Test-methods on the test-bench: A comparison of complete exhaust and exhaust particle extracts for genotoxicity/mutagenicity assessment

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Supporting Information

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Supporting Information Table S1: Relevant numbers for the calculation of exposure-hour equivalents

Particle mass used for production of organic extract		
Exhaust volume (undiluted) passing the CVS (20 minutes sampling)	152	l
Collected particle mass on PallFlex filter	2258	µg
Calculated particle mass concentration (in undiluted exhaust)	14.9	$\mu g\ l^{-1}$
Mass equivalents in organic extracts (in 4ml DMSO)	0.57	$\mu g\ \mu l^{-1}$
Particle mass deposition during exhaust exposure		
Exhaust volume (undiluted) passing the exposure chambers	12	$l\ h^{-1}$
Particle number concentration	4.75×10^{11}	particles l^{-1}
Particle deposition in the exposure chamber	1.0×10^{7}	$h^{-1}\ cm^{-2}$
Total inner surface area of exposure chambers	2900	cm^2
Particle deposition ratio in the exposure chamber	0.005	
Calculated mass of deposited particles in the exposure chamber	3.1×10^{-4}	$\mu g\ h^{-1}\ cm^{-2}$

Calculation of exposure-hour-equivalents (organic extract)			
	Bacteria	**Lung cells**	
Culture surface	2	4.2	cm^2
Surface fraction (culture/total inner surface of exposure chamber)	6.9×10^{-4}	1.45×10^{-3}	
Calculated particle mass deposited on cultures	6.2×10^{-4}	1.3×10^{-3}	$\mu g\ h^{-1}$
Exposure hour equivalent of organic extract (in DMSO)	1.1×10^{-3}	2.3×10^{-3}	µl

Supporting Information Table S2: Applied doses of organic extract, expressed in exposure-hour-equivalents, equivalent particle mass and equivalent exhaust volume. Equivalent particle masses correspond to the mass of particles that deposits on 1 cm^2 during 1 hour of exposure to ten-fold diluted exhaust. Equivalent exhaust volumes correspond to the theoretical volume of exhaust that interacts with 1 cm^2 during one hour exposure to ten-fold diluted exhaust.

Exposure-hour-equivalents	Volumes of organic extract (µl)		Equivalent particle mass (µg cm^{-2})	Equivalent exhaust volume (l cm^{-2})
	Bacteria	Lung cells		
0	0	0	0	0
2	2.2 x10^{-3}	5 x 10^{-3}	6 x10^{-4}	4.2 x 10^{-5}
4	4.4 x 10^{-3}	not tested	13 x 10^{-4}	8.4 x 10^{-5}
6	6.7 x 10^{-3}	1.4 x 10^{-3}	19 x 10^{-4}	1.3 x 10^{-4}
400	0.4	not tested	0.13	8.4 x 10^{-3}
1200	1.3	2.8	0.38	2.5 x 10^{-2}
2400	2.7	not tested	0.75	5.1 x 10^{-2}
4800	5.3	not tested	1.5	0.10
14400	16	not tested	4.5	0.30
24000	27	not tested	7.5	0.51