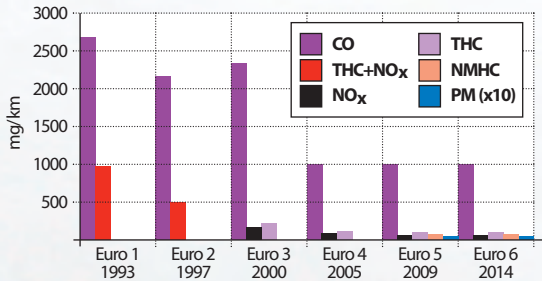


Euro 5 & 6 Emissions Guide

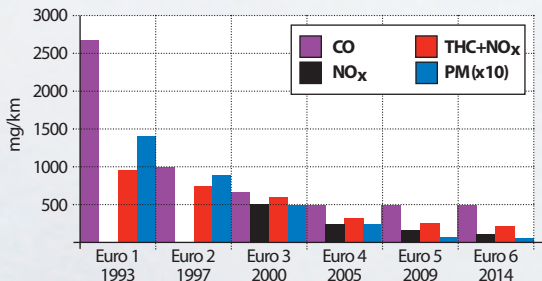


Johnson Matthey

Development of European Gasoline Emissions Legislation



Development of European Diesel Emissions Legislation



Notes

1. Fuel Sulphur - < 10ppm sulphur from 1 January 2009
2. Euro 5a/6a standards - without new particulate measurement technique
3. Euro 5b/6b standards - with new particulate measurement technique
4. Heavy Cars (class M1 > 2500kg) now included in passenger car standards, but some exceptions for Euro 5
5. PM - new particulate measurement technique to be introduced before application of 4.5mg/km limit
6. Particulate number - new particulate measurement technique to be introduced before application of limit value
7. Vehicle durability - extended from 80000 to 160000 km for all passenger cars from Euro 5

for more information: [E: ectinfo@matthey.com](mailto:ectinfo@matthey.com) [W: www.jmcatlysts.com/ect](http://www.jmcatlysts.com/ect)
© Johnson Matthey Plc 2008

Implementation Dates

| Character | Emissions Standards | OBD Standards | New Models | All Models | Last Registration |
|-----------|---------------------|-----------------|------------|------------|-------------------|
| A | Euro 5a | Euro 5 | 01-09-2009 | 01-01-2011 | 31-12-2012 |
| F | Euro 5b | Euro 5 | 01-09-2011 | 01-01-2013 | 31-12-2013 |
| J | Euro 5b | Euro 5+ | 01-09-2011 | 01-01-2014 | 31-08-2015 |
| N | Euro 6a | Euro 6- | | | 31-12-2012 |
| Q | Euro 6b | Euro 6- | | | 31-12-2013 |
| T | Euro 6b | Euro 6- + IUPR* | | | 31-08-2015 |
| W | Euro 6b | Euro 6 | 01-09-2014 | 01-09-2015 | |

NB: N, Q and T apply to DIESEL vehicles only, to allow early introduction of Euro 6
* Relaxed OBD limits and relaxed in use performance ratio (IUPR)

EU Light Duty Vehicle Standards

| Mandatory GASOLINE car limits (mg/km) | | | | | | |
|---------------------------------------|------|-----------------|-----|------|-----|---------|
| Pollutant | CO | NO _x | THC | NMHC | PM* | P(#/km) |
| Euro 5a Limit Values | 1000 | 60 | 100 | 68 | 5.0 | - |
| Euro 5b Limit Values | 1000 | 60 | 100 | 68 | 4.5 | - |
| Euro 6b Limit Values | 1000 | 60 | 100 | 68 | 4.5 | tbc |

* PM standards apply only to direct injection engines

| Mandatory DIESEL car limits (mg/km) | | | | | |
|-------------------------------------|-----|-----------------|---------------------|-----|------------------------|
| Pollutant | CO | NO _x | THC+NO _x | PM | P(#/km) |
| Euro 5a Limit Values | 500 | 180 | 230 | 5.0 | - |
| Euro 5b Limit Values | 500 | 180 | 230 | 4.5 | 6.0 x 10 ¹¹ |
| Euro 6a Limit Values | 500 | 80 | 170 | 5.0 | - |
| Euro 6b Limit Values | 500 | 80 | 170 | 4.5 | 6.0 x 10 ¹¹ |

On-Board Diagnostics (OBD) Threshold Limits (mg/km)

| GASOLINE | | | | |
|---------------|------|-----------------|------|----|
| Pollutant | CO | NO _x | NMHC | PM |
| Euro 5 | 1900 | 300 | 250 | 50 |

| DIESEL | | | | |
|----------------------------------|------|-----------------|------|-----|
| Pollutant | CO | NO _x | NMHC | PM |
| Euro 5 (Cars > 1760kg) | 1900 | 540 | 320 | 80* |
| Euro 5+ | 1900 | 540 | 320 | 50 |
| Interim Euro 6 | 1900 | 240 | 320 | 50 |

*50mg/km for cars ≤ 1760kg

Assigned Deterioration Factors

| GASOLINE | | | | | | |
|-----------|-----|-----------------|-----|------|-----|-----|
| Pollutant | CO | NO _x | THC | NMHC | PM | P |
| | 1.5 | 1.6 | 1.3 | 1.3 | 1.0 | 1.0 |

| DIESEL | | | | | |
|---------------|------------------|-----------------|---------------------|-----|-----|
| Pollutant | CO | NO _x | THC+NO _x | PM | P |
| Euro 5 | 1.5 | 1.1 | 1.1 | 1.0 | 1.0 |
| Euro 6 | to be determined | | | | |

Key: CO - Carbon Monoxide NO_x - Oxides of Nitrogen THC - Total Hydrocarbons
NMHC - Non Methane Hydrocarbons PM - Particulate Mass P - Particulate Number

EMISSION CONTROL TECHNOLOGIES

