



# PERU



# PERU



## 1. Introduction:

American and European emissions limits, with respective test cycles, are applied. For heavy duty vehicles, only European limits and test cycle are accepted.

There are no emissions laboratories in the country, because of this test reports carried out by international homologation agencies are accepted.

There is a fleet renewal program which started in 2011 and goes until 2016. The program benefits the replacement of M1 vehicles with more than 15 years old, by new vehicles powered of CNG engines with up to 1600 cc.

## 2. Vehicle categories:

### 2.1. Categories for application with European limits

Category	Sub-category		Passengers Capacity	Gross Vehicle Weight (kg)	Reference Mass (kg)
Light Vehicles	M1	-	≤ 6	≤ 2500	-
	N1	Class 1	> 6	> 2500 ≤ 3500	≤ 1305
		Class 2			≤ 1760
		Class 3			> 1760
Heavy Duty Vehicles	-	-	-	> 3500	-

### 2.2. Categories for application with U.S. limits

Category	Sub-category	Passengers Capacity	Reference mass (kg)	Adjusted Loaded Vehicle Weight (kg)	Gross Vehicle Weight (kg)
Light Vehicles	Passenger Vehicle	≤ 12	-	-	≤ 3856
	LDT1	> 12	≤ 1704	-	≤ 2727
	LDT2		> 1704 ≤ 2613	-	
	LDT3		-	≤ 2614	> 2727
	LDT4	-	-	> 2614	≤ 3864

### 3. Emission limits:

#### 3.1. Limits for light vehicles

##### European limits

Sub-category	Fuel	Application Date	Phase	CO (g/km)	HC + NOx (g/km)	HC (g/km)	NOx (g/km)	PM (g/km)	
M1	Gasoline	In Force	Euro 3	2,3	-	0,2	0,15	-	
	Diesel	Jul/2012	Euro 3	0,64	0,56	-	0,5	0,05	
N1	Class 1	Gasoline	In Force	Euro 3	2,3	-	0,2	0,15	-
	Class 2				4,17	-	0,25	0,18	-
	Class 3				5,22	-	0,29	0,21	-
	Class 1	Diesel	Jul/2012	Euro 3	0,64	0,56	-	0,5	0,05
	Class 2				0,8	0,72	-	0,65	0,07
	Class 3				0,95	0,86	-	0,78	0,1

##### U.S. limits

Sub-category	Fuel	Application Date	Phase	CO (g/km)	HC (g/km)	NMHC (g/km)	NOx (g/km)	PM (g/km)
Passenger Vehicle	Gasoline	In force	Tier 1	2,1	0,25	0,15	0,25	-
	Diesel	Jul/2012	Tier 1	2,1	0,25	0,15	0,62	0,05
LDT1	Gasoline	In force	Tier 1	2,6	0,5	0,19	0,37	-
	Diesel	Jul/2012	Tier 1	2,6	0,5	0,19	0,78	-
LDT2	Gasoline	In force	Tier 1	3,4	0,5	0,25	0,6	-
	Diesel	Jul/2012	Tier 1	3,4	0,5	0,25	0,6	0,06
LDT3	Gasoline	In force	Tier 1	4	0,5	0,28	0,61	-
	Diesel	Jul/2012	Tier 1	4	0,5	0,28	0,61	0,06
LDT4	Gasoline	In force	Tier 1	4,5	0,5	0,35	0,95	-
	Diesel	Jul/2012	Tier 1	4,5	0,5	0,35	0,95	0,07

#### 3.2. Limits for heavy duty vehicles

Sub-category	Fuel	Application Date	Phase	CO (g/kW-h)	HC (g/kW-h)	NOx (g/kW-h)	PM (g/kW-h)	Opacity (m <sup>-1</sup> )
All	All	Jul/2012	Euro III	2,1	0,66	5	0,10/0,13*	0,8

\* For engines with cylinder capacity <750 cc and nominal speed > 3000 rpm

#### 3.3. Limits applied for used vehicles light and heavy duty

Category	Vehicle Type	Fuel	Application Date	CO (%)	HC (ppm)	CO + CO <sub>2</sub> min. (%)	Opacity (m <sup>-1</sup> )
All	All	Gasoline LPG CNG	In force	0.5	100	7	-
	GVW < 3,0 ton without turbo	Diesel	-	-	-	-	1.6
	GVW < 3,0 ton with turbo		-	-	-	2.1	
	GVW ≥ 3,0 ton with and without turbo		-	-	-	2.1	

#### 4. Other regulations:

##### 4.1. Durability

Not applicable

##### 4.2. OBD

Not applicable

#### 5. Control requirements:

##### 5.1. Emissions Conformity of Production

Not applicable

##### 5.2. In-use vehicle emissions inspection

Performed according to vehicle type and age.

Vehicles whose engine runs with two different fuels, must perform the tests with both fuels.

Vehicle Type	Fuel	Model Year	Altitude (m)	CO (%)	HC (ppm)	CO + CO <sub>2</sub> mín. (%)	Opacity	
							k(m-1)	(%)
Large (Light, medium and heavy)	Gasoline CNG/LPG	≤ 1995	≤ 1800	3	400	10	-	-
			> 1800	3	450	8	-	-
		> 1995 ≤ 2003	≤ 1800	3.5	300	10		
			> 1800	3.5	350	8		
		> 2003	-	0.5	100	12	-	-
	Diesel	≤ 1995	≤ 1000	-	-	-	3	72
			> 1000 ≤ 2000	-	-	-	2.75	72
			> 2000 ≤ 3000	-	-	-	2.5	72
			> 3000	-	-	-	2.25	72
		> 1995 ≤ 2003	≤ 1000	-	-	-	2.5	65
			> 1000 ≤ 2000	-	-	-	2.25	65
			> 2000 ≤ 3000	-	-	-	2	65
			> 3000	-	-	-	1.75	65
		> 2003	≤ 1000	-	-	-	2.1	60
			> 1000 ≤ 2000	-	-	-	1.85	60
			> 2000 ≤ 3000	-	-	-	1.6	60
			> 3000	-	-	-	1.35	60
Small (Motorcycles and others)	Gasoline 2T > 50 cc	-	-	2.5	8000	-	-	-
	Gasoline 4T > 50 cc	-	-	4.5	600	-	-	-
	Diesel > 50 cc	-	-	-	-	-	2.1	60

#### 6. Fuels:

##### 6.1. Reference fuel

International specifications are accepted.

## 6.2. Commercial fuels

### 6.2.1. Gasoline

Property	Requirement								Unity	Test method
	Gasohol 84 Plus		Gasohol 90 Plus		Gasohol 95 Plus		Gasohol 97 Plus			
	Min.	Máx.	Min.	Máx.	Min.	Máx.	Min.	Máx.		
Appearance	Transparent		Transparent		Transparent		Transparent		-	ASTM D 1298, 4052
Distillation (at 760 mm Hg)	-	-	-	-	-	-	-	-	-	-
10% vol. evaporated	-	70	-	70	-	70	-	70	°C	ASTM D 86
50% vol. evaporated	-	140	-	140	-	140	-	140		
90% vol. evaporated	-	200	-	200	-	200	-	200		
End point	-	221	-	221	-	221	-	221		
Residue	-	2	-	2	-	2	-	2	% v/v	
Reid Vapor Pressure	-	11	-	11	-	11	-	11	psi	ASTM D323, D4953, D5190, 5191, D5482
Copper corrosion (3h at 50°C)	-	1	-	1	-	1	-	1	-	ASTM D130
Sulfur	-	0,2	-	0,2	-	0,2	-	0,2	% m/m	ASTM D1266, D4294, D2622
RON	84	-	90	-	95	-	97	-	-	ASTM D2699
Oxidation Stability	240	-	240	-	240	-	240	-	min	ASTM D525
Gums	-	5	-	5	-	5	-	5	mg/100ml	ASTM D381
Oxigen	-	0,013	-	0,013	-	0,013	-	0,013	g/l	ASTM D3237, D5059

Addition of 7.8% of ethanol in the gasoline

### 6.2.2. Diesel

Property	Requirement						Unit	Test method
	Nº1		Nº2		Nº2 Special			
	Min.	Max.	Min.	Max.	Min.	Max.		
Density at 15°C	Report		Report		Report		kg/m <sup>3</sup>	ASTM D 1298 ISO 3675
Distillation (at 760 mm Hg)	-	-	-	-	-	-	-	ASTM D86 ISO 3405
90% recovery	-	288	282	360	282	360	°C	PNTPT 321.023
Flash point	38	-	52	-	52	-	°C	ASTM D93 ISO 2719 PNTPT 321.024
kinematics viscosity at 40°C	1,3	2,4	1,7	4,1	1,9	4,1	CSt	ASTM D445 ISO 3104 PNTPT 321.031
Pour point	-	- 12	-	4	-	4	°C	ASTM D97 ISO 3016
Cetane number	40	-	45	-	50	-	-	ASTM D613 ISO 5165
Cetane index	40	-	40	-	45	-	-	ASTM D4737, D976 ISO 4264 PNTPT 321.130
Ash	-	0,01	-	0,01	-	0,01	% m/m	ASTM D482 ISO 6245
Residual Ramsbottom Carbon	-	0,15	-	0,35	-	0,35	% m/m	ASTM D524, D189 ISO 4262, 6615
Copper corrosion (3h at 50°C)	-	3	-	3	-	3	-	ASTM D130 ISO 2160 PNTPT 321.021
Sulfur	-	0,3	-	0,5	-	0,05	% m/m	ASTM D129, D2622, D4294 ISO 8754
Water and sediments	-	0,05	-	0,05	-	0,05	% v/v	ASTM D1796, 2709 ISO 3734 PNTPT 321.029

## 7. Trends:

No trends known.