

Appendix A

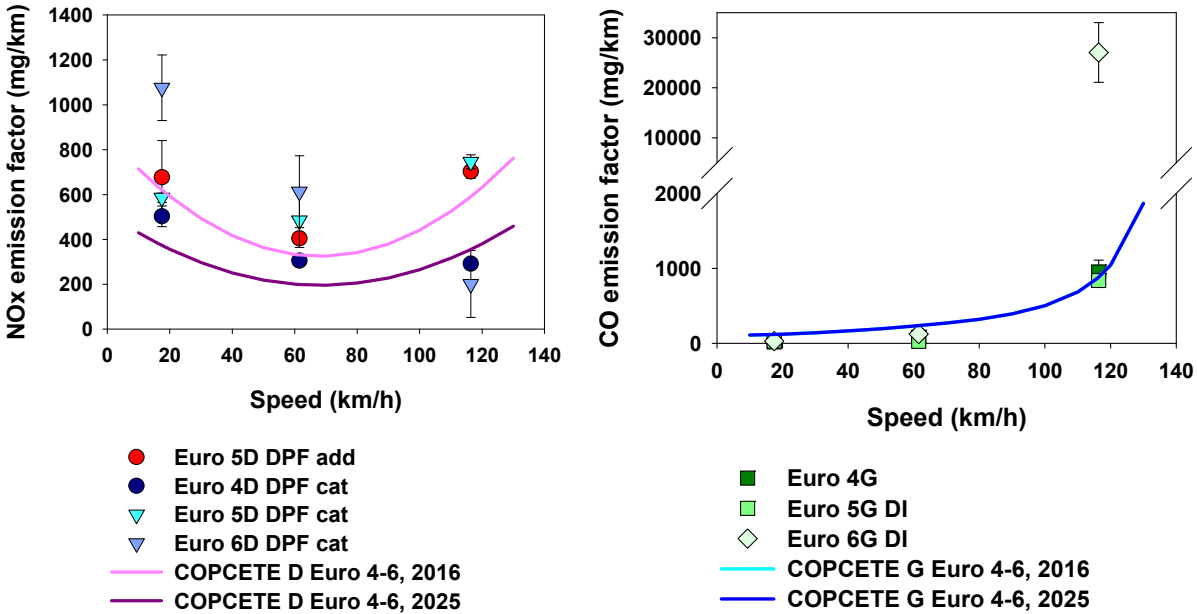


Figure 1. Comparison between average emission factors for Euro 4–6 diesel and gasoline vehicles measured using Artemis urban, road and motorway hot start driving cycles and the COPCETE model prediction for the 2016 (pink and light blue) and 2025 fleets (purple and dark blue). Left: Diesel NO<sub>x</sub> emissions. Right: Gasoline CO emissions.

## Appendix B

Emission factors for regulated pollutants from Euro 4–6 diesel and gasoline vehicles

Vehicle	No. 1					No. 2				
Standard	Euro 5 Diesel DPF					Euro 5 Diesel DPF				
Artemis cycle	URB H	URB C	ROAD	MW	NEDC	URB H	URB C	ROAD	MW	NEDC
CO <sub>2</sub> (g/km)	150 ± 1	172 ± 2	89 ± 0.5	131 ± 0.3	114 ± 2	142 ± 3	169 ± 2	87 ± 1.2	130 ± 1	114 ± 2
NO <sub>x</sub> (mg/km)	763 ± 188	413 ± 25	424 ± 13	495 ± 20	212 ± 43	591 ± 140	332 ± 7	384 ± 39	910 ± 42	162 ± 33
HC (mg/km)	12 ± 2	27 ± 6	2 ± 0.3	2 ± 0.3	35 ± 7	13 ± 5	28 ± 4	4 ± 0.5	0.3 ± 0.04	18 ± 4
CO (mg/km)	42 ± 14	572 ± 32	37 ± 19	14 ± 2	448 ± 90	17 ± 8	153 ± 52	24 ± 19	24 ± 4	185 ± 37

Vehicle	No. 3					No. 4				
Standard	Euro 4 Diesel DPF					Euro 5 Diesel DPF				
Artemis cycle	URB H	URB C	ROAD	MW	NEDC	URB H	URB C	ROAD	MW	NEDC
CO <sub>2</sub> (g/km)	198 ± 3	226 ± 5	108 ± 2	135 ± 1	147 ± 3	145 ± 5	167 ± 3	92 ± 1.5	135 ± 2	114 ± 2
NO <sub>x</sub> (mg/km)	503 ± 46	492 ± 123	305 ± 12	292 ± 19	233 ± 47	586 ± 21	723 ± 167	485 ± 121	746 ± 31	315 ± 63
HC (mg/km)	21 ± 3	60 ± 9	8 ± 3	3 ± 1.5	59 ± 12	37 ± 3	125 ± 14	24 ± 26	2.3 ± 1.7	93 ± 19
CO (mg/km)	372 ± 75	1625 ± 650	282 ± 71	58 ± 11	582 ± 116	50 ± 10	871 ± 326	29 ± 25	3 ± 0.3	781 ± 156

### N°5 Euro 6 Diesel

	ArtROAD	ArtUrb C	ArtUrb H	ArtMW	WLTC	NEDC
CO <sub>2</sub> (g/km)	80 ± 2	140 ± 4	130 ± 4	108 ± 1	100 ± 2	107 ± 2
CO (mg/km)	30 ± 9	263 ± 66	34 ± 12	16 ± 4	100 ± 25	380 ± 95
NO <sub>x</sub> (mg/km)	613 ± 160	610 ± 160	1076 ± 146	201 ± 149	323 ± 85	559 ± 128
HC (mg/km)	12 ± 1	67 ± 17	35 ± 9	16 ± 4	25 ± 6	64 ± 16

Vehicle	No. 6					No. 7				
Standard	Euro 4 gasoline					Euro 5 gasoline				
Artemis cycle	URB H	URB H	URB H	URB H	URB H	URB H	URB H	URB H	URB H	URB H
CO <sub>2</sub> (g/km)	186 ± 2	205 ± 1	113 ± 1	154 ± 0.5	138 ± 3	233 ± 3	233 ± 3	233 ± 3	233 ± 3	233 ± 3
NO <sub>x</sub>	122 ±	112 ±	30 ± 6	11 ± 2	26 ± 5	128 ±	128 ±	128 ±	128 ±	128 ±

(mg/km)	24	70				31	31	31	31	31
HC (mg/km)	6 ± 0.8	20 ± 5	6 ± 0.5	32 ± 2	69 ± 14	4 ± 0.6	4 ± 0.6	4 ± 0.6	4 ± 0.6	4 ± 0.6
CO (mg/km)	21 ± 4	39 ± 1	83 ± 6	954 ± 157	490 ± 98	32 ± 13	32 ± 13	32 ± 13	32 ± 13	32 ± 13

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**No. 8 Euro 6 gasoline**

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	<b>ArtROAD</b>	<b>ArtUrb C</b>	<b>ArtUrb H</b>	<b>ArtMW</b>	<b>WLTC</b>	<b>NEDC</b>
<b>CO<sub>2</sub> (g/km)</b>	91 ± 2	174 ± 5	155 ± 6	129 ± 0.3	115 ± 3.6	111 ± 3
<b>CO (mg/km)</b>	125 ± 67	105 ± 23	32 ± 13	(27 ± 6).10 <sup>3</sup>	1217 ± 165	417 ± 92
<b>NO<sub>x</sub> (mg/km)</b>	4 ± 0.5	10 ± 1.4	14 ± 2	3 ± 1	15 ± 2	6 ± 2
<b>HC (mg/km)</b>	2 ± 1	11 ± 1	3 ± 5	75 ± 39	34 ± 9	50 ± 13

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ArtUrb C/H: Artemis urban with cold or hot start

ArtROAD: Artemis road

ArtMW: Artemis motorway