

## Article

# Effect of Extreme Temperatures and Driving Conditions on Gaseous Pollutants of a Euro 6d-Temp Gasoline Vehicle

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## SUPPLEMENTARY INFORMATION

**Table S1:** Distance specific emission factors.

Cycle	Temp [°C]	FC [l/100 km]	NO <sub>x</sub> [mg/km]	CO [mg/km]	THC [mg/km]	CH <sub>4</sub> [mg/km]	NH <sub>3</sub> [mg/km]	N <sub>2</sub> O [mg/km]
Uphill	-10	23.0	72.3	2028	241.4	16.4	38.5	2.4
Uphill 85%	-7	28.3	81.6	2375	228.9	15.6	59.9	1.9
TfL	50	20.2	91.9	1098	50.5	16.0	30.4	5.7
	23	14.1	32.5	543	149.6	54.1	31.9	5.1
	5	14.9	32.4	572	141.4	20.2	23.4	4.5
	-7	15.7	72.1	1244	339.8	17.2	27.4	2.5
	-10	17.0	109.5	1483	356.7	22.9	36.0	3.1
	-30	20.7	55.1	4738	853.4	53.7	33.6	2.4
BAB	50	10.2	17.7	931	11.1	2.3	11.2	0.5
	23	9.0	5.7	480	12.1	5.8	8.3	0.2
	5	8.4	2.3	277	7.9	0.7	2.3	0.1
	-7	8.8	4.4	323	8.8	1.0	2.4	0.0
	-10	8.3	3.8	279	6.9	0.7	4.1	0.1
	-30	8.6	4.0	293	9.4	0.8	2.8	0.0

Table S1: cont.

Cycle	Temp [°C]	FC [l/100 km]	NO <sub>x</sub> [mg/km]	CO [mg/km]	THC [mg/km]	CH <sub>4</sub> [mg/km]	NH <sub>3</sub> [mg/km]	N <sub>2</sub> O [mg/km]
RDE short urban	50	15.6	24.8	418	26.6	2.4	7.6	1.0
	23	11.4	21.9	394	55.6	5.1	15.0	2.1
	5	11.3	16.7	407	83.1	5.7	10.1	2.8
	-10	12.5	28.0	1238	171.6	11.5	14.4	1.4
	-30	15.1	35.6	2827	501.6	38.2	20.5	1.3
RDE short rural	50	7.9	1.3	265	1.7	0.2	2.4	0.2
	23	6.5	5.1	175	0.0	0.7	4.1	0.1
	5	6.5	4.5	168	0.9	0.2	1.4	0.0
	-10	6.3	5.0	137	1.0	0.0	1.6	0.0
	-30	6.9	4.6	117	1.9	0.3	0.7	0.0
RDE short motorway	50	9.2	3.3	768	14.1	2.8	6.7	0.5
	23	7.7	4.9	432	9.9	0.0	9.0	0.3
	5	7.7	2.9	344	9.1	1.5	3.7	0.1
	-10	7.5	6.2	446	13.3	0.0	9.3	0.2
	-30	7.8	4.7	320	11.2	1.6	6.0	0.1
RDE short	50	10.3	7.8	497	12.6	1.8	5.3	0.5
	23	8.2	9.2	331	16.9	2.3	8.7	0.7
	5	8.1	6.9	295	24.2	2.0	4.4	0.7
	-10	8.3	11.1	526	47.5	3.8	7.7	0.4
	-30	9.2	12.2	1013	126.5	10.0	7.5	0.4
RDE boundary	-10	13.5	19.0	772	79.5	22.5	9.2	0.3
RDE boundary motorway	-10	9.4	13.2	962	35.2	10.9	9.4	0.2
RDE boundary rural	-10	8.1	6.3	845	26.7	11.4	10.4	0.2
RDE boundary urban	-10	17.7	29.0	716	120.2	31.0	8.2	0.3
RDE boundary urban 10km	-10	19.2	75.1	2008	404.8	56.7	27.7	1.3
RDE road 1	20	8.1	7.5	172				
RDE road 1 motorway	20	7.6	5.5	342				
RDE road 1 rural	20	6.7	3.2	138				
RDE road 1 urban	20	9.6	12.8	65				
RDE road 2	17	7.9	6.5	114				
RDE road 2 motorway	17	7.3	3.1	191				
RDE road 2 rural	17	6.2	2.7	99				
RDE road 2 urban	17	10.1	13.1	50				

**Table S2:** Fuel specific emission factors.

Cycle	Temp [°C]	Ratio km/kg	NO <sub>x</sub> [mg/kg]	CO [mg/kg]	THC [mg/kg]	CH <sub>4</sub> [mg/kg]	NH <sub>3</sub> [mg/kg]	N <sub>2</sub> O [mg/kg]
Uphill	-10	5.8	418.8	11739	1397.5	94.8	223.1	14.0
Uphill 85%	-7	4.7	383.8	11173	1076.7	73.5	281.7	8.8
TfL	50	6.6	605.5	7233	332.7	105.3	200.1	37.6
	23	9.4	306.8	5126	1411.7	510.5	300.9	48.2
	5	9.0	290.5	5125	1266.7	180.8	210.1	40.6
	-7	8.5	611.2	10549	2880.6	146.1	232.2	21.1
	-10	7.8	856.7	11600	2789.7	178.8	281.6	24.1
	-30	6.4	355.1	30524	5497.5	345.7	216.7	15.6
BAB	50	13.0	229.7	12117	144.5	29.4	145.9	6.5
	23	14.8	84.3	7083	178.7	86.1	123.1	2.3
	5	15.9	36.6	4403	125.7	11.8	36.3	1.3
	-7	15.2	66.9	4907	133.7	14.9	35.7	0.5
	-10	16.0	61.0	4474	110.7	10.6	66.0	0.8
	-30	15.4	61.7	4516	145.1	11.7	43.2	0.3
RDE short urban	50	8.5	211.8	3568	227.2	20.5	64.6	8.3
	23	11.7	255.8	4614	651.4	59.7	175.7	24.8
	5	11.8	197.2	4806	981.4	67.3	118.8	33.1
	-10	10.7	299.7	13248	1836.7	123.1	154.1	14.9
	-30	8.9	315.4	25043	4443.5	338.4	181.2	11.1
RDE short rural	50	16.8	21.9	4469	28.6	3.4	40.0	3.5
	23	20.6	106.2	3604	0.0	14.9	85.2	1.7
	5	20.6	92.7	3471	18.5	4.1	29.2	0.6
	-10	21.2	105.8	2899	21.2	0.0	33.5	0.3
	-30	19.4	89.4	2266	36.9	5.8	13.9	0.2
RDE short motorway	50	14.4	47.6	11079	203.3	40.4	96.8	6.9
	23	17.3	84.7	7472	171.2	0.0	155.5	5.6
	5	17.4	50.5	5992	158.5	26.1	63.7	2.3
	-10	17.7	109.7	7899	235.4	0.0	164.0	2.7
	-30	17.1	80.5	5477	191.9	27.4	103.1	2.4
RDE short	50	12.9	100.8	6418	162.8	23.3	68.7	6.5
	23	16.2	148.5	5361	273.4	37.0	140.1	10.9
	5	16.5	113.5	4846	398.1	32.9	72.1	12.2
	-10	16.1	178.7	8465	764.7	61.2	123.5	6.5
	-30	14.5	176.6	14659	1830.7	144.7	108.8	5.2
RDE boundary	-10	9.9	187.4	7625	784.9	221.8	90.5	2.5
RDE boundary motorway	-10	14.1	186.4	13602	497.8	153.8	133.4	2.7
RDE boundary rural	-10	16.5	104.2	13975	441.8	188.9	172.8	2.9
RDE boundary urban	-10	7.5	218.6	5397	906.5	234.0	61.5	2.4
RDE boundary urban 10km	-10	7.0	521.9	13959	2813.8	394.3	192.6	8.8
RDE road 1	20	16.6	123.5	2850				
RDE road 1 motorway	20	17.5	95.8	5974				
RDE road 1 rural	20	20.0	64.3	2753				
RDE road 1 urban	20	13.9	177.8	903				
RDE road 2	17	16.8	109.1	1909				
RDE road 2 motorway	17	18.3	56.4	3498				
RDE road 2 rural	17	21.6	58.0	2130				
RDE road 2 urban	17	13.2	173.6	663				