

**ENVIRONMENTAL QUALITY (CONTROL OF EMISSION FROM DIESEL ENGINES)
REGULATIONS 1996**

PU(A) 429/1996

IN exercise of the powers conferred by sections 21, 45 and 51 of the Environmental Quality Act 1974, the Minister, after consultation with the Environmental Quality Council, makes the following regulations:

PART I

PRELIMINARY

1. Citation and commencement.

These regulations may be cited as the Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996 and shall come into force on 1 September 1996.

2. Interpretation.

In these Regulations, unless the context otherwise requires —

"approved facility" means a facility or place approved by the Director General which is equipped with the necessary smoke meter and trained personnel for carrying out any smoke test;

"authorised officer" means an officer appointed under section 3 of the Act, a road transport officer, police officer or any other officer to whom the Director General has delegated his power under section 49 of the Act;

"diesel engine" means an engine which works on the compression ignition principle;

"Director for Road Transport" means a Director for Road Transport appointed under section 3 of the Road Transport Act 1987;

"emission of pollutants" means the emission of any pollutants into the atmosphere from any portion of the diesel engine including the exhaust assembly, engine crankcase, ventilation or lubrication System;

"engine system" means a system consisting of the engine together with all devices essential for its operation and its appropriate intake and exhaust assembly;

"engine type" means a category of engines having similar emission characteristics and which do not differ in such essential aspects as may be designated by the Director General;

"fleet operator" means a company, firm, society or other body of persons, or any person who owns and operates 10 units or more of motor vehicles equipped with diesel engines;

"free acceleration test" means a test for smoke emission of a motor vehicle with the transmission disengaged (in neutral gear) when the engine thereof is tested on full throttle from its lowest to its highest governed speed;

"motor vehicle" means a motor vehicle fitted with a diesel engine; "new model" means a motor vehicle equipped with an engine type which is different from the previous model;

"new motor vehicle" means —

(a) a motor vehicle imported directly into Malaysia as a completely built-up ("CBU") unit and for the first instant was registered and assigned a registration number by the Director for Road Transport on or after 1 January 1997; or

(b) a motor vehicle imported into Malaysia as a completely knocked down ("CKD") pack and was subsequently manufactured or assembled and for the first instant was registered and assigned a registration number by the Director for Road Transport on or after 1 January 1997;

"Ringelmann Smoke Chart" means a miniaturised version of the Standard Ringelmann Chart as shown in the Third Schedule;

"smoke meter" means —

(a) a smoke meter which is constructed to receive a volume of exhaust gas from a motor vehicle within specified pressure and temperature ranges and to measure the density or opacity of its smoke content from 0 to 100 Hartridge smoke units ("HSU");

(b) a device constructed to receive a volume of exhaust gas from a motor vehicle within specified pressure and temperature ranges and to measure the complete range of density or opacity of its smoke content in Absolute Units of Light Absorption from clear to total darkness or in such other correlated light absorption units; or

(c) any other equivalent device which may from time to time be prescribed by the Minister as a smoke meter.

PART II

CONTROL OF DIESEL ENGINE ON MOTOR VEHICLE

3. Application of Part II.

This Part shall apply to a new motor vehicle registered after 31 August 1996 and to a motor vehicle which is already registered but which has a new engine system to replace an existing system.

4. Restriction on installation or replacing of engine system.

(1) No person shall install, or replace the engine system of any motor vehicle with, a diesel engine which emits pollutants in excess of the standard prescribed in the First Schedule.

(2) Notwithstanding subregulation 4(1), on or after 1 January 1997, any new model of motor vehicle shall comply with the emission standard of pollutants as prescribed in the Second Schedule.

5. Application of regulation 4.

Regulation 4 shall only apply to a motor vehicle intended to be used on the road, with or without bodywork, having at least four wheels and a designed maximum speed exceeding 25 kilometres per hour.

6. Acceptance of equivalent or more stringent standards.

Notwithstanding regulation 4, the Director General may accept —

(a) an engine type which is covered by a type test certificate in accordance with the Japanese Six Mode Exhaust Emission Test; or

(b) an engine type complying with such emission standards and test procedures which the Director General considers to be equivalent or more stringent than the test procedures and specifications as may be determined by him from time to time.

7. Tests to be conducted by assembler or manufacturer.

(1) For the purpose of verifying the exhaust emission of pollutants standard as prescribed in the First Schedule, the Director General may require any assembler or manufacturer to conduct such necessary tests as may be determined by the Director General, in the presence of an authorised officer, at any approved facility at the cost of the assembler or manufacturer.

(2) For the purpose of subregulation (1), samples of not more than one per centum of the annual projected number of motor vehicles shall be selected at random.

(3) Where the Director General has directed any assembler or manufacturer to conduct any test under this regulation, the assembler or manufacturer shall submit periodically the results of such tests to the Director General.

8. Certification by assembler or manufacturer.

Prior to the delivery of a new motor vehicle to its owner, the assembler or manufacturer shall issue a certificate to a motor vehicle which is finally assembled or manufactured stating that the motor vehicle has been correctly inspected, tested and adjusted to meet the requirements of regulation 4.

PART III

SMOKE EMISSION CONTROL OF MOTOR VEHICLE

9. Application of Part III.

This Part shall apply to every motor vehicle irrespective of whether it is in use or stationary, or in any bus terminus, taxi stand or private premises or on any private road.

10. Maximum concentration of smoke shall not exceed Ringelmann No. 2.

(1) The maximum concentration of smoke at or near the final point of emission from the exhaust pipe into the atmosphere shall not exceed Ringelmann No. 2 of the Ringelmann Smoke Chart for a continuous period of more than 10 seconds when observed in accordance with the procedure as specified in the Fourth Schedule.

(2) Observation of smoke from a diesel engine is to be carried out by an authorised officer who has undergone a smoke observation course and has been certified competent by the Director General.

11. Maximum density of smoke permitted.

(1) The maximum density of smoke at or near the final point of emission from the exhaust pipe of any motor vehicle when tested under the free acceleration test with a smoke meter shall not exceed 50 HSU or equivalent smoke units.

(2) The free acceleration test for smoke density shall be conducted in accordance with the methods specified in the Fifth Schedule and the test results shall be recorded in a Test Certificate as shown in the Sixth Schedule.

12. Prohibition order on vehicle.

(1) The Director General or any authorised officer may issue a prohibition order as specified in the Seventh Schedule prohibiting the further operation of any motor vehicle that:

(a) has undergone a smoke test in accordance with regulation 11 and the test result exceeds 70 HSU or equivalent smoke units; and

(b) has contravened the acceptable conditions specified in regulation 11 within the period of three months preceeding the smoke test.

(2) Notwithstanding subregulation (1) if the Director General or any authorised officer, after examining the smoke test results, status of compliance and air quality monitoring returns, taking into account other polluting sources and meteorological data, is of the opinion that more stringent action needs to be taken, he may issue a prohibition order against any motor vehicle emitting or capable of emitting smoke which exceeds 60 HSU or equivalent smoke units.

13. Vehicle under prohibition order not to be operated.

(1) The prohibition order shall be securely attached to a conspicuous spot on the windscreen of the motor vehicle.

(2) The motor vehicle shall not be operated until the prohibition period expires or until its defects have been remedied to the satisfaction of the Director General or the authorised officer after which the prohibition order may be withdrawn.

14. Prohibition order not to be removed.

The owner or the person operating the motor vehicle shall ensure that the prohibition order is not in any way obscured, rendered illegible or removed except with the written approval of the Director General.

15. Exhaust pipe to be straight.

The exhaust pipe installed in every motor vehicle shall be straight and free of any attachment for the last 150mm when the exhaust gas is finally discharged into the atmosphere.

16. Engine to be put off in enclosed area.

No person shall allow the engine of any motor vehicle to run while the motor vehicle is stationary for more than three minutes in an enclosed or a partially enclosed parking area or any terminus.

PART IV

REQUIREMENTS OF SMOKE TEST

17. Approved facility to carry out any smoke test required.

(1) Where a motor vehicle is required to undergo a smoke test under section 48A of the Act such smoke test shall only be carried out at an approved facility.

(2) A person who wishes to comply with the requirements of these Regulations or the provisions of any other written law in relation to the emission standard for his motor vehicle may, at his own expense, request for a smoke test to be carried out at an approved facility.

18. Fleet operator to operate and maintain approved facility.

A fleet operator shall operate and maintain an approved facility and shall carry out the smoke test on all his motor vehicles periodically, or more frequently as and when directed by Director General in writing.

19. Log book to be kept.

(1) For the purpose of regulation 17, a log book containing the motor vehicle registration number, the date, time and result of any smoke test done shall be kept by the owner of the motor vehicle.

(2) The records in the log book shall be made available for inspection by the Director General or any authorised officer.

PART V

LICENCE FOR CONTRAVENTION OF ACCEPTABLE CONDITIONS

20. Grant of licence.

(1) Where the Director General is satisfied that —

(a) the motor vehicle is to be used solely for the purpose of assessing the durability or emission performance of the same vehicle, or the motor vehicle is to be used for rallying, with the prior written approval of the Director General as to the place of the rally and the person to be responsible for the custody of the vehicle for the period of the rally;

(b) the motor vehicle has been indented from the manufacturer and consigned for assembly in Malaysia or is already assembled or manufactured prior to the date of coming into force of these Regulations and has not at any time been registered under the Road Transport Act 1987;

(c) the motor vehicle is intended for military, combat or tactical purposes; or

(d) the motor vehicle is on transit through Malaysia,

he may grant a licence to contravene the conditions prescribed in these Regulations.

(2) An application for a licence under this regulation shall be made in the application form to be determined by the Director General together with a payment of the fee as prescribed in the Eighth Schedule.

PART VI

OFFENCES

21. Offences which may be compounded.

(1) The offences under these Regulations except the offence under regulation 4 may be compounded.

(2) The compounding of any offence under these Regulations shall be in accordance with the procedure prescribed in the Environmental Quality (Compounding of Offences) Rules 1978.

FIRST SCHEDULE

[Subregulation 4(1) and regulation 7]

EMISSION STANDARD OF POLLUTANTS

1. The emission standard for a diesel engine tested at a steady speed shall not exceed the following limits of emission of visible pollutants:

Nominal flow G (litres/second)	Absorption CoefficientK (m-1)
42	2.26
45	2.1.9
50	2.08
55	1.985
60	1.90
65	1.84
70	1.775
75	1.72
80	1.665
85	1.62
90	1.575
95	1.535
100	1.495
105	1.465
110	1.425
115	1.395
120	1.37
125	1.345

130	1.32
135	1.30
140	1.27
145	1.25
150	1.225
155	1.205
160	1.19
165	1.17
170	1.155
175	1.14
180	1.125
185	1.11
190	1.095
195	1.08
200	1.065

as measured by the Economic Commission for Europe ("ECE") Regulation No. 24.03 annexed to the United Nations Agreement which was done at Geneva on March 20, 1958 Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts.

2. In addition to paragraph 1, for a heavy-duty diesel engine for a vehicle with a Gross Vehicle Weight ("GVW") of over 3.5 tonnes, the exhaust emission of the gaseous pollutant of Carbon Monoxide ("CO"), Hydrocarbon ("HC") and Nitrogen Oxides ("NOx") shall not exceed the following standard:

Mass of Carbon Monoxide (CO) Grammes per k Wh	Mass of Hydrocarbons (HC) Grammes per kWh	Mass of Nitrogen Oxides (NOx) Grammes per k Wh
14	3.5	18

as measured by the ECE Regulation No. 49. annexed to the United Nations Agreement which was done at Geneva on March 20, 1958 Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts.

3. For a diesel engine with a Gross Vehicle Weight of not exceeding 3.5 tonnes, in addition to paragraph 1, the emission of the gaseous pollutant of Carbon Monoxide and the combination of Hydrocarbons and Nitrogen Oxides shall not exceed the following standard:

Reference Mass (rw) (kg)	Carbon Monoxide g/test	Combined Emission of
--------------------------	------------------------	----------------------

		Hydrocarbons and Nitrogen Oxides in g/test
$rw \leq 1020$	58	19.0
$1020 < rw \leq 1250$	67	20.5
$1250 < rw \leq 1470$	76	22.0
$1470 < rw \leq 1700$	84	23.5
$1700 < rw \leq 1930$	93	25.0
$1930 < rw \leq 2150$	101	26.5
$2150 < rw$	110	28.0

as measured by the ECE Regulation No. 15 annexed to the United Nations Agreement which was done at Geneva on March 20, 1958 Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts.

SECOND SCHEDULE

[Subregulation 4(2)]

EMISSION STANDARD OF POLLUTANTS FOR NEW MODELS OF MOTOR VEHICLES ON OR AFTER 1 JANUARY 1997

1. For a diesel engine having a total mass exceeding 3.5 tonnes. the emission of gaseous pollutants of Carbon Monoxide, Hydrocarbons, Oxides of Nitrogen and Particulates must not exceed the following standard:

Mass of Carbon Monoxide(CO) Grammes per kWh	Mass of Hydrocarbons(HC) Grammes per kWh	Mass of Oxides of Nitrogen(NOx) Grammes per kWh	Mass of Particulates(PT) Grammes per kWh
4.5	1.1	8.0	0.36

as measured by the ECE Regulation No. 49.02 annexed to the United Nations Agreement which was done at Geneva on March 20, 1958 Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts.

2. For a diesel engine having a total mass not exceeding 3.5 tonnes, the emission of gaseous pollutants of Carbon Monoxide, the combination of Hydrocarbons and Oxides of Nitrogen and Particulates shall not exceed the following standard:

Reference Mass rw (kg)	Mass of Carbon Monoxide g/Km	Combined Mass of Hydro carbons and Oxides of Nitrogen g/km	Mass of Particulates g/km
$rw \leq 1250$	2.72	0.97	0.14

1250 < rw ≤ 1700	5.17	1.40	0.19
1700 < rw	6.90	1.70	0.25

as measured by the Council Directive 93/59/EEC of June 28, 1993 amending Directive 70/220/EEC on the approximation of the laws of the Member States relating to measures to be taken against air pollution by emission from motor vehicles.

THIRD SCHEDULE

[Regulations 2 and 10]

RINGELMANN SMOKE CHART

[Image omitted]

INSTRUCTION FOR USE

1. Hold chart at arm's length to view smoke at source.
2. Source of light or sun should be behind the observer.
3. Match smoke as closely as possible to corresponding shade on chart.

FOURTH SCHEDULE

[Regulation 10]

OBSERVATION PROCEDURE

The following particulars shall be recorded by the authorised officer immediately after his observation of smoke from a diesel engine:

- (a) the period of time in seconds that visible smoke is emitted exceeding Ringelmann No. 2 of the Ringelmann Smoke Chart;
- (b) the identification or registration number of the motor vehicle; and
- (c) the type of motor vehicle and the make, if identifiable, at the time of observation.

FIFTH SCHEDULE

[Regulation 11]

FREE ACCELERATION TEST

1. The free acceleration test shall be carried out with a smoke meter which shall be capable of indicating the full range of smoke density during the accelerating and decelerating cycle.
2. The smoke meter shall have been regularly serviced and maintained in accordance with the manufacturer's instructions. It shall have undergone tests and calibration, not more than 12 months before its use, by a competent authority appointed by the Director General and has been issued a certificate of fitness with a record of the date to indicate that as a result of those tests and calibration, the smoke meter was found to be in good working order.

SIXTH SCHEDULE

[Subregulation 11(2)]

MOTOR VEHICLE SMOKE EMISSION TEST CERTIFICATE.

Serial No:

Motor Vehicle Registration No.:

Make/Model:

Vehicle Type:

Date of Test:

Time of Test:

Place of Test:

RECORD OF SMOKE EMISSION TEST

1st: HSU

2nd: HSU

Mean: HSU

Meter used:

Serial No:

Certificate of Fitness No:

I certify that the above-mentioned motor vehicle has been tested for smoke emission capability and found to emit a smoke density of HSU which exceeds the smoke limit of HSU permitted under subregulation 11(1) of the Environmental Quality (Control of Emission From Diesel Engines) Regulations 1995.

Issued and Signed by

Name of Officer:

Designation:

TEST CERTIFICATE ISSUED TO

Name of Owner/Driver of motor vehicle:

Identity Card No:

of (address):

To whom issued: Owner/Driver (signature)

Driving Licence No: Expiring:

* Delete where inapplicable.

SEVENTH SCHEDULE

[Subregulation 12(1)]

PROHIBITION ORDER

1. Motor Vehicle Registration No.:

2. Date and Time of Smoke Test:

Location:
.....

Result: HSU

Reference No.:

3. Date and Time of Previous Smoke Test:

Location:
.....

Result: HSU

Reference No.:

4. In accordance with the provisions of subregulation 12(1) the above-named motor vehicle is prohibited from operation on any road effective from

..... (time) (date)

to

..... (time) (date)

For the purposes of remedy of defect, servicing and calibration this vehicle may proceed from

.....
(place of test)

to

..... only.

(address of workshop of the person in charge/or workshop of registered owner's choice, provided that it is not more than 50km away).

.....
Name of officer:

Designation:

EIGHTH SCHEDULE

[Subregulation 20(2)]

FEES PAYABLE

- (a) Application under paragraph 20(1)(a) — RM300 per vehicle
- (b) Application under paragraph 20(1)(b) — RM50 per vehicle
- (c) Application under paragraph 20(1)(c) — Nil
- (d) Application under paragraph 20(1)(d) — Nil.