Tire-tread and bitumen particle concentrations in aerosol and soil samples

Tire-tread and bitumen particle concentrations in aerosol and soil samples are determined in aerosol and soil samples. They each constitute about 5 wt-% of the total suspended particulate matter (TSP) in inner city air, collected with a Berner low pressure impactor, 5 m from a road. The particle size distribution shows that 92% of the mass of airborne particulate tire debris have aerodynamic diameters smaller than 1 μm. The mean aerodynamic diameter is about 1 μm for the bitumen particles. This size range enables the possibility for far range transport and inhalation by humans. Soil concentrations in the vicinity of a highway indicate an approximate exponential decrease with increasing distance from the road. Constant values are reached after about 5 m for the tire particles and 10 m for the bitumen particles. Concentrations in soil that has not been touched for at least 30 years show a decrease in tire concentration by a factor of 30 when moving from the top soil to a depth of 3 cm. The bitumen concentration is approximately constant to a depth of 10 cm.

General information
State: Published
Organisations: Department of Environmental Engineering, Risø National Laboratory for Sustainable Energy
Contributors: Fauser, P., Tjell, J. C., Mosbaek, H., Pilegaard, K.
Pages: 127-141
Publication date: 2002
Peer-reviewed: Yes

Publication information
Journal: Petroleum Science and Technology
Volume: 20
Issue number: 1-2
ISSN (Print): 1091-6466
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.9 SJR 0.376 SNIP 0.665
Web of Science (2017): Impact factor 0.981
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.6 SJR 0.282 SNIP 0.505
Web of Science (2016): Impact factor 0.655
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.48 SJR 0.26 SNIP 0.566
Web of Science (2015): Impact factor 0.418
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.4 SJR 0.302 SNIP 0.796
Web of Science (2014): Impact factor 0.307
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.48 SJR 0.402 SNIP 0.833
Web of Science (2013): Impact factor 0.33
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.38 SJR 0.266 SNIP 0.567
Web of Science (2012): Impact factor 0.3
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.5 SJR 0.313 SNIP 0.637
Web of Science (2011): Impact factor 0.335
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.267 SNIP 0.433
Web of Science (2010): Impact factor 0.254