

Guidelines/Criteria	
	Reference: Heneweer M, Muusse M, van den Berg M, Sanderson JT. 2005. Additive estrogenic effects of mixtures of frequently used UV filters on pS2-gene transcription in MCF-7 cells. Toxicol Appl Pharmacol 208:170-177.
In vitro Study Type	MCF-7 cells, gene transcription levels
Study Duration	24h incubation
Type of Mixture Binary >2 components Similar acting or dissimilar What Mode of Action was investigated?	y 4 components similar oestrogen receptor mediated pS2-gene transcription
Parameters/End points Measured <i>In vitro</i>	oestrogen receptor mediated pS2-gene transcription
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?	2,4-dihydroxy benzophenone (BP-1) 2-hydroxy-4-methoxy-benzophenone (BP-3) Octyl Methoxy cinnamate (OMC) 3-(4-methylbenzylidene) camphor (4-MBC) BP-1: 131-56-6 BP-3: 131-57-7 OMC: 5466-77-3 4-MBC: 36861-47-9 yes yes, dilutions of equipotent mixture were tested (100x below C50) lowest tested doses in individual curves were very close to NOEL
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>)	7 (incl solvent control) Mixture composition was based on C50 (concentration at which a 50% increase of basal pS2-gene transcription was observed). An equipotent mixture was produced and 1x mix was calculated to elicit a 50% increase of basal pS2-gene transcription. Dilutions (0.01x, 0.03x, 0.1x, 0.3x, 3x and 10x) of the mixture were tested. Equipotent binary mixtures (BP-1 and BP-3), based on relative potencies (based on C50) 3
Observations/Findings	
Overall opinion (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	More replicates could have been included. Lowest tested concentrations were about 100-fold lower than observed NOECs in individual concentration-response curves.