Driscoll et al. (1992); Kamijima et al. (2007); Leigh and Jiang (1993); Nagaya et al. (1993); Neghab et al. (1997); K. Rasmussen et al. (1993); Xu et al. (2009)</p> <p>Experimental animal studies: Bai et al. (1992); Berman et al. (1995); Buben and O'Flaherty (1985); Channel et al. (1998); Dees and Travis (1993); Elcombe et al. (1985); Goel et al. (1992); Goldsworthy and Popp (1987); Kaneko et al. (2000); Kjellstrand et al. (1981); Kjellstrand et al. (1983a); Kjellstrand et al. (1983b); Kumar et al. (2001a); Laughter et al. (2004); Melnick et al. (1987); Merrick et al. (1989); Mirsalis et al. (1989); Nakajima et al. (2000); Neghab et al. (1997); NTP (1990); Nunes et al. (2001); Okino et al. (1991); Ramdhan et al. (2008); Ramdhan et al. (2010); Tao et al. (2000); Tucker et al. (1982); Wang and Stacey (1990); Woolhiser et al. (2006)</p>

Supplemental Material, Table S1 (continued).

Tissue or organ system	Endpoint(s)	Relevant studies
Immune System	Autoimmune disease, including scleroderma.	Human studies: Aryal et al. (2001); Diot et al. (2002); Garabrant et al. (2003); Iavicoli et al. (2005); Lehmann et al. (2001); Lehmann et al. (2002); Maitre et al. (2004); Nietert et al. (1998) Experimental animal studies: Blossom et al. (2004); Blossom and Doss (2007); Blossom et al. (2007); Blossom et al. (2008); Cai et al. (2006); Cai et al. (2008); Gilkeson et al. (2004); Griffin et al. (2000a); Griffin et al. (2000b); Kaneko et al. (2000); Keil et al. (2009); Khan et al. (1995); Peden-Adams et al. (2006); Peden-Adams et al. (2008); White et al. (2000) Mechanistic studies: Wang et al. (2007); Wang et al. (2008)
	A specific type of generalized hypersensitivity disorder.	Human studies: Dai et al. (2004); Huang et al. (2002); Kamijima et al. (2007); Kamijima et al. (2008) Experimental animal studies: Peden-Adams et al. (2006); Tang et al. (2002); Tang et al. (2008)
	Immunosuppression.	Human studies: Lagakos et al. (1986) Experimental animal studies: Aranyi et al. (1986); Blossom and Doss (2007); Blossom et al. (2008); Hobara et al. (1984); Kauffmann et al. (1982); Peden-Adams et al. (2006); Peden-Adams et al. (2008); Sanders et al. (1982); Selgrade and Gilmour (2010); Woolhiser et al. (2006)
Respiratory tract	Respiratory tract toxicity, primarily in Clara cells.	Human studies: Cakmak et al. (2004); Saygun et al. (2007) Experimental animal studies: Green et al. (1997); Kurasawa (1988); Le Mesurier et al. (1980); Lewis et al. (1984); Narotsky et al. (1995); NTP (1990); Odum et al. (1992); Prendergast et al. (1967); Scott et al. (1988); Stewart et al. (1979); Villaschi et al. (1991)

Supplemental Material, Table S1 (continued).

Tissue or organ system	Endpoint(s)	Relevant studies
Reproductive system	Male reproductive toxicity, through effects in the testes, epididymides, on sperm, or on hormone levels.	<p>Human studies: ATSDR (2001); Bardodej and Vyskocil (1956); Chia et al. (1997); Chia et al. (1996); El Ghawabi et al. (1973); Forkert et al. (2003); Goh et al. (1998); Rasmussen et al. (1988); Saihan et al. (1978); Sallmen et al. (1998)</p> <p>Experimental animal studies: Cosby and Dukelow (1992); Forkert et al. (2002); George et al. (1985); George et al. (1986); Kan et al. (2007); Kumar et al. (2000a); Kumar et al. (2000b); Kumar et al. (2001b); Land et al. (1981); Veeramachaneni et al. (2001); Xu et al. (2004); Zenick et al. (1984)</p> <p>Mechanistic studies: DuTeaux et al. (2003); DuTeaux et al. (2004); Xu et al. (2004)</p>
	Female reproductive toxicity.	<p>Human studies: ATSDR (2001); Bardodej and Vyskocil (1956); Sagawa et al. (1973); Sallmén et al. (1995); Zielinski (1973)</p> <p>Experimental animal studies: Berger and Horner (2003); Cosby and Dukelow (1992); George et al. (1985); George et al. (1986); Manson et al. (1984); Wu and Berger (2007)</p>

Supplemental Material, Table S1 (continued).

Tissue or organ system	Endpoint(s)	Relevant studies
Development	Fetal cardiac malformations.	<p>Human studies: ATSDR (2001, 2006a, b, 2008); Bove et al. (1995); Bove (1996); Goldberg et al. (1990); Lagakos et al. (1986); Yauck et al. (2004)</p> <p>Experimental animal studies: Carney et al. (2006); Cosby and Dukelow (1992); Dawson et al. (1990, 1993); Dorfmueller et al. (1979); Epstein et al. (1992); Fisher et al. (2001); Hardin et al. (1981); Healy et al. (1982); PD Johnson et al. (1998); P Johnson et al. (1998); Johnson et al. (2003, 2005); Narotsky and Kavlock (1995); Narotsky et al. (1995); Schwetz et al. (1975); Smith et al. (1989); Smith et al. (1992); Warren et al. (2006)</p> <p>Mechanistic studies: Boyer et al. (2000); Bross et al. (1983); Drake et al. (2006a); Drake et al. (2006b); Loeber et al. (1988); Mishima et al. (2006); Ou et al. (2003); Rufer et al. (2008); Rufer et al. (2010)</p>
	Prenatal losses and decreased growth or birth weight of offspring.	<p>Human studies: ATSDR (1998, 2001, 2006b, 2008); Bove et al. (1995); Bove (1996); Goldberg et al. (1990); Lagakos et al. (1986); Lindbohm et al. (1990); Rodenbeck et al. (2000); Taskinen et al. (1989); Taskinen et al. (1994); Windham et al. (1991)</p> <p>Experimental animal studies: Carney et al. (2006); George et al. (1985); George et al. (1986); Hardin et al. (1981); Healy et al. (1982); Kumar et al. (2000b); Narotsky and Kavlock (1995); Narotsky et al. (1995); Schwetz et al. (1975)</p>

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