ARGENTINA

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1. Introduction:

Argentina adopts emission limits and test procedures from Europe. Argentinean regulations mention the number of European Directives taken as reference.

The government has an emission laboratory for homologation and conformity of production, but manufacturers and importers can perform tests in other countries, as long as they use accredited laboratories.

2. Vehicle categories:

Category	Sub-category	GVW (kg)	Passenger Capacity	Reference Mass (kg)	Test Cycle
Passenger Vehicles	M1	≤ 2500	≤ 7	-	NEDC
	M1 - Class 1	> 2500	≤ 9	≤ 1305	
	M1 - Class 2	> 2500	≤ 9	> 1305 ≤ 1760	
	M1 - Class 3	> 2500	≤ 9	> 1760	
	M2	≤ 5000	> 9	-	ESC ETC ELR
	M3	> 5000	> 9	-	
Commercial Vehicles	N1 - Class 1	≤ 3500	-	≤ 1305	NEDC
	N1 - Class 2	≤ 3500	-	> 1305 ≤ 1760	
	N1 - Class 3	≤ 3500	-	> 1760	
	N2	> 3500 ≤ 12000	-	-	ESC ETC ELR
	N3	> 12000	-	-	

3. Emission limits:

3.1. Limits for light vehicles

Category	Fuel	Application	Phase	CO (g/km)	HC (g/km)	NMHC (g/km)	NOx (g/km)	HC + NOx (g/km)	PM (g/km)	HC Evaporated Method VT-SHED (g/test)
M1	Gasoline and NCG	In force	Euro 4	1	0,1	-	0,08	-	-	2
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	1	0,1	0,068	0,06	-	0,005	2
	Diesel	In force	Euro 4	0,5	-	-	0,25	0,3	0,025	-
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	0,5	-	-	0,18	0,23	0,005	-
M1 and N1 Class 1	Gasoline and NCG	In force	Euro 4	1	0,1	-	0,08	-	-	2
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	1	0,1	0,068	0,06	-	0,005	2
	Diesel	In force - AT**	Euro 3	0,64	-	-	0,5	0,56	0,05	-
		In force - NT* Jan/2013 - AT**	Euro 4	0,5	-	-	0,25	0,3	0,025	-
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	0,5	-	-	0,18	0,23	0,005	-
M1 and N1 Class 2	Gasoline and NCG	In force	Euro 4	1,81	0,13	-	0,1	-	-	2
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	1,81	0,13	0,09	0,075	-	0,005	2
	Diesel	In force - AT**	Euro 3	0,8	-	-	0,65	0,72	0,07	-
		In force - NT* Jan/2013 - AT**	Euro 4	0,63	-	-	0,33	0,39	0,04	-
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	0,63	-	-	0,235	0,295	0,005	-
M1 and N1 Class 3	Gasoline and NCG	In force	Euro 4	2,27	0,16		0,11	-	-	2
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	2,27	0,16	0,108	0,082	-	0,005	2
	Diesel	In force - AT**	Euro 3	0,95	-	-	0,78	0,86	0,1	-
		In force - NT* Jan/2013 - AT**	Euro 4	0,74	-	-	0,39	0,46	0,06	-
		Jan/2014 - NM* Jan/2016 - AT**	Euro 5	0,74	-	-	0,28	0,35	0,005	-

* **NM** - New Models (new releases) ** **AT -** All Types (models already in the market)

3.2. Limits for heavy duty vehicles

Category	Fuel	Application	Phase	CO (g/kWh)	HC (g/kWh)	NMHC (g/kWh)	CH_4 (g/kWh	NOx (g/kWh)	PM (g/kWh)	Opacity (m^{-1})	Test cycle
M2, M3 N2, N3	Diesel	In force - AT**	Euro III	2,1	0,66	-	-	5	0,10 / 0,13 ***	0,8	ESC/ELR
				5,45	-	0,78	-	5	0,16 / 0,21 ***	-	ETC ****
		In force - NT* Jan/2013 - AT**	Euro IV	1,5	0,46	-	-	3,5	0,02	0,5	ESC/ELR
				4	-	0,55	-	3,5	0,03	-	ETC
		Jan/2014 - NM* Jan/2016 - AT**	Euro V	1,5	0,46	-	-	2	0,02	0,5	ESC/ELR
				4	-	0,55	-	2	0,03	-	ETC
	NCG	In force - AT**	Euro III	5,45	-	0,78	1,6	5	-	-	ETC
		In force - NT* Jan/2013 - AT**	Euro IV	4	-	0,55	1,1	3,5	-	-	ETC
		Jan/2014 - NM* Jan/2016 - AT**	Euro V	4	-	0,55	-	2	0,03	-	ETC

* **NM** - New Models (new releases)

** **AT** - All Types (models already in the market)

*** For engines with cylinder capacity < 0,75 dm3 and nominal speed > 3000 rpm

**** Only engines equipped with after-treatment systems

3.3. Limits for motorcycles

Not applicable.

3.4. Off-road vehicles

Not applicable.

3.5. Emission of crankcase gases

Zero emissions for light and heavy duty vehicles.

4. Other regulations

4.1. Durability

4.1.1. Light vehicles

Emissions durability of 80,000 km or 5 years. Application of deterioration factors.

Engine Type	CO	HC	NOx	HC + NOx	PM
Otto	1,2	1,2	1,2	-	-
Diesel	1,1	-	1	1	1,2

4.1.2. Heavy duty vehicles

Emissions durability of 160,000 km or 5 years. Application of deterioration factors.
Note: New durability requirements for Euro V, based on European ones.

Engine Type	Test Cycle	CO	HC	NMHC	CH_4	NOx	PM
Diesel	ESC	1,1	1,05	-	-	1,05	1,1
	ETC	1,1	1,05	-	-	1,05	1,1
GNV	ETC	1,1	1,05	1,05	1,2	1,05	-

4.2. OBD

4.3.1. Light vehicles

Adoption of EOBD (European OBD) according to the schedule below:

Vehicle	Fuel	Application Date
M1	Gasoline, CNG and diesel	In force
M1 and N1 Classes I, II, III	Gasoline and CNG	In force
	Diesel	In force

4.3.2. Heavy duty vehicles

Compulsory OBD from Jan/2013, when Euro V comes into force.

4.4. Fuel consumption

Not applicable.

5. Control requirements

5.1. Emissions Conformity of Production

Regulation being reviewed. Text in force is no longer applied, due to the change of test cycle, from FTP75 to NEDC. Nowadays manufacturers perform COP according to an agreement established between ADEFA (Argentinean Vehicle Manufacturer Association) and Environment Secretariat.
Tests performed in other countries are accepted.

5.2. In-use vehicle emissions inspection

Performed only in some regions. Periodicity set by each region administration.

Fuel	Manufaturer year	Altitude (m)	Idling speed		Opacity	
			CO corrected (%)	HC corrected (ppm)	Free acceleration (m^{-1})	Filtrate (Bacharach Index)
Gasoline and NCG	1983 - 1991	-	4,5	900	-	-
	1992 - 1994	-	3	600	-	-
	≥ 1995	-	2,5	400	-	-
Diesel	1994 - 1996	-	-	-	2,62	6
	≥ 1996	-	-	-	2.62	5

5.3. Monitoring of emissions in public roads
Not applicable.

6. Fuels

6.1. Reference Fuel
Adopts same reference fuels used in Europe.

6.2. Commercial fuels

6.2.1. Gasoline

Property	Requirements						Unit	Test method
	Grade 1 (regular)		Grade 2 (super)		Grade 3 (ultra)			
	Min.	Max.	Min.	Max.	Min.	Max.		
Distillation								
10% vol. evaporated	-	70	-	70	-	70	°C	ASTM D 86
50% vol. evaporated	-	120	-	120	-	120		
90% vol. evaporated	-	190	-	190	-	190		
Flash point	-	225	-	225	-	225		
Residue	-	2	-	2	-	2	ml/100 ml	
RVP at 37,8°C	35 (Type A) 45 (Type B) 55 (Type C)	70 (Type A) 80 (Type B) 90 (Type C)	35 (Type A) 45 (Type B) 55 (Type C)	70 (Type A) 80 (Type B) 90 (Type C)	35 (Type A) 45 (Type B) 55 (Type C)	70 (Type A) 80 (Type B) 90 (Type C)	kPa	IRAM-IAP A 6504 ASTM D5191, 4953
MTBE	-	15	-	15	-	15	% v/v	ASTM D4815
Ethanol	-	12	-	12	-	12	% v/v	
Isopropyl alcohol	-	10	-	10	-	10	% v/v	
Tert-butyl alcohol	-	7	-	7	-	7	% v/v	
Isobutyl alcohol	-	10	-	10	-	10	% v/v	
Oxygenates	-	3,7	-	3,7	-	3,7	% m/m	
Benzene	-	1	-	1	-	1	ml/100 ml	IRAM-IAP A 6560
Aromatics	-	40	-	40	-	40	ml/100 ml	ASTM D5443
Lead	-	0,013	-	0,013	-	0,013	g/l	IRAM-IAP 6521-2 ASTM D3116, 3237
Manganese	-	18	-	8,3	-	8,3	mg/l	ASTM D3831
RON	83	-	93	-	97	-	-	ASTM D2699
MON	75	-	84	-	85	-	-	ASTM D2700
Sulfur	-	500	-	50 / 30*	-	10	mg/kg	ASTM D4294, 5453

* From June/1st/2016 Minimum mandatory blend of 5% ethanol

6.2.2. Ethanol

Property	Requirements		Unit	Test Method
	Mín.	Máx.		
Density at 20°C	-	0,7915	g/ml	ASTM D4052
Ethanol	99	-	% v/v	ASTM D5501 IRAM 14651
Higher Alcohols	-	2	% v/v	ASTM D5501
Methanol	-	0,4	% v/v	ASTM D5501
Water	-	0,6	% v/v	ASTM E203
Copper	-	0,1	mg/kg	ASTM D1688
Total acidity	-	30	mg/l	ASTM D1613
Sulfur	-	10	ppm	ASTM D5453
Sulphates	-	4	ppm	ASTM D7318, 7319, 7328
Appearance	Clear and without materials in suspension		-	Visual
Electric Condutivity	-	500	µS/m	ASTM D1125
Washed gums	-	50	mg/l	ASTM D381
Denatonium Benzoate	40	-	ppm	spectrophotometry UV

6.2.3. Diesel

Property	Requirements						Unit	Test Method
	Grade 1		Grade 2		Grade 3			
	Mín.	Máx.	Mín.	Máx.	Mín.	Máx.		
Density at 15 °C	0,8	0,87	0,8	0,87	0,8	0,87	g/ml	ASTM D1298, 4052
Water	-	0,03	-	0,03	-	0,03	g/100 g	IRAM 21320
Flash Point	38	-	38	-	38	-	°C	IRAM-IAP 6539 ASTM D93
Viscosity at 40 °C	2	4,5	2	4,5	2	4,5	cSt	IRAM-IAP 6597 ASTM D445
Cetane index	44	-	46	-	48	-	-	ASTM D967, 6890
Distilation								
10% vol. recuperated	-	-	-	235	-	235	°C	ASTM D86
50% vol. recuperated	-	-	-	300	-	300	°C	
90% vol. recuperated	-	370	-	360	-	360	°C	
Sulfur	-	1600 / 1000*	-	500 / 30*	-	10	mg/kg	ASTM D4294, 5453
Lubricity	-	-	-	-	-	460	mg/kg	ASTM D6079, ISO 12156-1

* From June/1st/2016 Minimum mandatory blend of 7% biodiesel

6.2.4. Biodiesel

Property	Requirement		Unit	Test Method
	Mín.	Máx.		
Ester content	96,5	-	% m/m	EN 14103
FAME	-	12	% m/m	EN 14103
Density at 15 °C	860	900	kg/m^3	ASTM D1298
Viscosity at 40 °C	3,5	5	cSt	ASTM D445
Flash Point	120	-	°C	ASTM D93
Total contamination	-	24	mg/kg	EN 12662
Cold Soak Filterability	-	360	seconds	ASTM D6751-08
Water content	-	0,05	% m/m	ASTM D4928
Monoglycerides	-	0,8	% m/m	EN 14105
Diglycerides	-	0,2	% m/m	EN 14105
Triglycerides	-	0,2	% m/m	EN 14105
Free Glycerol	-	0,02	% m/m	EN 14105
Total Glycerol	-	0,25	% m/m	EN 14105
Acid index	-	0,5	mg KOH/g	ASTM D664
Oxidation Stability at 110°C	8	-	hours	EN 14112
Cloud point	Inform		°C	ASTM D2500
Metals Group I (Na+K)	-	5	mg/kg	EN 14538
Metals Group II (Ca+Mg)	-	5	mg/kg	EN 14538
Carbon residue	-	0,05	% m/m	ASTM D4530
Ash content	-	0,02	% m/m	ISO 3987
Copper strip corrosion, 3 hours at 50°C	-	1	grade	ASTM D130
Phósphorus	-	4	mg/kg	EN 14107
Sulfur	-	0,001	% m/m	ASTM D5453
Cetane number	45	-	-	ASTM D613
Iodine index	Inform		g I_2/100g	EN 14111

6.2.5. Natural gas

Proprerty	Requirement		Unit
	Comp. 1	Comp. 2	
Methane	95	86	%
Ethane	0,05	5,2	%
Propane, butane and higher	0,5	7,4	%
Nitrogen	2,7	0,7	%
CO_2	1,8	0,5	%
High heating value	8950	9750	$kcal/m^3$
Specific gravity (air = 1)	0,572	0,65	-
Wobbe Index (without correction)	11900	12110	-
Max Water content	113	113	mg/m^3
Max Shulphur content	50	50	mg/m^3
Maximun content of inert gas (CO_2 + N_2)	≤ 4,5	≤ 4,5	% mol.

7. Trends:

Exhaust gas emissions of motorcycles

Text proposal being discussed for adoption of Euro2 andEuro3 limits.

Emissions Conformity of Production

Text proposal being discussed for the definition of test sample size.