

Guidelines/Criteria	
Reference:	Payne J, Scholze M, Kortenkamp A. 2001. Mixtures of four organochlorines enhance human breast cancer cell proliferation. Environ Health Perspect 109(4):391-397.
In vitro Study Type Route of Administration Species & age of animals	MCF-7 Cell proliferation
Study Duration	11 days, with 7 days of exposure
Type of Mixture Binary >2 components Similar acting or dissimilar What Mode of Action was investigated?	Similar acting Oestrogenicity
Parameters/End points Measured Target organs/Critical effects Pharmacological changes or adverse effects <i>In vitro</i>	Cell proliferation
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?	o, p'-DDT > 99%, p,p'-DDT 98%, p,p'-DDE 98%, β -hexachlorocyclohexane (β -HCH) 98% yes yes yes
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>)	7 Full concentration response curves with mixtures with molar mixture ratios of 1:1:1:1 and 1:10:5:4 o,p'-DDT:p,p'-DDE: β -HCH:p,p'-DDT were run 3, two independent runs
Observations/Findings	All compounds alone and the mixtures concentration-dependently stimulated cell proliferation. Results are in line with additivity.
Overall opinion (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	Thoughtful study. The notion that, with respect to the most active compound in the two mixtures, the combination can be classified as synergistic, needs evaluation.