

Lampiran

## Lampiran 1.

### Ketentuan Pembatasan Emisi Zat-Zat Gas Buang Menurut Standarisasi Euro

#### A. Kendaraan Penumpang

| Tier                     | Date              | CO             | THC   | NMHC  | NO <sub>x</sub> | HC+NO <sub>x</sub> | PM             | P*** |
|--------------------------|-------------------|----------------|-------|-------|-----------------|--------------------|----------------|------|
| <b>Diesel</b>            |                   |                |       |       |                 |                    |                |      |
| Euro 1†                  | July 1992         | 2.72<br>(3.16) | -     | -     | -               | 0.97<br>(1.13)     | 0.14<br>(0.18) | -    |
| Euro 2                   | January 1996      | 1.0            | -     | -     | -               | 0.7                | 0.08           | -    |
| Euro 3                   | January 2000      | 0.64           | -     | -     | 0.50            | 0.56               | 0.05           | -    |
| Euro 4                   | January 2005      | 0.50           | -     | -     | 0.25            | 0.30               | 0.025          | -    |
| Euro 5                   | September<br>2009 | 0.500          | -     | -     | 0.180           | 0.230              | 0.005          | -    |
| Euro 6<br>(future)       | September<br>2014 | 0.500          | -     | -     | 0.080           | 0.170              | 0.005          | -    |
| <b>Petrol (Gasoline)</b> |                   |                |       |       |                 |                    |                |      |
| Euro 1†                  | July 1992         | 2.72<br>(3.16) | -     | -     | -               | 0.97<br>(1.13)     | -              | -    |
| Euro 2                   | January 1996      | 2.2            | -     | -     | -               | 0.5                | -              | -    |
| Euro 3                   | January 2000      | 2.3            | 0.20  | -     | 0.15            | -                  | -              | -    |
| Euro 4                   | January 2005      | 1.0            | 0.10  | -     | 0.08            | -                  | -              | -    |
| Euro 5                   | September<br>2009 | 1.000          | 0.100 | 0.068 | 0.060           | -                  | 0.005**        | -    |
| Euro 6<br>(future)       | September<br>2014 | 1.000          | 0.100 | 0.068 | 0.060           | -                  | 0.005**        | -    |

## B. Kendaraan Angkutan Umum Ringan

| Tier                     | Date           | CO    | THC   | NMHC  | NO <sub>x</sub> | HC+NO <sub>x</sub> | PM     | P |
|--------------------------|----------------|-------|-------|-------|-----------------|--------------------|--------|---|
| <b>Diesel</b>            |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 2.72  | -     | -     | -               | 0.97               | 0.14   | - |
| Euro 2                   | January 1998   | 1.0   | -     | -     | -               | 0.7                | 0.08   | - |
| Euro 3                   | January 2000   | 0.64  | -     | -     | 0.50            | 0.56               | 0.05   | - |
| Euro 4                   | January 2005   | 0.50  | -     | -     | 0.25            | 0.30               | 0.025  | - |
| Euro 5                   | September 2009 | 0.500 | -     | -     | 0.180           | 0.230              | 0.005  | - |
| Euro 6 (future)          | September 2014 | 0.500 | -     | -     | 0.080           | 0.170              | 0.005  | - |
| <b>Petrol (Gasoline)</b> |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 2.72  | -     | -     | -               | 0.97               | -      | - |
| Euro 2                   | January 1998   | 2.2   | -     | -     | -               | 0.5                | -      | - |
| Euro 3                   | January 2000   | 2.3   | 0.20  | -     | 0.15            | -                  | -      | - |
| Euro 4                   | January 2005   | 1.0   | 0.10  | -     | 0.08            | -                  | -      | - |
| Euro 5                   | September 2009 | 1.000 | 0.100 | 0.068 | 0.060           | -                  | 0.005* | - |
| Euro 6 (future)          | September 2014 | 1.000 | 0.100 | 0.068 | 0.060           | -                  | 0.005* | - |

\* Applies only to vehicles with direct injection engines

**C. Kendaraan Angkutan Umum Sedang (Bus Dan Truk Di Bawah Tonase 4 Ton)**

| Tier                     | Date           | CO    | THC   | NMHC  | NO <sub>x</sub> | HC+NO <sub>x</sub> | PM     | P |
|--------------------------|----------------|-------|-------|-------|-----------------|--------------------|--------|---|
| <b>Diesel</b>            |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 5.17  | -     | -     | -               | 1.4                | 0.19   | - |
| Euro 2                   | January 1998   | 1.25  | -     | -     | -               | 1.0                | 0.12   | - |
| Euro 3                   | January 2001   | 0.80  | -     | -     | 0.65            | 0.72               | 0.07   | - |
| Euro 4                   | January 2006   | 0.63  | -     | -     | 0.33            | 0.39               | 0.04   | - |
| Euro 5                   | September 2010 | 0.630 | -     | -     | 0.235           | 0.295              | 0.005  | - |
| Euro 6 (future)          | September 2015 | 0.630 | -     | -     | 0.105           | 0.195              | 0.005  | - |
| <b>Petrol (Gasoline)</b> |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 5.17  | -     | -     | -               | 1.4                | -      | - |
| Euro 2                   | January 1998   | 4.0   | -     | -     | -               | 0.6                | -      | - |
| Euro 3                   | January 2001   | 4.17  | 0.25  | -     | 0.18            | -                  | -      | - |
| Euro 4                   | January 2006   | 1.81  | 0.13  | -     | 0.10            | -                  | -      | - |
| Euro 5                   | September 2010 | 1.810 | 0.130 | 0.090 | 0.075           | -                  | 0.005* | - |
| Euro 6 (future)          | September 2015 | 1.810 | 0.130 | 0.090 | 0.075           | -                  | 0.005* | - |

\* Applies only to vehicles with direct injection engines

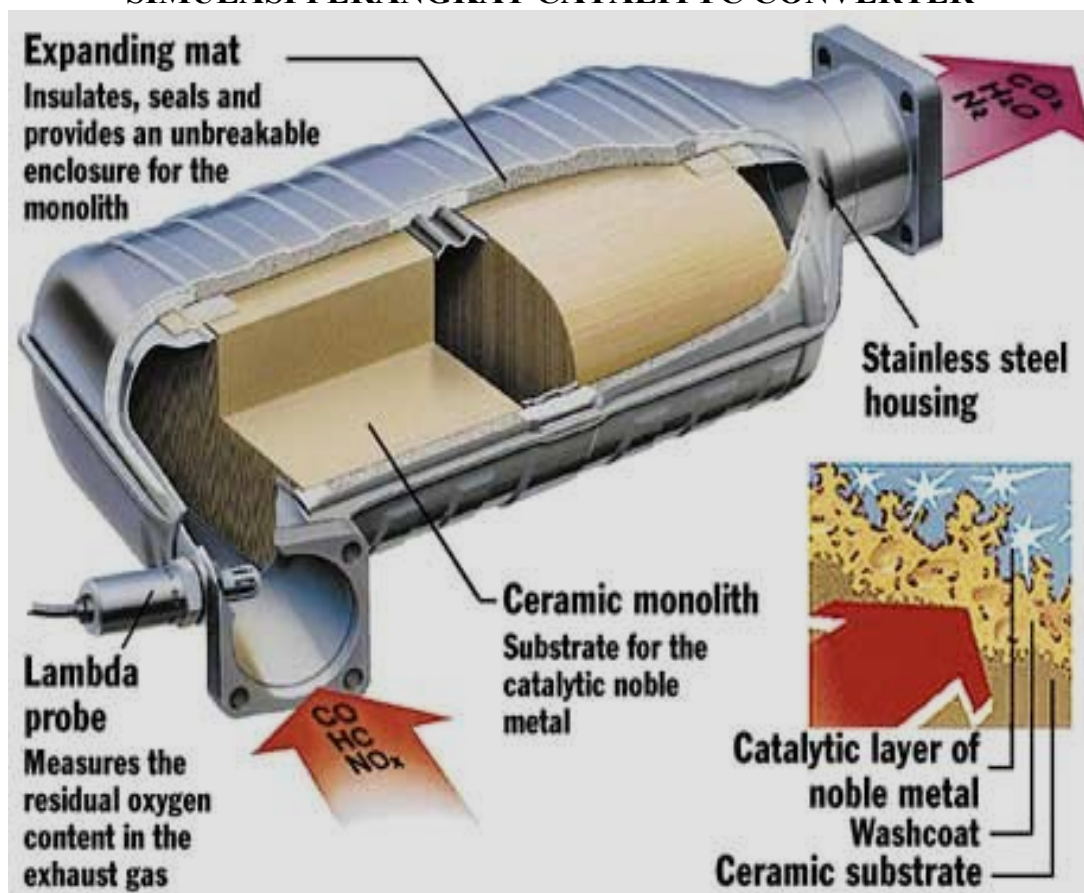
**D. Kendaraan Angkutan Umum Sedang (Bus Dan Truk Di Atas Tonase 4 Ton)**

| Tier                     | Date           | CO    | THC   | NMHC  | NO <sub>x</sub> | HC+NO <sub>x</sub> | PM     | P |
|--------------------------|----------------|-------|-------|-------|-----------------|--------------------|--------|---|
| <b>Diesel</b>            |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 6.9   | -     | -     | -               | 1.7                | 0.25   | - |
| Euro 2                   | January 1998   | 1.5   | -     | -     | -               | 1.2                | 0.17   | - |
| Euro 3                   | January 2001   | 0.95  | -     | -     | 0.78            | 0.86               | 0.10   | - |
| Euro 4                   | January 2006   | 0.74  | -     | -     | 0.39            | 0.46               | 0.06   | - |
| Euro 5                   | September 2010 | 0.740 | -     | -     | 0.280           | 0.350              | 0.005  | - |
| Euro 6 (future)          | September 2015 | 0.740 | -     | -     | 0.125           | 0.215              | 0.005  | - |
| <b>Petrol (Gasoline)</b> |                |       |       |       |                 |                    |        |   |
| Euro 1                   | October 1994   | 6.9   | -     | -     | -               | 1.7                | -      | - |
| Euro 2                   | January 1998   | 5.0   | -     | -     | -               | 0.7                | -      | - |
| Euro 3                   | January 2001   | 5.22  | 0.29  | -     | 0.21            | -                  | -      | - |
| Euro 4                   | January 2006   | 2.27  | 0.16  | -     | 0.11            | -                  | -      | - |
| Euro 5                   | September 2010 | 2.270 | 0.160 | 0.108 | 0.082           | -                  | 0.005* | - |
| Euro 6 (future)          | September 2015 | 2.270 | 0.160 | 0.108 | 0.082           | -                  | 0.005* | - |

\* Applies only to vehicles with direct injection engines

## Lampiran 2.

### SIMULASI PERANGKAT CATALITYC CONVERTER



Sumber : "Catalityc Converter", <http://www.greenenvironment.com>., diakses pada tanggal 21 Juni 2012.