Draft

Order on certain retrofitted particulate filters[1])

Pursuant to Section 68(1), first sentence, and Section 134e of the Road Traffic Act, cf. Consolidation Act No. 1312 of 26 November 2024, and Section 1e(2) of the Act on the approval and inspection of vehicles, cf. Consolidation Act No. 288 of 2 March 2023, the following is laid down by authority pursuant to Section 3(1) and Section 5(1), first sentence, of Order No. 373 of 9 April 2024 on the duties and powers of the Danish Road Traffic Authority and the right of appeal:

Scope and definition.

Section 1. *(1)* This Order shall apply to particulate filters for retrofitting to passenger cars, large passenger cars, and vans equipped with compression-ignition engines and approved in accordance with Euro 4, Euro IV, or lower Euro standards.

(2) A large passenger car is an M2 passenger car, which is designed to be used by more than nine persons, including the driver, and which has a maximum permissible weight of 3 500 kg or less.

Requirements for particulate filters for retrofitting

Section 2. *(1)* A particulate filter can be retrofitted to a large passenger car if it is approved and marked in accordance with the rules laid down in Annex XXVI to Section 47 (3a) or Annex XXVII to Section 48 (2) and No 3.4 of Annex XIV to the German Straßenverkehrs-Zulassungs-Ordnung (Road Traffic Authorisation Order). The same applies to a particulate filter that is approved and labelled in accordance with equivalent regulations in another EU country, EEA country or Turkey.

(2) If a particulate filter is approved in accordance with the rules laid down in paragraph 1, second sentence, documentation for this shall be submitted to the Danish Road Traffic Authority for approval.

(3) A particulate filter can also be retrofitted to a large passenger car, if it is documented that the car then corresponds to a car of the same model and type with a factory-fitted particulate filter with a particulate emission not exceeding 5 mg/km.

Section 3. A particulate filter, which is approved for passenger cars and vans pursuant to the Order on exemption from particulate emissions tax upon retrofitting of particulate filters, or which is approved for large passenger cars pursuant to Section 2, can be installed on a different vehicle model and type than covered by the approval, if the requirements of Annex 1, Section 2, are met.

Section 4. A particulate filter, which is not approved for passenger cars and vans pursuant to the Order on exemption from particulate emissions tax upon retrofitting of particulate filters, or which is not approved pursuant to Section 2, can be installed on a vehicle if the requirements of Annex 1, Section 3, are met.

Approval of particulate filter for retrofitting

[1)] A draft of this Order has been notified in accordance with Directive (EU) 2015/1535 of the European Parliament and of the Council laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (codification).

Section 5. A particulate filter in accordance with Sections 3 and 4 must be verified or tested, cf. Annex 1, by

1) a technical service designated to carry out tests on emissions from vehicles pursuant to the Regulation of the European Parliament and of the Council on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC; or

2) an approved testing body in accordance with the Order on the approval of testing bodies and inspection bodies in the field of vehicle technology.

Section 6. *(1)* The technical service or approved testing body that has carried out the verification or testing of a particulate filter shall issue a test report confirming that the particulate filter meets the requirements of Annex 1.

(2) The test report shall specify the vehicle models and types, as well as the engine sizes and engine controls, for which the particulate filter has been approved.

Particulate filter installation

Section 7. The person who retrofits a particulate filter according to Sections 3 and 4 must sign a declaration in accordance with Annex 2 stating that the particulate filter is installed in accordance with the manufacturer's instructions.

Approval and inspection

Section 8. The control that a retrofitted particulate filter meets the requirements of Sections 2, 3 or 4 shall be carried out by a testing centre during a registration inspection.

Section 9. When a car has been retrofitted with a particulate filter and is presented for inspection in accordance with Section 8, the following documentation must be provided:

1) The German approval, including documentation that the particulate filter has been approved for installation on the specific vehicle model, for particulate filters that meet the requirements of Section 2(1).
2) The Danish Road Traffic Authority's approval for particulate filters that meet the requirements of Section 2(2).
3) Relevant documentation that the vehicle in question, after the installation of the particulate filter, corresponds to a vehicle with a factory-fitted particulate filter, for particulate filters that meet the requirements of Section 2(3).
4) The declaration of conformity referred to in Annex 2, and the German approval including the test report as documentation that the particulate filter is approved for installation on a corresponding car model, for particulate filters that meet the requirements of Section 3.
5) The test report and declaration of conformity referred to in Annex 2, for particulate filters that meet the requirements of Section 4.

Technical specifications

Section 10. *(1)* Technical specifications cited in this Order are not introduced in the Danish Official Journal.

(2) Technical specifications referred to in paragraph 1 shall mean European or international standards, regulations, and UN regulations.

(3) Standards and regulations referred to in paragraph 2 may be inspected at the Danish Road Traffic Authority or purchased from Danish Standards.

(4) UN Regulations referred to in paragraph 2 may be found on the website of the United Nations Economic Commission for Europe, www.unece.org.

(5) Technical specifications referred to in paragraph 1 shall apply even if they are not available in Danish.

Entry into force

Section 11. *(1)* This Order shall enter into force on 1 July 2025.

(2) Order No 2669 of 28 December 2021 on certain retrofitted particulate filters is repealed.

Annex 1

Verification and testing of approved particulate filters for passenger cars (M1), large passenger cars (M2) and vans (N1)

1. DEFINITIONS

For the purposes of this annex:

1) Retrofitted state: Vehicle with a retrofitted particulate filter.

2) Emission measurements: An average of two results from an NEDC cycle or RDE test, provided that the measurements do not differ by more than 15%. If the first two measurements differ from each other by more than 15%, the measurement must be repeated a third time. Determination of other emissions (NOx, CO, HC) and fuel consumption based on CO2 emissions shall be calculated as the average of 2-3 measurements conducted in accordance with the NEDC or RDE test.

3) Euro standard: The original Euro standard to which the vehicle has been approved.

4) Approval number: Unique identification of the documentation for the verification or testing of the particulate filter.

5) Vehicle for which the particulate filter is approved: The vehicle that is covered by the original approval for the particulate filter under the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

6) Vehicle for which the particulate filter is requested to be approved: The vehicle for which approval of a particulate filter is requested.

7) Vehicle series: Series of vehicles with the same engine identified by engine code, exhaust and turbo and where the position of the particulate filter does not differ by more than ± 300 mm within the series.

8) Engine power: Engine performance measured in kW.

9) Engine family: The engines of the vehicles for approval included in the vehicle series must be within 65% to 130% of the engine power of the vehicle for which the particulate filter is approved.

10) Engine code: Code used by the manufacturer of the engine to designate the engine type.

11) NEDC: New European Driving Cycle as described in UN Regulation 83 Annex 4a, Type I test (Controlling exhaust emissions after a cold start).

12) OBD (On Board Diagnostic): Vehicle OBD system.

13) Initial approval: Particulate filter approval under the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

14) Original state: Vehicle without a retrofitted particulate filter.

15) PM_1: The average of the particulate emissions measured before the lifetime test in state 1.

16) PM_2: The average of the particulate emissions measured at 2 000 km lifetime test in state 2.

17) PM_3: The average of the particulate emissions measured after 4 000 km lifetime test in state 2.

18) PM_4: The average of the particulate emissions measured after lifetime test “worst case scenario” regeneration.

19) PM_{after}: The average of the particulate emissions measured after the installation of a particulate filter.

20) $PM_{after\ system\ stabilisation}$: The average of the particulate emissions measured after system stabilisation.

21) PN_1: The average of particulate number measurements before the lifetime test in state 1.

22) PN_2: The average particulate number measured after a 2 000 km lifetime test in state 2.

23) PN_3: The average particulate number measured after a 4 000 km lifetime test in state 2.

24) PN_4: The average particulate number measured after the lifetime test ‘worst-case’ regeneration.

25) PN_{after}: The average particulate number measured after the installation of a particulate filter.

26) $PN_{after\ system\ stabilisation}$: The average particulate number measured after system stabilisation.

27) Testing: A technical service or approved testing body shall demonstrate by testing that the particulate filter complies with the required provisions.

28) RDE test: Real Driving Emissions (RDE) controls carried out in accordance with Commission Regulation (EU) 2017/1151 of 1 June 2017, as amended.

29) The degree of reduction of soot [η]: The amount of particulate mass that the particulate filter reduces.

30) Exhaust gas measurement: The measurement of exhaust gas density (light absorption coefficient). The measurement method is specified in Annex I to Directive 2014/45/EU of the European Parliament and of the Council.

31) Temperature sensor: Temperature measurement sensor that has accredited calibration in accordance with the ISO 17025 standard with an uncertainty of ± 5◦C.

32) Test vehicle: Vehicle used for testing a particulate filter.

33) Turbo: The turbo is mounted after the combustion chamber.

34) Exhaust manifold: An assembly of tubes that assembles the exhaust gases from the engine cylinders and leads them to the rest of the exhaust system.

35) Verification: Compliance with the requirements for the particulate filter shall be confirmed by a technical service or an approved testing body on the basis of documentation from the manufacturer or by measurements.

2. MODELS OF VERIFICATION AND TEST METHODS OF PREVIOUSLY APPROVED PARTICULATE FILTERS

2.1. Model 1: The particulate filter was previously approved for a vehicle that has an engine with the same engine code, exhaust manifold, turbo and installation location in the exhaust system as the vehicle in which the particulate filter is to be installed.

2.1.1. Requirements for the particulate filter

The particulate filter must be approved in accordance with the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

2.1.2. Requirements for the vehicle for which the particulate filter is requested to be approved:

1) The vehicle must have an engine with an
    a. engine code identical to that of the engine in the vehicle for which the particulate filter is approved; or
    b. a vehicle manufacturer's declaration documenting compliance with the engine in the vehicle for which the particulate filter is approved.
2) The vehicle must have the same exhaust manifold as the vehicle for which the particulate filter is approved.
3) The vehicle must have the same or a higher Euro standard as the vehicle for which the particulate filter is approved.
4) The vehicle must have the same turbo as the vehicle for which the particulate filter is approved.
5) The position of the filter on the vehicle shall not deviate by more than ± 300 mm measured along the exhaust gas flow relative to the vehicle for which the particulate filter is approved.
6) OBD (On Board Diagnostic) installed in a vehicle for which approval of the particulate filter is requested may not be modified or restricted in its monitoring when installing the particulate filter.

2.1.3. Test method

A technical service or approved testing body shall verify or test that the position of the particulate filter on a vehicle for which the particulate filter is intended to be approved does not differ by more than ± 300 mm measured from the turbo along the exhaust gas flow to the particulate filter from the position on the vehicle for which the particulate filter is approved.

On the basis of the verification or testing, documentation of compliance with the above requirements must be drawn up. The documentation shall be given a unique identification, e.g. serial number. The unique identification must be considered as the approval number.

Approval is subject to the condition that, if the original approval requires the replacement of the diesel oxidation catalyst, this is still valid for the extended approval.

2.2. Model 2: The particulate filter has previously been approved for a vehicle that has an engine of the same engine code, exhaust manifold and turbo but where the installation location in the exhaust system differs by more than ± 300 mm from its position in the vehicle in which the particulate filter is to be installed.

2.2.1. Requirements for the particulate filter

The particulate filter must be approved in accordance with the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

2.2.2. Requirements for the vehicle for which the particulate filter is requested to be approved

The vehicle for which approval of the particulate filter is requested must meet the following requirements:

1) The vehicle must have an engine with an
    a. engine code identical to that of the engine in the vehicle for which the particulate filter is approved; or
    b. a vehicle manufacturer's declaration documenting conformity with the engine in the vehicle for which the particulate filter is approved.
2) The vehicle must have the same exhaust manifold as the vehicle for which the particulate filter is approved.
3) The vehicle must have the same turbo as the vehicle for which the particulate filter is approved.
4) OBD (On Board Diagnostic) of a vehicle for which approval of the particulate filter is requested may not be modified or restricted in its monitoring when installing the particulate filter.
5) The particulate filter must be installed in the test vehicle in accordance with the manufacturer’s instructions.

2.2.3. Test method

A technical service or approved testing body shall perform a temperature measurement on the test vehicle, where the temperature sensor shall be placed 150 to 250 mm in the exhaust pipe before the particulate filter of the vehicle for which the particulate filter is intended to be approved. Temperature measurement shall be conducted over an NEDC cycle or RDE test. This measurement must be compared with an equivalent measurement carried out on the vehicle for which the particulate filter is approved. The difference in temperature may not exceed ± 30◦C.

On the basis of this testing, documentation of compliance with the above requirements must be drawn up. The documentation shall be given a unique identification, e.g. serial number. The unique identification must be considered as the approval number.

Approval is subject to the condition that, if the original approval requires the replacement of the diesel oxidation catalyst, this is still valid for the extended approval.

2.3. Model 3: Vehicle for which the particulate filter is requested to be approved which has an engine code different from that for which the particulate filter is approved.

2.3.1. Requirements for the particulate filter

The particulate filter must be approved in accordance with the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

2.3.2. Requirements for the test vehicle and the vehicle for which the particulate filter is requested to be approved

For the purpose of the test, the test vehicle shall have a mileage of at least 15 000 km in its original condition, and in the retrofitted condition, the test vehicle shall comply with the otherwise regulated limit values for its original approval.

The vehicle for which approval of the particulate filter is requested must meet the following requirements:

1) The engine of the vehicle for which approval of the particulate filter is requested must be within 65% to 130% of the engine power of the vehicle for which the particulate filter is approved.

2) The OBD (On Board Diagnostic) of a vehicle for which approval of the particulate filter is requested may not be modified or restricted in its monitoring when installing the particulate filter.

2.3.3. Test method

2.3.3.1. Original state

Before installing the particulate filter (starting condition), a technical service or approved testing body shall perform the following test on the test vehicle:

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as PM_{before}) or by a PN measurement using the RDE test.

3) Perform an exhaust gas measurement.

2.3.3.2. Retrofitted state

The particulate filter must be installed in accordance with the manufacturer's instructions.

After installation of the particulate filter, a technical service or approved testing facility shall ensure the ageing of the vehicle's particulate filter by conducting the NEDC 10 times or a minimum of 20 full RDE tests at least twice.

The technical service or approved testing body shall then perform emission measurements by conducting the NEDC (referred to as PM_{after}) 2-3 times or by conducting an RDE test with associated emissions measurement (referred to as PN_{after}).

The technical service or approved testing body shall, after the emission measurements, ensure continued ageing of the vehicle particulate filter by carrying out 10 NEDC cycles or at least 20 full RDE tests at least twice.

Finally, the following tests shall be carried out by the technical service or approved testing body:

1) Emission measurements 2-3 times NEDC (referred to as $PM_{after\ system\ stabilisation}$) or by conducting an RDE test with associated emissions measurement ($PN_{after\ system\ stabilisation}$).

2) Exhaust gas measurement.

2.3.4. Criteria for acceptance of the particulate filter in a vehicle for which the particulate filter is requested to be approved

In order for a technical service or approved testing body to declare that the particulate filter can be installed with the desired effect on a vehicle for which the particulate filter is to be approved, the following requirements shall be met:

2.3.4.1. Emission measurements

The degree of reduction of soot [η] must be at least 0.3 = 30% in the retrofitted state.

The reduction of soot [η] must be calculated as follows:

1) For tests conducted with NEDC:

$$\eta = 1 - \frac{PM_{efter}}{PM_{før}}$$

efter	after
før	before

2) For tests conducted with RDE:

$$\eta = 1 - \frac{PN_{efter}}{PN_{før}}$$

efter	after
før	before

2.3.4.2. Stability of the particulate filter

The mean of the post-system stabilisation measurement may not differ by more than 15% from the measurements carried out before system stabilisation.

The average of the measurement of the particulate filter system stabilisation must be calculated as follows:

1) For tests conducted with NEDC:

$$PM_{efter\ systemstabilisering} \leq 1.15 \cdot PM_{før}$$

efter systemstabilisering	after system stabilisation
før	before

2) For tests conducted with RDE:

$$PN_{efter\ systemstabilisering} \leq 1.15 \cdot PN_{før}$$

efter systemstabilisering	after system stabilisation
før	before

2.3.4.3. Exhaust gas measurement

The exhaust gas measurement in the retrofitted state may not exceed the original exhaust gas measurement.

2.3.4.4. Fuel consumption

The average fuel consumption in the retrofitted state may not exceed the original state fuel consumption by more than 4%.

2.3.4.5. Other regulated emissions

The other emissions regulated in the original state shall not increase in the retrofitted state.

2.3.4.6. Noise

The retrofitting of the particulate filter may not cause the vehicle to make more noise than as originally approved.

On the basis of this testing, documentation of compliance with the above requirements must be drawn up. The documentation shall be given a unique identification, e.g. serial number. The unique identification must be considered as the approval number.

2.4. Model 4: Expansion of engine family

2.4.1. Requirements for the particulate filter

The particulate filter must be approved in accordance with the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

2.4.2. Vehicle series requirements

A vehicle series must meet the following requirements:

1) The engines of the vehicles for approval included in the vehicle series must be within 65% to 130% of the engine power of the vehicle for which the particulate filter is approved.

2) Vehicles for approval which are part of the vehicle series must have the same exhaust manifold and turbo.

3) The position of the particulate filter of the vehicles for approval included in the vehicle series may not differ by more than ± 300 mm from the position in the vehicle for which the particulate filter is approved.

4) The OBD (On Board Diagnostic) of vehicles for approval which are part of the vehicle series may not be modified or restricted in its monitoring when installing the particulate filter.

2.4.3. Test method

A technical service or approved testing body shall perform the test on test vehicle 1 with the lowest engine power within the vehicle series and the test on test vehicle 2 with the highest engine power within the vehicle series. The test for the two vehicles must be in accordance with the test method described in point 2.3.3.

The particulate filter may be accepted for installation in the vehicle series if the tests of test vehicle 1 and test vehicle 2 comply with the requirements set out in point 2.3.4.

On the basis of this testing, documentation of compliance with the above requirements must be drawn up. The documentation shall be given a unique identification, e.g. serial number. The unique identification must be considered as the approval number.

3. APPROVAL OF A NEW PARTICULATE FILTER TYPE FOR A VEHICLE

This section lays down requirements for open particulate filters that can reduce the particulate mass by at least 30% when retrofitted and which have not previously been approved under the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

3.1. Manufacturer requirements and particulate filter requirements

The manufacturer of the particulate filter shall, as a minimum, be able to ensure conformity of production with the ISO 9001 standard through certification or equivalent.

The manufacturer must provide the following information in relation to the lifetime test of the particulate filter (cf. point 3.3):

1) Construction of the support material used in the particulate filter.

2) Minimum amount of catalyst material (g/cm3).

3) Volume ± 20%.

4) Type of regeneration (periodic or continuous).

5) Regeneration strategy (catalytic, thermal, electrothermal).

6) Whether the particulate filter is with or without diesel oxidation catalyst.

7) That the system is not equipped with systems capable of deactivating the filter function.

3.2. Requirements for the test vehicle used in the lifetime test

The test vehicle used for the lifetime test must comply with the following:

1) The particulate emissions of the test vehicle may not have emissions lower than 0.030 g/km in the NEDC in its original state. In the absence of a vehicle with such emissions, the levels described below (cf. points 2.3.2.1 and 2.3.2.2) must be extended such that the filter has been exposed to 60 g particulate mass in the first emission test and an additional 60 g in the second emission test. This may be calculated from the original type-approval certificate of the vehicle.

2) The engine power of the vehicles to be subsequently approved for retrofitting the particulate filter must be between 65% and 130% based on the engine power range of the test vehicle.

3) The test vehicle must have a mileage of at least 15 000 km in its original state, and in the retrofitted state the test vehicle must comply with the limit values for its original approval.

4) The particulate filter must be installed in the test vehicle in accordance with the manufacturer's instructions.

3.3. Test method (lifetime test)

3.3.1. Original state

Before installing the particulate filter (initial state), a technical service or approved testing body shall carry out the following test:

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as PM_{before}) or by conducting an RDE test with associated emissions measurement (referred to as PN_{before}).

3) Perform exhaust gas measurement.

3.3.2. Retrofitted state

After the particulate filter has been installed, a technical service or approved testing body shall ensure that the following series of tests is carried out:

3.3.2.1. Lifetime test, state 1

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as PM_1) by conducting an RDE test with associated emissions measurement (referred to as PN_1).

3) Perform inner-city driving by accumulating on a roller bench by repeating NEDC (PART1) until the particulate filter has been exposed to 60 g of particles, with a minimum of 2 000 km of driving, or conduct RDE testing for urban and road driving. This may be calculated from the original type-approval certificate of the vehicle.

3.3.2.2. Lifetime test, state 2

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as PM_2) or by conducting an RDE test with associated emissions measurement (referred to as PN_2).

3) Perform inner-city driving by accumulating on the scroll field when repeating NEDC (PART1) until the particulate filter has been exposed to 60 g particles, with a minimum of 2 000 km of driving. The total distance shall be a minimum of 4 000 km or RDE testing shall be conducted for urban and road driving. This may be calculated from the original type-approval certificate of the vehicle.

3.3.2.3. Lifetime test, state 3

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as PM_3) or by conducting an RDE test with associated emissions measurement (referred to as PN_3).

3) Perform exhaust gas measurement.

3.3.2.4. Lifetime test “worst case scenario” regeneration.

In order to ensure thermal stability of the particulate filter when installed in the vehicle, a “worst case scenario” regeneration test must be carried out after a minimum of 4 000 km lifetime test. The test must be carried out as follows:

1) The regeneration test is started with the test vehicle installed on the dynamometer and then rapidly changing the engine load from low to high.

2) After recording the initial reduction reaction of the soot particles, the vehicle is let to idle. The vehicle remains idling until all soot particles in the filter have been burned-off.

If, under the above operating conditions (cf. point 2.3.2.4) and in the following 10 minutes, temperatures above 600◦C do not occur, the ‘worst case scenario’ regeneration test may be completed.

In the case of vehicles with an engine power of more than 160 kW, regeneration may be initiated in on-road operation.

If a regeneration cannot be achieved from the above method, the particulate filter must be regenerated in accordance with the manufacturer’s instructions for vehicles in service.

After completion of the ‘worst case’ regeneration test, a technical service or approved testing body shall:

1) Condition the vehicle by running the second part of the NEDC cycle three times or by conducting the RDE test under road and motorway conditions for a minimum of 20 minutes.

2) Perform emission measurements 2-3 times NEDC (referred to as *PM₄*) or by conducting an RDE test with associated emissions measurement (referred to as *PN₄*).

The manufacturer of the particulate filter shall confirm that the exhaust temperatures achieved in the 'worst case' regeneration test are not critical for the durability of the particulate filter.

3.4. Criteria for acceptance of the particulate filter

In order for a technical service or approved testing body to declare that the particulate filter can be installed with the desired effect on a vehicle for which the particulate filter is to be approved, the following requirements shall be met:

3.4.1. Emission measurements

The degree of soot reduction must be at least 0.3 = 30% in the retrofitted state.

The reduction of soot [η] must be calculated as follows:

1) For tests conducted with NEDC:

$$\eta = 1 - \frac{PM_{total}}{PM_{før}} \text{ where } PM_{total} = \frac{f_a \cdot PM_1 + f_b \cdot PM_2 + f_c \cdot PM_3}{f_a + f_b + f_c} \text{ and } f_a = 1, f_b = 2, f_c = 4$$

2) For tests conducted with RDE:

$$\eta = 1 - \frac{PN_{total}}{PN_{før}} \text{ where } PN_{total} = \frac{f_a \cdot PN_1 + f_b \cdot PN_2 + f_c \cdot PN_3}{f_a + f_b + f_c} \text{ and } f_a = 1, f_b = 2, f_c = 4$$

total	total
før	before

The reduction rate of soot after the thermal stability test is calculated as follows:

1) For tests conducted with NEDC:

$$\eta_{efter} = 1 - \frac{PM_4}{PM_{før}}$$

efter	after
før	before

2) For tests conducted with RDE:

$$\eta_{efter} = 1 - \frac{PN_4}{PN_{før}}$$

efter	after
før	before

3.4.2. Stability of the particulate filter

The average of the measurement of the particulate filter system stabilisation must be calculated as follows:

1) For tests conducted with NEDC:

$$PM_4 = 1.15 \cdot PM_{total}$$

2) For tests conducted with RDE:

$$PM_4 = 1.15 \cdot PM_{total}$$

The average of the post-system stabilisation measurements may not differ by more than 15% from the measurements carried out before system stabilisation.

3.4.3. Fuel consumption

The average fuel consumption in the retrofitted state may not exceed the original state fuel consumption by more than 4%.

3.4.4. Other regulated emissions

The other emissions regulated in the original state shall not increase in the retrofitted state.

3.4.5. Noise

The system may not cause the vehicle to make more noise than as originally approved.

If the particulate filter meets the criteria set out in points 3.4.1-3.4.5, the particulate filter may be deemed to be approved in accordance with the Order on exemption from particulate emissions tax upon retrofitting of particulate filters.

On the basis of this testing, documentation of compliance with the above requirements must be drawn up. The documentation shall be given a unique identification, such as a serial number. The unique identification must be considered as the approval number.

Annex 2

Declaration of compliance

It is hereby declared that the particulate filter is installed in accordance with the manufacturer's instructions in accordance with Section 7 of the Order on certain retrofitted particulate filters.

In addition, it is declared that the particulate filter is installed on the vehicle in continued compliance with point 7.04.001, sections 7.05 and 7.06 of the Order on detailed requirements for vehicles' layout, equipment and use.

This declaration concerns the following vehicle:

Make and Model:

_____

Chassis number:

_____

This declaration is filled out and signed by:

Name or company name:

_____

CPR or CVR number:

_____

Address:

_____

The installation of the following particulate filter:

Type and model:

_____

Approval number (and any KBA number):

_____

Technical service or approved testing body:

_____

If the particulate filter has an original approval, the declaration of conformity shall state the KBA number of the original approval.

Date and signature of the particulate filter installer (or their representative):

In order for the approval to be registered in the national vehicle register, the vehicle must be inspected by a testing centre.

Following inspection, the testing centre enters the following in DMR. YES for “Retrofitted particulate filter” and YES for “Particulate filter”. In addition, the change is registered as a “Constructive change” under documentation reference: ‘Van N1, passenger car M1 or large passenger car M2 with installed particulate filters’. As documentation of the constructive change, this declaration is uploaded to the document portal.