



The UNECE Air Convention's contribution to THE PEP Goal 5

THE PEP workshop

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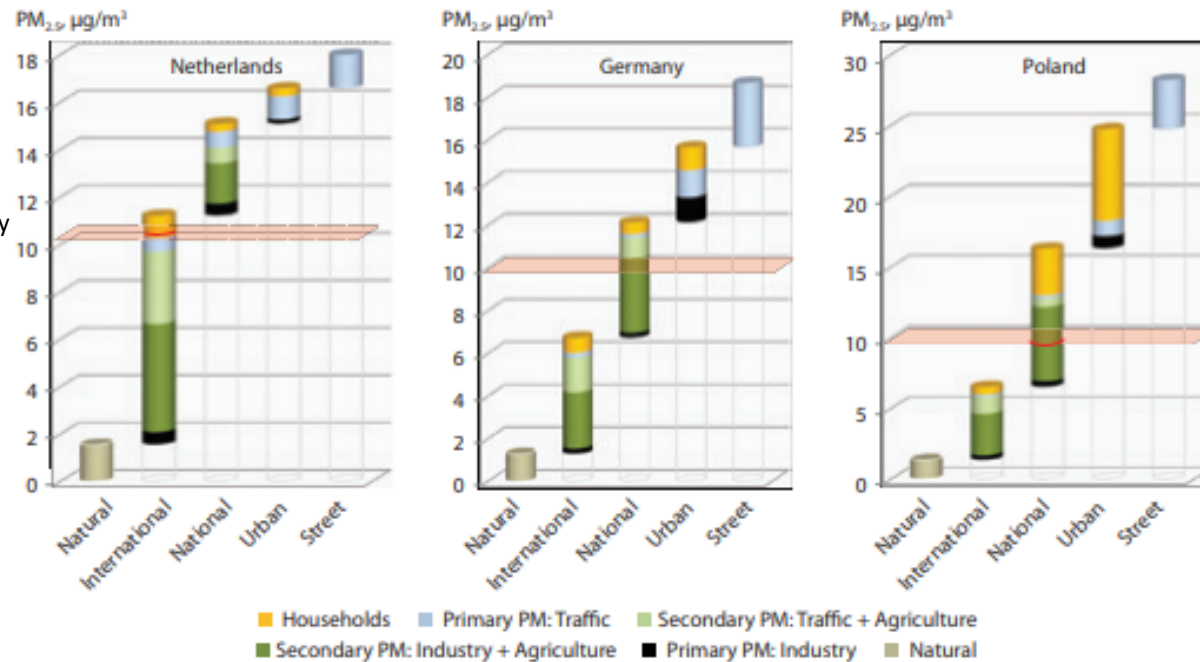


The Air Convention and the urban scale: modelling



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WHO air quality guidelines



◀ Comparing the origin of fine particles at street level shows local PM_{2.5} concentrations are strongly influenced by secondary particles from transboundary sources. The data are averages based on measurement sites in several cities.^{xiii}

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The Air Convention and the urban scale: Emission limit values and the transport sector



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Table 1
Limit values for passenger cars and light-duty vehicles

Category	Class, application date ^a	Reference mass (RW) (kg)	Limit values ^a													
			Carbon monoxide L1 (g/km)		Total Hydrocarbons (HC) L2 (g/km)		Non-methane volatile organic compound (NMVOC) L3 (g/km)		Nitrogen oxides L4 (g/km)		Hydrocarbons and nitrogen oxides combined L2 + L4 (g/km)		Particulate matter L5 (g/km)		Number of particles ^c (P) L6 (#/km)	
			Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Euro 5																
M ^b	I, 1.1.2014	All	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	6.0x10 ¹¹
N ₁ ^c	I, 1.1.2014	RW ≤ 1305	1.0	0.50	0.10	–	0.068	–	0.06	0.18	–	0.23	0.0050	0.0050	–	6.0x10 ¹¹
	II, 1.1.2014	1305 < RW ≤ 1760	1.81	0.63	0.13	–	0.090	–	0.075	0.235	–	0.295	0.0050	0.0050	–	6.0x10 ¹¹
	III, 1.1.2014	1760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	6.0x10 ¹¹
N ₂	I, 1.2014		2.27	0.74	0.16	–	0.108	–	0.082	0.28	–	0.35	0.0050	0.0050	–	6.0x10 ¹¹
Euro 6																
M ^b	I, 9.2015	All	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	6.0x10 ¹¹	6.0x10 ¹¹
N ₁ ^c	I, 9.2015	RW ≤ 1305	1.0	0.50	0.10	–	0.068	–	0.06	0.08	–	0.17	0.0045	0.0045	6.0x10 ¹¹	6.0x10 ¹¹
	II, 9.2016	1305 < RW ≤ 1760	1.81	0.63	0.13	–	0.090	–	0.075	0.105	–	0.195	0.0045	0.0045	6.0x10 ¹¹	6.0x10 ¹¹
	III, 9.2016	1760 < RW	2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	6.0x10 ¹¹	6.0x10 ¹¹
N ₂	I, 9.2016		2.27	0.74	0.16	–	0.108	–	0.082	0.125	–	0.215	0.0045	0.0045	6.0x10 ¹¹	6.0x10 ¹¹

- ^a The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column.
^b Test cycle specified by NEDC
^c Except vehicles whose maximum mass exceeds 2,500 kg.
^d And those category M vehicles specified in note b.

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Table 2
Limit values for heavy-duty vehicles steady-state cycle load-response tests

	Application date	Carbon monoxide (g/kWh)	Hydrocarbons (g/kWh)	Total hydrocarbons (g/kWh)	Nitrogen oxides (g/kWh)	Particulate matter (g/kWh)	Smoke (m ⁻¹)
B2 ("EURO V") ^a	1.10.2009	1.5	0.46	–	2.0	0.02	0.5
"EURO VI" ^b	31.12.2013	1.5	–	0.13	0.40	0.010	–

- ^a Test cycle specified by the European steady-state cycle (ESC) and the European load-response (ELR) tests.
^b Test cycle specified by the world heavy duty steady state cycle (WHSC).

Table 3
Limit values for heavy-duty vehicles — transient cycle tests

	Application date ^a	Carbon monoxide (g/kWh)	Total hydrocarbons (g/kWh)	Non-methane hydrocarbons (g/kWh)	Methane ^b (g/kWh)	Nitrogen oxides (g/kWh)	Particulates (g/kWh) ^b
B2 "EURO V" ^c	1.10.2009	4.0	–	0.55	1.1	2.0	0.030
"EURO VI" (CI) ^d	31.12.2013	4.0	0.160	–	–	0.46	0.010
"EURO VI" (PI) ^d	31.12.2013	4.0	–	0.160	0.50	0.46	0.010

- Note: PI = Positive Ignition, CI = Compression Ignition.
^a The registration, sale and entry into service of new vehicles that fail to comply with the respective limit values shall be refused as from the dates given in the column.
^b For natural gas engines only.
^c Not applicable to gas-fuelled engines at stage B2.
^d Test cycle specified by the European transient cycle (ETC) test.
^e Test cycle specified by the world heavy duty transient cycle (WHTC).

Table 4
Limit values for diesel engines for non-road mobile machines, agricultural and forestry tractors (stage IIIB)

Net power (P) (kW)	Application date ^a	Carbon monoxide (g/kWh)	Hydrocarbons (g/kWh)	Nitrogen oxides (g/kWh)	Particulate matter (g/kWh)
130 ≤ P ≤ 560	31.12.2010	3.5	0.19	2.0	0.025
75 ≤ P < 130	31.12.2011	5.0	0.19	3.3	0.025
56 ≤ P < 75	31.12.2011	5.0	0.19	3.3	0.025
37 ≤ P < 56	31.12.2012	5.0	4.7 ^b	4.7 ^b	0.025

- ^a With effect from the given date and with the exception of machinery and engines intended for export to countries that are not parties to the present Protocol, Parties shall permit the registration, where applicable and the placing on the market of new engines, whether or not installed in machinery, only if they meet the respective limit values set out in the table.
^b Editor's note: This figure represents the sum of hydrocarbons and nitrogen oxides and was reflected in the final approved text by a single figure in a merged cell in the table. As this text does not include tables with dividing lines, the figure is repeated in each column for clarity.

The Air Convention and the urban scale: effects

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- The Joint Task Force on the Health Aspects of Air Pollution



- International Cooperative Programme on Effects of Air Pollution on Materials, including Historic and Cultural Monuments



Thank you!

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<http://www.unece.org/env/lrtap/welcome.html>

