

Guidelines/Criteria	
Reference:	Wang FI, Kuo ML, Shun CT, Ma YC, Wang JD, Ueng TH. 2002. Chronic toxicity of a mixture of chlorinated alkanes and alkenes in ICR mice. J Toxicol Environ Health Part A 65(3-4):279-291.
In vivo Study Type Route of Administration Species & age of animals	drinking water male and female weanling ICR mice
Study Duration	16 (male due to mortality in controls and treated animals) and 18 months (females)
Type of Mixture Binary >2 components Similar acting or dissimilar What Mode of Action was investigated?	no yes dissimilar action assumed No specific mode of action
Parameters/End points Measured Target organs/Critical effects Pharmacological changes or adverse effects	Chronic toxicity adverse
Individual Components Characterisation of individual compounds Name, exact chemical name, CAS no. Were dose responses established for individual components? Were no effect levels established? Were doses below the NO(A)ELs investigated?	No Different doses of mixtures of chlorinated hydrocarbons were used similar to concentrations in the underground water near the electronics factory site in Taoyuan. CA mixtures (low, medium, high dose, underground water in µg/ml): Chloroform 5.8, 7.6, 14.0, n.d. - 3.0, 1,1-Dichloroethane 5.8, 12.8, 41.3, n.d. - 36.1, 1,1-Dichloroethylene 1.2, 4.1, 10.6, n.d. - 82.4, 1,1,1-Trichloroethane 2.0, 3.4, 11.9, n.d. - 10.1, Trichloroethylene 44.1, 106.0, 471.2, n.d. - 87.0, Tetrachloroethene 36.0, 90.3, 606.5, n.d. - 210.6. The concentrations of component compounds in the underground water represent the results of GC/MS analysis of water samples from 20 wells near a manufacturer of electric appliances in Taoyuan. No Presumably not
Mixtures Investigated Number of dose levels How does the mixture make-up compare to individual components? (e.g. low dose) equivalents used? No. of technical replicates per exposure condition (<i>in vitro</i>) No. of animals per dose group (<i>in vivo</i>)	Control, low, mid and high dose of mixtures not applicable no applicable 33-41 animals/diet group
Observations/Findings	Male mice: high dose: tail alopecia and deformation, medium and high dose: increased liver and lung absolute weights (no changes in relative weights), BUN, serum creatinine values increased, trend of increased frequency of hepatocellular neoplasms. Female mice: high dose increased liver, kidney, uterus and ovary absolute weights (no changes in relative weights), high dose: higher incidence of mammary adenocarcinoma (5 mammary gland adenocarcinoma in the high dose group compared to 0/1/0 in the control/low/medium dose group).
Overall opinion (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	The mixtures contained high doses of a mixture of chlorinated alkanes, not representing environmentally- or human-relevant exposure levels. Increased mammary adenocarcinoma and possibly the seem to be the only relevant treatment-related finding.